FAYETTE COUNTY
HAZARD MITIGATION ACTION PLAN

UPDATE 2023

October 3, 2023 - October 2, 2028

Maintaining a Safe, Secure, and Sustainable Community

H2O PARTNERS

U.S. Department of Homeland Security
FEMA Region 6
800 N. Loop 288
Denton, TX 76209

FEMA

November 27, 2023

Josh Davies, State Hazard Mitigation Officer
Texas Division of Emergency Management
P.O. Box 285
Del Valle, Texas 78617-9998

RE: Additional Approval to the Fayette County, Texas Multi-Jurisdiction Hazard Mitigation Plan

Dear Mr. Davies:

This office has concluded its review of the referenced plan, in conformance with the Final Rule on Mitigation Planning (44 CFR § 201.6). We are pleased to provide our approval of this new jurisdiction in meeting the criteria set forth by this Agency. By receiving this approval, the additional adopting jurisdictions, as well as the attached list of approved plan participants, retain eligibility for the Hazard Mitigation Assistance grants. This five-year period is concurrent with the original approval of this plan, which was issued on October 3, 2023 and will expire on October 2, 2028.

This approval does not demonstrate approval of projects contained in the plan. This office has provided the enclosed Local Hazard Mitigation Planning Tool with reviewer's comments, to further assist the community in refining the plan going forward. Please advise the referenced participants of this approval.

If you have any questions, please contact David Freeborn, HM Community Planner, at
(940) 898-5323.

Sincerely,

Ronald C. Wanhanen
Chief, Risk Analysis Branch

Enclosures: Approved Participants

Approved Participants

Attached is the list of approved participating governments included in the November 27, 2023 review of the referenced Hazard Mitigation plan.

	Community Name
1)	**Carmine city**
2)	**Ellinger city**
3)	Fayette County
4)	**Fayetteville city**
5)	**Fayetteville Independent School District**
6)	**Flatonia Independent School District**
7)	**Flatonia town**
8)	**La Grange city**
9)	**Round Top-Carmine Independent School District**
10)	**Round Top town**
11)	**Schulenburg city**
12)	**Schulenburg Independent School District**

For more information, visit our website at:

https://www.co.fayette.tx.us

Written comments should be forwarded to:

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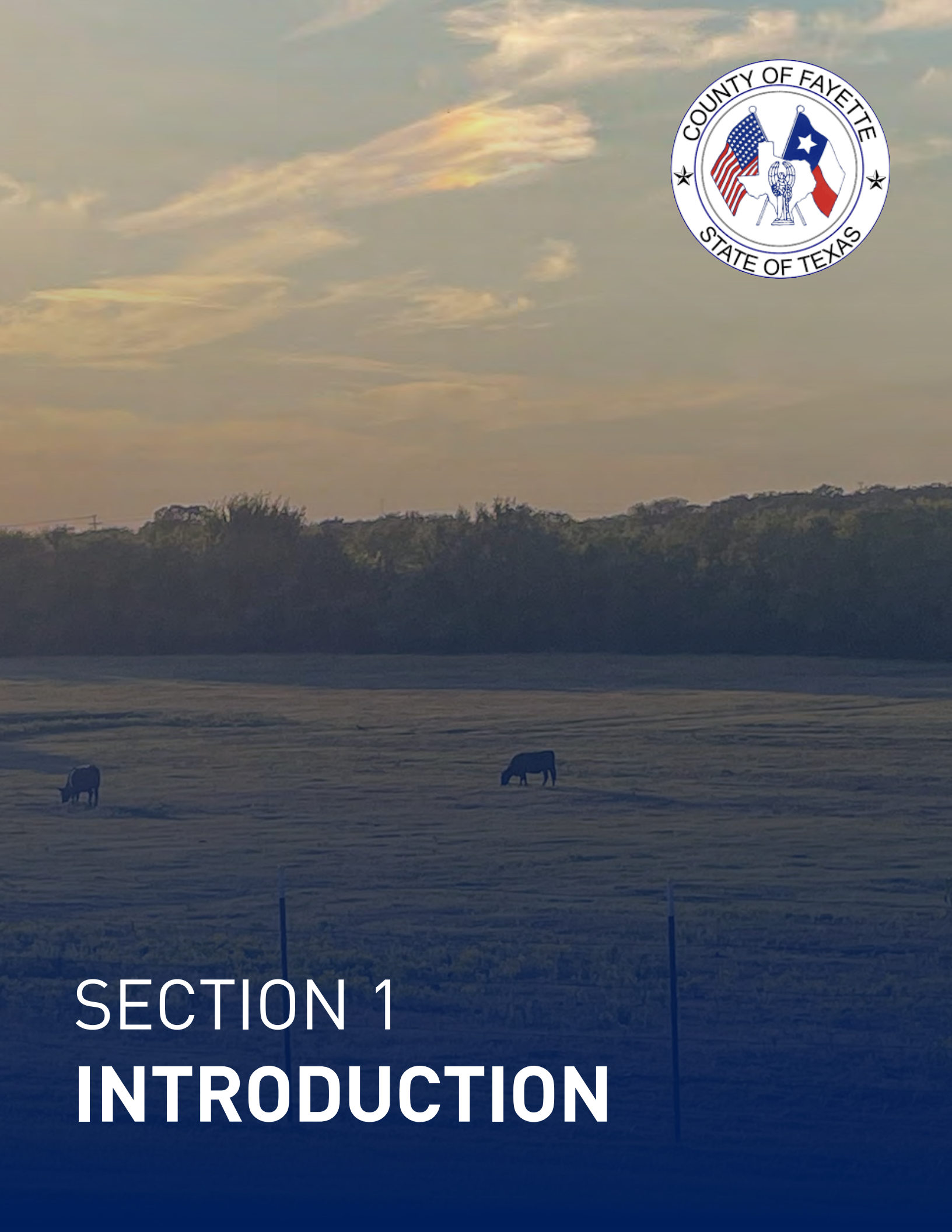

SECTION 1

INTRODUCTION

SECTION 1: INTRODUCTION

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BACKGROUND

Fayette County is in north Texas, approximately 60 miles southeast of Austin. The Colorado River bisects the county from the northwest to southeast. Caldwell County is adjacent to the west, Gonzales County borders the southwest portion of the county, Lavaca County is adjacent south, Colorado County is adjacent to the southeast, Austin County is adjacent east of the county, Washington County is adjacent to the northeast, Lee County is located to the north, and Bastrop County is adjacent to the northwest of Fayette County.

Texas is prone to extremely heavy rains and flooding with half of the world record rainfall rates (48 hours or less).[1] While flooding is a well-known risk, Fayette County is susceptible to a wide range of natural hazards, including but not limited to tornadoes, extreme heat, windstorms, and drought. These life-threatening hazards can destroy property, disrupt the economy, and lower the overall quality of life for individuals.

While it is impossible to prevent an event from occurring, the impacts from many hazards on people and property can be lessened through mitigation. The Federal Emergency Management Agency (FEMA) defines mitigation as *sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.*[2] Communities participate in hazard mitigation by developing hazard mitigation plans. The Texas Division of Emergency Management (TDEM) is required to review the plan and FEMA has the authority to review and approve hazard mitigation plans through the Disaster Mitigation Act of 2000.

The Disaster Mitigation Act requires that hazard mitigation plans be reviewed and revised every five years to maintain eligibility for Hazard Mitigation Assistance (HMA) grant funding. Originally, Fayette County and its communities participated in previous hazard mitigation plans as part of the Texas Colorado River Floodplain Coalition (TCRFC), which had plans approved in 2004 and 2011. In 2016, Fayette County developed their Hazard Mitigation Plan to be specific to the County and the following participating jurisdictions: City of Carmine, City of Flatonia, and City of La Grange. FEMA approved the Fayette County HMAP in 2016, which expired in 2021, therefore the County began the process of developing a Hazard Mitigation Plan Update in order to regain eligibility for grant funding. The HMAP Update planning process provided an opportunity for Fayette County to evaluate successful mitigation actions and explore opportunities to avoid future disaster loss.

Fayette County selected H2O Partners, Inc. to write and develop the 2023 HMAP Update, hereinafter titled: “Fayette County Hazard Mitigation Plan Update 2023: Maintaining a Safe, Secure, and Sustainable Community” (Plan or Plan Update). This is a multi-jurisdictional plan; the participating jurisdictions include: Fayette County, City of Carmine, City of Ellinger, City of

[1] http://www.floodsafety.com/texas/regional-info/san-antonio-flooding/
[2] http://www.fema.gov/hazard-mitigation-planning-resources

Fayetteville, City of Flatonia, City of La Grange, City of Round Top, City of Schulenburg, Fayetteville ISD, Flatonia ISD, La Grange ISD, Round Top - Carmine ISD, and Schulenburg ISD.

Hazard mitigation activities are 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. A comprehensive review of a hazard mitigation plan addresses vulnerabilities to hazards that exist today and in the foreseeable future. Therefore, it is essential that a plan identify projected patterns of how future development will increase or decrease a community's overall hazard vulnerability.

SCOPE

The focus of the Plan Update is to identify activities to mitigate hazards classified as "high" or "moderate" risk, as determined through a detailed hazard risk assessment conducted for Fayette County and the participating jurisdictions. The hazard classification enables the participating jurisdictions to prioritize mitigation actions based on hazards which can present the greatest risk to lives and property in the geographic scope.

PURPOSE

The Plan Update was prepared by Fayette County, participating jurisdictions, and H2O Partners, Inc. The purpose of the Plan Update is to protect people and structures and to minimize the costs of disaster response and recovery. The goal of the Plan Update is to minimize or eliminate long-term risks to human life, property, operations, and the environment from known hazards by identifying risks and implementing cost-effective hazard mitigation actions. The planning process is an opportunity for participating jurisdictions within Fayette County, stakeholders, and the general public to evaluate and develop successful hazard mitigation actions to reduce future risk of loss of life and damage to property resulting from a disaster in Fayette County.

The Mission Statement of the Plan Update is, "*Maintaining a secure and sustainable future through the revision and development of targeted hazard mitigation actions to protect life and property.*"

Participating jurisdictions within Fayette County, and planning participants identified twelve natural hazards to be addressed by the Plan Update. The specific goals of the Plan Update are to:

- Provide a comprehensive update to the 2016 HMAP;
- Minimize disruption to participating jurisdictions within Fayette County following a disaster;
- Streamline disaster recovery by articulating actions to be taken before a disaster strikes to reduce or eliminate future damage;
- Demonstrate a firm local commitment to hazard mitigation principles;
- Serve as a basis for future funding that may become available through grants and technical assistance programs offered by the State or Federal government. The Plan will enable participating jurisdictions within Fayette County to take advantage of rapidly developing mitigation grant opportunities as they arise; and
- Ensure that participating jurisdictions within Fayette County maintain eligibility for the full range of future Federal disaster relief.

SECTION 1: INTRODUCTION

AUTHORITY

The Plan is tailored specifically for participating jurisdictions within Fayette County and plan participants including Planning Team members, stakeholders, and the general public who participated in the Plan Update development process. The Plan complies with all requirements promulgated by the Texas Division of Emergency Management (TDEM) and all applicable provisions of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390), and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Additionally, the Plan complies with the Interim Final Rules for the Hazard Mitigation Planning and Hazard Mitigation Grant Program (44 CFR, Part 201), which specify the criteria for approval of mitigation plans required in Section 322 of the DMA 2000 and standards found in FEMA's "Local Mitigation Policy Guide" (Effective April 19, 2023), and the "Local Mitigation Planning Handbook" (March 2013). Additionally, the Plan is developed in accordance with FEMA's Community Rating System (CRS) Floodplain Management Plan standards and policies.

SUMMARY OF SECTIONS

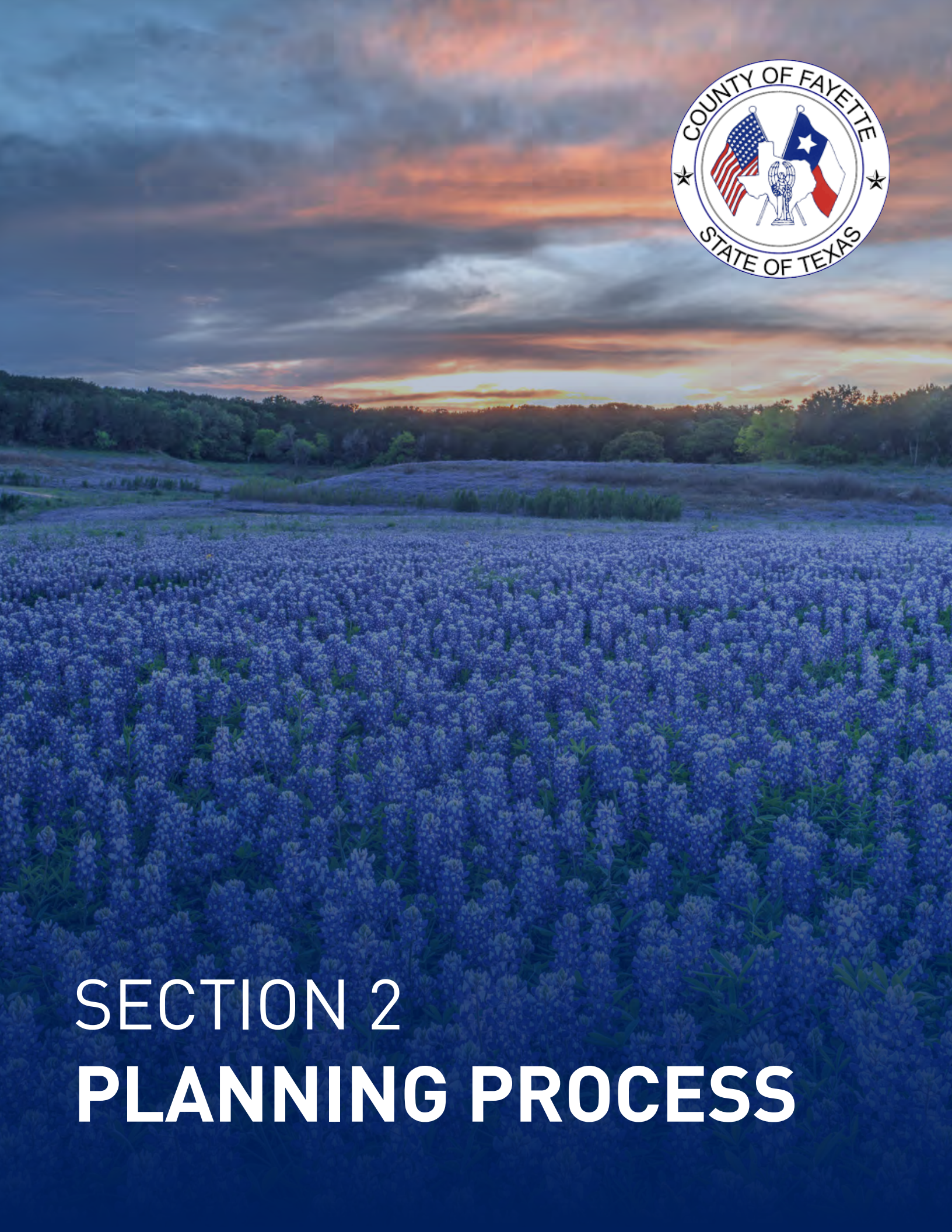
Sections 1 and 2 of the Plan Update outline the Plan's purpose and development, including how Planning Team members, stakeholders, and members of the general public were involved in the planning process. Section 3 profiles Fayette County's population and economy.

Sections 4 through 16 present a hazard overview and information on individual natural hazards in the planning area. The hazards generally appear in order of priority based on potential losses to life and property, and other community concerns. For each hazard, the Plan Update presents a description of the hazard, a list of historical hazard events, and the results of the vulnerability and risk assessment process.

Section 17 presents hazard mitigation goals and objectives. Section 18 gives an analysis for the previous actions and Section 19 presents hazard mitigation actions for Fayette County and the participating jurisdictions. Section 20 identifies Plan maintenance mechanisms.

The list of planning team members and stakeholders is located in Appendix A. Public survey results are analyzed and presented in Appendix B. Appendix C contains a detailed list of critical facilities for the area. Appendix D contains information regarding Dam locations within Fayette County. Appendix E contains information regarding workshops and meeting documentation. Capability Assessment results for participating jurisdictions within Fayette County are in Appendix F. Appendix G includes State and Federal Funding Opportunities.[3]

[3] Information contained in some of these appendices are exempt from public release under the Freedom of Information Act (FOIA).



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SECTION 2: PLANNING PROCESS

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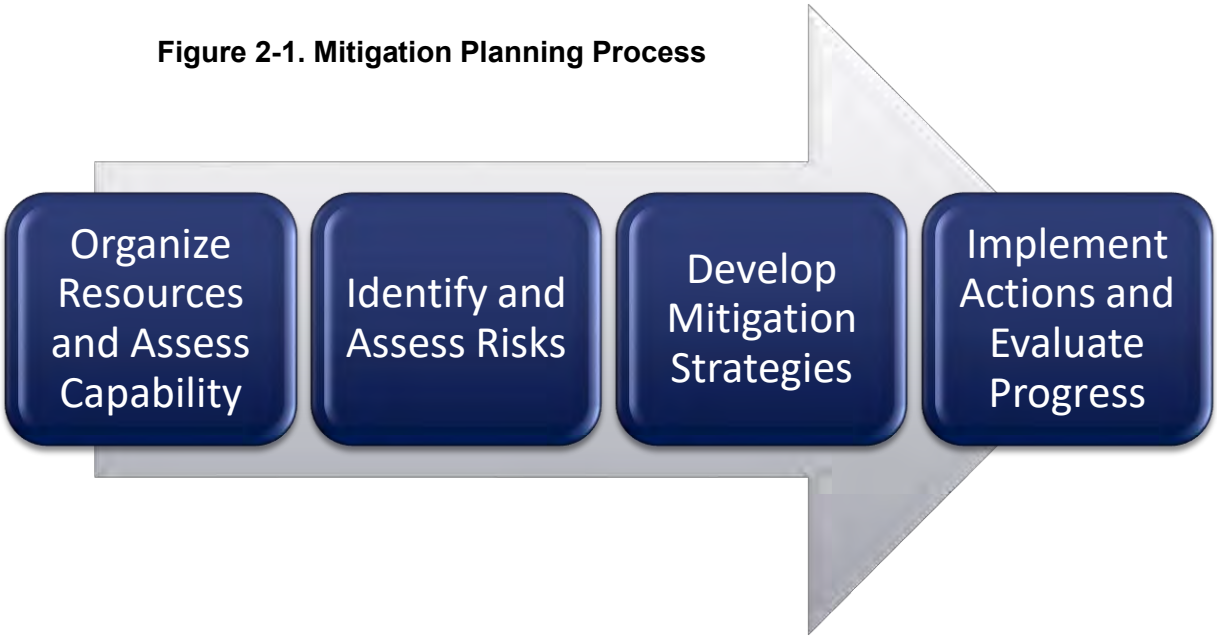
PLAN PREPARATION AND DEVELOPMENT

Hazard mitigation planning involves coordination with various constituents and stakeholders to develop a more disaster-resistant community. Section 2 provides an overview of the planning process including the identification of key steps and a detailed description of how stakeholders and the public were involved.

OVERVIEW OF THE PLAN

Fayette County hired H2O Partners, Inc. (Consultant Team), to provide technical support and oversee the development of the Fayette County Hazard Mitigation Action Plan Update 2023. The Consultant Team used the FEMA "Local Mitigation Planning Policy Guide" (effective April 19, 2023), and the "Local Mitigation Planning Handbook" (March 2013) to develop the Plan Update. The overall planning process is shown in Figure 2-1 below.

Figure 2-1. Mitigation Planning Process



Fayette County, participating jurisdictions, and the Consultant Team met in October 2022 to begin organizing resources, identify Planning Team members, and conduct a Capability Assessment.

PLANNING TEAM

Key members of H2O Partners, Inc. developed the Plan Update in conjunction with the Planning Team. The Planning Team was established using a direct representation model. Some of the responsibilities of the Planning Team included: completing Capability Assessment surveys, providing input regarding the identification of hazards, identifying mitigation goals, and developing mitigation strategies. An Executive Planning Team consisting of key personnel involved in hazard mitigation activities from each of the participating jurisdictions within Fayette County, shown in Table 2-1, was formed to coordinate planning efforts and request input and participation in the planning process. Table 2-2 reflects the Advisory Planning Team, consisting of additional representatives from area organizations and departments from the participating jurisdictions within Fayette County that participated throughout the planning process. All Executive and Advisory Planning Team members are involved in hazard mitigation activities; those with the authority to regulate development are identified with an asterisk next to their title.

Table 2-1. Executive Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Fayette County	Emergency Management Coordinator
City of Carmine	City Secretary*
City of Ellinger	Mayor*
City of Fayetteville	Mayor*
City of Flatonia	City Manager*
City of La Grange	Fire Chief

ORGANIZATION / DEPARTMENT	TITLE
City of Round Top	Mayor*
City of Schulenburg	City Administrator*
Fayetteville ISD	Superintendent*
Flatonia ISD	Superintendent*
La Grange ISD	Director of Operations
Round Top – Carmine ISD	Superintendent*
Schulenburg ISD	Superintendent*

Table 2-2. Advisory Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Fayette County	County Auditor
Fayette County	County Code Enforcement and Permitting*
Fayette County	County Commissioner, Precinct 4*
Fayette County	County Court Commissioner*
Fayette County	County Judge*
Fayette County	EMC / Grant Administrator
Fayette County	Emergency Medical Service Director
Fayette County	Floodplain Administrator*
Fayette County	GIS Administrator
Fayette County	Sergeant
Fayette County	Sheriff
City of Carmine	City Attorney
City of Carmine	Mayor*
City of Ellinger	Commissioner*
City of Fayetteville	City Secretary*
City of Fayetteville	Fire Chief
City of Flatonia	Assistant Fire Chief
City of Flatonia	Chief of Police

ORGANIZATION / DEPARTMENT	TITLE
City of Flatonia	City Secretary*
City of Flatonia	Fire Chief
City of Flatonia	Mayor*
City of La Grange	Chief of Police
City of La Grange	City Secretary*
City of La Grange	Mayor*
City of Round Top	Fire Chief
City of Round Top	Mayor*
City of Schulenburg	Chief of Police
City of Schulenburg	City Secretary*
City of Schulenburg	City Clerk
City of Schulenburg	Fire Chief
Fayetteville ISD	Assistant Superintendent*
Fayetteville ISD	Maintenance Director
Flatonia ISD	Assistant to the Superintendent
La Grange ISD	Assistant Superintendent*
La Grange ISD	Superintendent*
Round Top – Carmine ISD	Administrative Secretary
Schulenburg ISD	Administrative Secretary
Schulenburg ISD	Maintenance

Additionally, a Stakeholder Group was invited via email to participate in the planning process by attending meetings, commenting on draft versions of the plan, and/or by providing data to inform the planning process. The Consultant Team, Planning Teams, and Stakeholder Group coordinated to identify mitigation goals, and develop mitigation strategies and actions for the Plan. Appendix A provides a complete listing of all participating Planning Team members and stakeholders from participating jurisdictions within Fayette County by organization and title. Stakeholder involvement is discussed further below.

Based on results of completed Capability Assessment, participating jurisdictions within Fayette County described methods for achieving future hazard mitigation measures by expanding existing capabilities. For example, each jurisdiction has an opportunity to identify opportunities for cross-training or increasing the technical expertise of staff by attending free training available through

FEMA and the Texas Division of Emergency Management (TDEM) by monitoring classes and availability through preparingtexas.org. In addition, each jurisdiction can identify Planning Team members with the authority to monitor the Plan and identify grant funding opportunities for expanding staff. Other options for improving capabilities for each jurisdiction include the following:

Table 2-3 Opportunities for Improving and Expanding Existing Capabilities by Jurisdiction

JURISDICTION	OPPORTUNITIES
Fayette County	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes. • Developing land use and building ordinances that will require all new developments to confirm to the highest mitigation standards.
City of Carmine	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes. • Developing land use and building ordinances that will require all new developments to confirm to the highest mitigation standards.
City of Ellinger	• Integrate risk information from HMAP into future updates to Comprehensive Plan. • Developing land use and building ordinances that will require all new developments to confirm to the highest mitigation standards.
City of Fayetteville	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.
City of Flatonia	• Integrate risk information from HMAP into future updates to Capital Improvement Plan. • Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.
City of La Grange	• Integrate risk information from HMAP into future updates to Comprehensive Plan. • Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.
City of Round Top	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.
City of Schulenburg	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.
Fayetteville ISD	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP.

JURISDICTION	OPPORTUNITIES
	• Develop an all-hazards outreach program in coordination with Fayette County, City of Fayetteville and other ISDs in the County.
Flatonia ISD	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Develop an all-hazards outreach program in coordination with Fayette County, City of Flatonia and other ISDs in the County.
La Grange ISD	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Develop an all-hazards outreach program in coordination with Fayette County, City of La Grange and other ISDs in the County.
Round Top – Carmine ISD	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Develop an all-hazards outreach program in coordination with Fayette County, Cities of Carmine and Round Top, and other ISDs in the County.
Schulenburg ISD	• Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP. • Develop an all-hazards outreach program in coordination with Fayette County, City of Schulenburg and other ISDs in the County.

Sample hazard mitigation actions developed with similar hazard risk were shared at the meetings. These important discussions resulted in the development of multiple mitigation actions that are included in the Plan Update to further mitigate risk from natural hazards in the future.

The Planning Team developed hazard mitigation actions for mitigating risk from all of the hazards including potential tornado, drought, and extreme heat events. These actions include but are not limited to installing generators at critical facilities, developing a Community Wildfire Protection Plan (CWPP), and educating citizens to practice hazard mitigation techniques.

PLANNING PROCESS

The process used to prepare the Plan Update followed the four major steps included at Figure 2-1. After the Planning Team was organized, a capability assessment was developed and distributed at the Kick-Off Workshop. Hazards were identified and assessed, and results associated with each of the hazards were provided at the Risk Assessment Workshop. Based on Fayette County's identified vulnerabilities, specific mitigation strategies were discussed and developed at the Mitigation Strategy Workshop. Finally, Plan maintenance and implementation procedures were developed and are included in Section 20. Participation of Planning Team members, stakeholders, and the public at each of the workshops is documented in Appendix E.

At the Plan development workshops held throughout the planning process described herein, the following factors were taken into consideration:

- The nature and magnitude of risks currently affecting the community;
- Hazard mitigation goals to address current and expected conditions;
- Whether current resources will be sufficient for implementing the Plan Update;
- Implementation problems, such as technical, political, legal, and coordination issues that may hinder development;

- Anticipated outcomes; and
- How participating jurisdictions within Fayette County, agencies, and partners will participate in implementing the Plan Update.

KICKOFF WORKSHOP

The Kickoff Workshop was held on October 24, 2022, at Fayette County EMS Station in the City of La Grange. The initial workshop informed participating officials and key department personnel about how the planning process pertained to their distinct roles and responsibilities and engaged stakeholder groups that focus on vulnerable populations and underserved communities including, but not limited to Fayette County Groundwater Conservation District, Lower Colorado River Authority, local VFDs, local medical partners, and surrounding counties. In addition to the kickoff presentation, participants received the following information:

- Project overview regarding the planning process;
- Public survey access information;
- Hazard Ranking form; and
- Capability Assessment survey for completion.

A risk ranking exercise was conducted at the Kickoff Workshop to get input from the Planning Team and stakeholders pertaining to various risks from a list of natural hazards affecting the planning area. Participants ranked hazards high to low in terms of perceived level of risk, frequency of occurrence, and potential impact.

HAZARD IDENTIFICATION

At the Kickoff Workshop, and through e-mail and phone correspondence, the Planning Team conducted preliminary hazard identification. The Planning Team in coordination with the Consultant Team reviewed and considered a full range of natural hazards. Once identified, the teams narrowed the list to significant hazards by reviewing hazards affecting the area, the 2018 State of Texas Hazard Mitigation Plan, and initial study results from reputable sources such as federal and state agencies. Based on this initial analysis, the teams identified a total of twelve natural hazards which pose a significant threat to the planning area.

RISK ASSESSMENT

An initial risk assessment for participating jurisdictions within Fayette County was completed in December 2022 and results were presented to Planning Team members at the Risk Assessment Workshop held on January 4, 2023, at Fayette County EMS in the City of La Grange. At the workshop, the characteristics and consequences of each hazard were evaluated to determine the extent to which the planning area would be affected in terms of potential danger to property and citizens.

Property and crop damages were estimated by gathering data from the National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA). The assessment also examined the impact of various hazards on the built environment, including general building stock, critical facilities, lifelines, and infrastructure. The resulting risk assessment profiled hazard events provided information on previous occurrences, estimated probability of future events, and detailed the spatial extent and magnitude of impact on people and property. Each participant at the Risk Assessment Workshop was provided a risk ranking sheet that asked participants to rank hazards in terms of the probability or frequency of

occurrence, extent of spatial impact, and the magnitude of impact. The results of the ranking sheets identified unique perspectives on varied risks throughout the planning area.

The assessments were also used to set priorities for hazard mitigation actions based on potential loss of lives and dollar losses. A hazard profile and vulnerability analysis for each of the hazards can be found in Sections 4 through 16.

MITIGATION REVIEW AND DEVELOPMENT

Developing the Mitigation Strategy for the Plan involved identifying mitigation goals and new mitigation actions. A Mitigation Workshop was held on February 9, 2023, at Fayette County EMS in the City of La Grange. In addition to the Planning Team, stakeholder groups were invited to attend the workshop. Regarding hazard mitigation actions, workshop participants emphasized the desire for tornado and winter storm projects. Additionally, the participating jurisdictions were proactive in identifying mitigation actions to lessen the risk of all the identified hazards included in the Plan Update.

An inclusive and structured process was used to develop and prioritize new hazard mitigation actions for the Plan Update. The prioritization method was based on FEMA's STAPLE+E criteria and included social, technical, administrative, political, legal, economic, and environmental considerations. As a result, each Planning Team Member assigned an overall priority to each hazard mitigation action. The overall priority of each action is reflected in the hazard mitigation actions found in Section 19.

Planning Team Members then developed action plans identifying proposed actions, costs and benefits, the responsible organization(s), effects on new and existing buildings, implementation schedules, priorities, and potential funding sources.

Specifically, the process involved:

- Listing optional hazard mitigation actions based on information collected from previous plan reviews, studies, and interviews with federal, state, and local officials. Workshop participants reviewed the optional mitigation actions and selected actions that were most applicable to their area of responsibility, cost-effective in reducing risk, easily implemented, and likely to receive institutional and community support.
- Workshop participants inventoried federal and state funding sources that could assist in implementing the proposed hazard mitigation actions. Information was collected, including the program name, authority, purpose of the program, types of assistance and eligible projects, conditions on funding, types of hazards covered, matching requirements, application deadlines, and a point of contact.
- Planning Team Members considered the benefits that would result from implementing the hazard mitigation actions compared to the cost of those projects. Although detailed cost-benefit analyses were beyond the scope of the Plan Update, Planning Team Members utilized economic evaluation as a determining factor between hazard mitigation actions.
- Planning Team Members then selected and prioritized mitigation actions.

Hazard mitigation actions identified in the process were made available to the Planning Team for review. The draft Plan Update was maintained on file by Fayette County and participating jurisdictions and was made available to the general public for review.

REVIEW AND INCORPORATION OF EXISTING PLANS

REVIEW

Background information utilized during the planning process included various studies, plans, reports, and technical information from sources such as FEMA, the United States Army Corps of Engineers (USACE), the U.S. Fire Administration, National Oceanic and Atmospheric Administration (NOAA), the Texas Water Development Board (TWDB), the Texas Commission on Environmental Quality (TCEQ), the Texas State Data Center, Texas Forest Service, the Texas Division of Emergency Management (TDEM), and local hazard assessments and plans. Section 4 and the hazard-specific sections of the Plan (Sections 5-16) summarize the relevant background information.

Specific background documents, including those from FEMA, provided information on hazard risk, hazard mitigation actions currently being implemented, and potential mitigation actions. Previous hazard events, occurrences, and descriptions were identified through NOAA's National Centers for Environmental Information (NCEI). Results of past hazard events were found through searching the NCEI. The USACE studies were reviewed for their assessment of risk and potential projects in the region. Information from the State Demographer was reviewed for population and other projections and included in Section 3 of the Plan. Data from the Texas Forest Service was used to appropriately rank the wildfire hazard, and to help identify potential grant opportunities. Materials from FEMA and TDEM were reviewed for guidance on Plan Update development requirements.

INCORPORATION OF EXISTING PLANS INTO THE HMAP PROCESS

A Capability Assessment was completed by key departments from the participating jurisdictions within Fayette County which provided information pertaining to existing plans, policies, ordinances, and regulations to be integrated into the goals and objectives of the Plan Update. The relevant information was included in a master Capability Assessment, Appendix F.

Existing projects and studies were utilized as a starting point for discussing hazard mitigation actions among Planning and Consultant Team members. For example, Fayette County has completed several actions, including establishing a voluntary buy-out program within the Frush Auf floodplain, adopting higher NFIP requirements within their 2017 Flood Prevention Ordinance and through mutual aid agreements to enhance emergency response efforts. The City of Carmine adopted the 2015 International Building Codes and subdivision regulations in 2022 as well as incorporated flood mitigation actions as recommended during the evaluation of their floodplain ordinance after a significant flooding event in 2015.

Additionally, policies and ordinances were reviewed by several of the participating jurisdictions. These jurisdictions have included actions to develop and adopt higher building code standards. Other plans were reviewed, such as Capital Improvement Plans and Emergency Operations Plan, to identify any additional mitigation actions. Finally, the 2018 State of Texas Hazard Mitigation Plan, developed by TDEM, was discussed in the initial planning meeting in order to develop a specific group of hazards to address in the planning effort. The 2018 State Plan was also used as a guidance document, along with FEMA materials, in the development of the Fayette County Hazard Mitigation Action Plan Update 2023.

INCORPORATION OF THE HMAP INTO OTHER PLANNING MECHANISMS

Planning Team members will integrate implementation of the Plan Update with other planning mechanisms for Fayette County, such as the Emergency Operations Plan. Existing plans for participating jurisdictions will be reviewed and incorporated into the Plan Update, as appropriate. This section discusses how the Plan will be implemented by the participating jurisdictions within Fayette County. It also addresses how the Plan will be evaluated and improved over time, and how the public will continue to be involved in the hazard mitigation planning process.

Participating jurisdictions within Fayette County will be responsible for implementing hazard mitigation actions contained in Section 19. Each hazard mitigation action has been assigned to a specific County, City, or ISD department that is responsible for tracking and implementing the action.

A funding source has been listed for each identified hazard mitigation action and may be utilized to implement the action. An implementation time period has also been assigned to each hazard mitigation action as an incentive and to determine whether actions are implemented on a timely basis.

Participating jurisdictions within Fayette County will integrate hazard mitigation actions contained in the Plan Update with existing planning mechanisms such as ordinances, Emergency Operations or Management Plans, and other local and area planning efforts. Fayette County will work closely with area organizations to coordinate implementation of hazard mitigation actions that benefit the planning area in terms of financial and economic impact.

Upon formal adoption of the Plan Update, Planning Team members from the participating jurisdictions will review existing plans along with building codes to guide development and ensure that hazard mitigation actions are implemented. Each of the jurisdictions will be responsible for coordinating periodic review of the Plan Update with members of the Advisory Planning Team to ensure integration of hazard mitigation strategies into these planning mechanisms and codes. The Planning Team will also conduct periodic reviews of various existing planning mechanisms and analyze the need for any revisions or updates in light of the approved Plan Update. Participating jurisdictions within Fayette County will ensure that future long-term planning objectives will contribute to the goals of the Plan to reduce the long-term risk to life and property from moderate and high-risk hazards. Within one year of formal adoption of the Plan, existing planning mechanisms will be reviewed and analyzed as they pertain to the Plan Update.

Planning Team members will review and revise, as necessary, the long-range goals and objectives in its strategic plan and budgets to ensure that they are consistent with the Plan Update.

Furthermore, Fayette County will work with neighboring jurisdictions to advance the goals of the Plan Update as it applies to ongoing, long-range planning goals and actions for mitigating risk to natural hazards throughout the planning area.

Table 2-4 identifies types of planning mechanisms and examples of methods for incorporating the Plan into other planning efforts.

Table 2-4. Examples of Methods of Incorporation

Planning Mechanism	Incorporation of Plan
Annual Budget Review	Various departments and key personnel that participated in the planning process for participating jurisdictions within Fayette County will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.
Capital Improvement Plans	Several participating jurisdictions within Fayette County have a Capital Improvement Plan (CIP) in place or under development. Prior to any revisions to the CIP, City and ISD departments will review the risk assessment and mitigation strategy sections of the HMAP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Comprehensive Plans	Several participating jurisdictions within Fayette County have Long-term Comprehensive Development Plans in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.
Floodplain Management Plans	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 5 of this Plan Update discussing the people and property at risk to flood will be reviewed and revised when participating jurisdictions within Fayette County update their management plans or develops new plans.
Grant Applications	The Plan will be evaluated by participating jurisdictions within Fayette County when grant funding is sought for mitigation projects. If a project is not in the Plan Update, a Plan Revision may be necessary to include the action in the Plan.
Regulatory Plans	Currently, several participating jurisdictions within Fayette County have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County, City, and ISD departments review or revise their current regulatory planning mechanisms, or in

Planning Mechanism	Incorporation of Plan
	the development of regulatory plans that are not currently in place.

Appendix F Capability Assessment provides an overview of Planning Team members' existing planning and regulatory capabilities. These existing capabilities provide the mechanisms to implement the mitigation strategy objectives. For example, the adoption of building codes and implementation of land use regulations have been demonstrated to help communities avoid losses from natural hazard events. The City of Carmine adopted the 2015 International Building Code, effective November 8, 2022. While Fayette County and the remaining participating jurisdictions have yet to formally adopt the 2015 IBC, the County recommends that builders follow IBC and NFPA codes.

It should be noted for the purposes of the Plan Update that the HMAP has been used as a reference when reviewing and updating all plans and ordinances for the entire planning area, including all participating jurisdictions. The Emergency Management Plans developed for Fayette County, City of Ellinger, City of Fayetteville, City of Flatonia, City of La Grange, City of Schulenburg, Fayetteville ISD, Flatonia ISD, La Grange ISD, Round Top - Carmine ISD, and Schulenburg ISD are updated every 5 years and incorporates goals, objectives and actions identified in the mitigation plan.

PLAN REVIEW AND PLAN UPDATE

As with the development of Plan Update, participating jurisdictions within Fayette County will oversee the review and update process for relevance and if necessary, make adjustments. At the beginning of each fiscal year, Planning Team Members will meet to evaluate the Plan and review other planning mechanisms to ensure consistency with long-range planning efforts. In addition, planning participants will also meet once a year, by conference call or presentation, to re-evaluate prioritization of the hazard mitigation actions.

TIMELINE FOR IMPLEMENTING MITIGATION ACTIONS

Both the Executive Planning Team (Table A-1, Appendix A) and the Advisory Planning Team (Table A-2, Appendix A) will engage in discussions regarding a timeframe for how and when to implement each hazard mitigation action. Considerations include when the action will be started, how existing planning mechanisms' timelines affect implementation, and when the action should be fully implemented. Timeframes may be general, and there will be short, medium, and long-term goals for implementation based on prioritization of each action, as identified on individual Hazard Mitigation Action worksheets included in the Plan Update for participating jurisdictions within Fayette County.

Both the Executive and Advisory Planning Team will evaluate and prioritize the most suitable hazard mitigation actions for the community to implement. The timeline for implementation of actions will partially be directed by participating jurisdictions' comprehensive planning process, budgetary constraints, and community needs. Participating jurisdictions within Fayette County are committed to addressing and implementing hazard mitigation actions that may be aligned with and integrated into the Plan Update.

Overall, the Planning Team is in agreement that goals and actions of the Plan Update shall be aligned with the timeframe for implementation of hazard mitigation actions with respect to annual review and updates of existing plans and policies.

PUBLIC AND STAKEHOLDER INVOLVEMENT

An important component of hazard mitigation planning is public participation and stakeholder involvement. Input from individual citizens and the community as a whole provides the Planning Team with a greater understanding of local concerns and increases the likelihood of successfully implemented hazard mitigation actions. If citizens and stakeholders, such as local businesses, non-profits, hospitals, and schools are involved, they are more likely to gain a greater appreciation of the risks that hazards may present in their community and take steps to reduce or mitigate their impact.

The public was involved in the development of the Fayette County Hazard Mitigation Action Plan Update 2023 at different stages prior to official Plan approval and adoption. Public input was sought using three methods: (1) open public meetings; (2) survey instruments; and (3) making the draft Plan Update available for public review on participating jurisdictions' websites.

The draft Plan Update was made available to the general public for review and comment on participating jurisdictions' websites. The public was notified at the public meetings that the draft Plan Update would be available for review. No feedback was received on the draft Plan Update, although it was given on the public survey, and all relevant information was incorporated into the Plan Update. Public input was utilized to assist in identifying hazards that were of most concern to the citizens of the County and what actions they felt should be included and prioritized.

The Plan Update will be advertised and posted on Fayette County and participating jurisdictions' websites upon approval from FEMA, and a copy will be kept at the Fayette County Courthouse.

STAKEHOLDER INVOLVEMENT

Stakeholder involvement is essential to hazard mitigation planning since a wide range of stakeholders can provide input on specific topics and from various points of view. Throughout the planning process, members of community groups, local businesses, neighboring jurisdictions, schools, and hospitals were invited to participate in development of the Plan Update. The Stakeholder Group (Table A-3 in Appendix A, and Table 2-5, below), included a broad range of representatives from both the public and private sector and served as a key component in Fayette County's outreach efforts for development of the Plan Update. Documentation of stakeholder meetings is found in Appendix E. A list of organizations invited to attend via email is found in Table 2-5.

Table 2-5. Stakeholder Working Group

AGENCY	TITLE	PARTICIPATED
American Red Cross	Community Preparedness	
Bastrop County	Emergency Management Coordinator	
Bluebonnet Trails Community Services	HR Director	
Caldwell County	Emergency Management Coordinator	

AGENCY	TITLE	PARTICIPATED
Capital Area Council of Governments	Director of Regional Planning & Services	
Capital Area Council of Governments	Regional Service Program Specialist	
Colorado County	Emergency Management Coordinator	
Combined Community Action (Meals on Wheels)	Executive Director	
Department of Homeland Security	General Contact	
Environmental Protection Agency Region 6	Regional Administrator	
Fayette Community Foundation	Executive Director	
Fayette County Groundwater Conservation District	General Manager	X
Fayette County Historical Commission	Commission Secretary	
Fayette Water Supply Corporation	General Manager	X
Fayette Regional Air Center	Airport Manager	
Feeding America – Central Texas Food Bank	PR Representative	
Gardenia E. Janseen Animal Shelter (Fayette Animal Shelter Foundation)	Executive Director	
Gonzales County	Emergency Management Coordinator	
Habitat for Humanity	Executive Director	
Lavaca County	Emergency Management Coordinator	
Lee County	Emergency Management Coordinator	
Lee-Fayette Counties Cummins Creek WCID #1	Administrative Assistant	
Lower Colorado River Authority	Representative	
NOAA	Chief of Police, Planning, & Communications	
Office of Rural and Community Affairs	Executive Director	
Stanzel Foundation	Executive Director	
Texas A&M AgriLife Extension	Fayette County Representative	X
Texas Commission on Environmental Quality (TCEQ), Region 11	Regional Director	

AGENCY	TITLE	PARTICIPATED
Texas Department of Emergency Management (TDEM), Region 12	District Representative	
Texas Department of Transportation	Assistance Maintenance Supervisor	X
Texas Department of Transportation	La Grange Office Representative	
Texas Department of Transportation	Maintenance Supervisor	X
Texas Forest Service	La Grange Office Mitigation & Prevention Coordinator	
Texas Health and Human Services Commission	Executive Director	
Texas House District 13	Legislative Representative	
Texas Parks & Wildlife (Texas Fish and Game)	Administrative Assistant	
Texas Senate District 18	Senator	
St. Marks Medical Center	General Contact	
U.S. Fish & Wildlife Service, Southwest Region	Public Affairs for Texas	
U.S. Army Corps of Engineers	Southwest Regional Representative	
Washington County	Emergency Management Services	

Stakeholders and participants from neighboring communities that attended the Planning Team and public meetings played a key role in the planning process. For example, high winds were one of the concerns to stakeholders, so the County included actions to update/upgrade current structures at three fairground locations to incorporate emergency shelter for animals and livestock during severe weather events. In addition, Fayette Water Supply Corporation focused their concerns on wildfire and drought conditions incorporating actions within Fayette County to enhance water supply by establishing additional booster plants and upgrading water lines.

PUBLIC MEETINGS

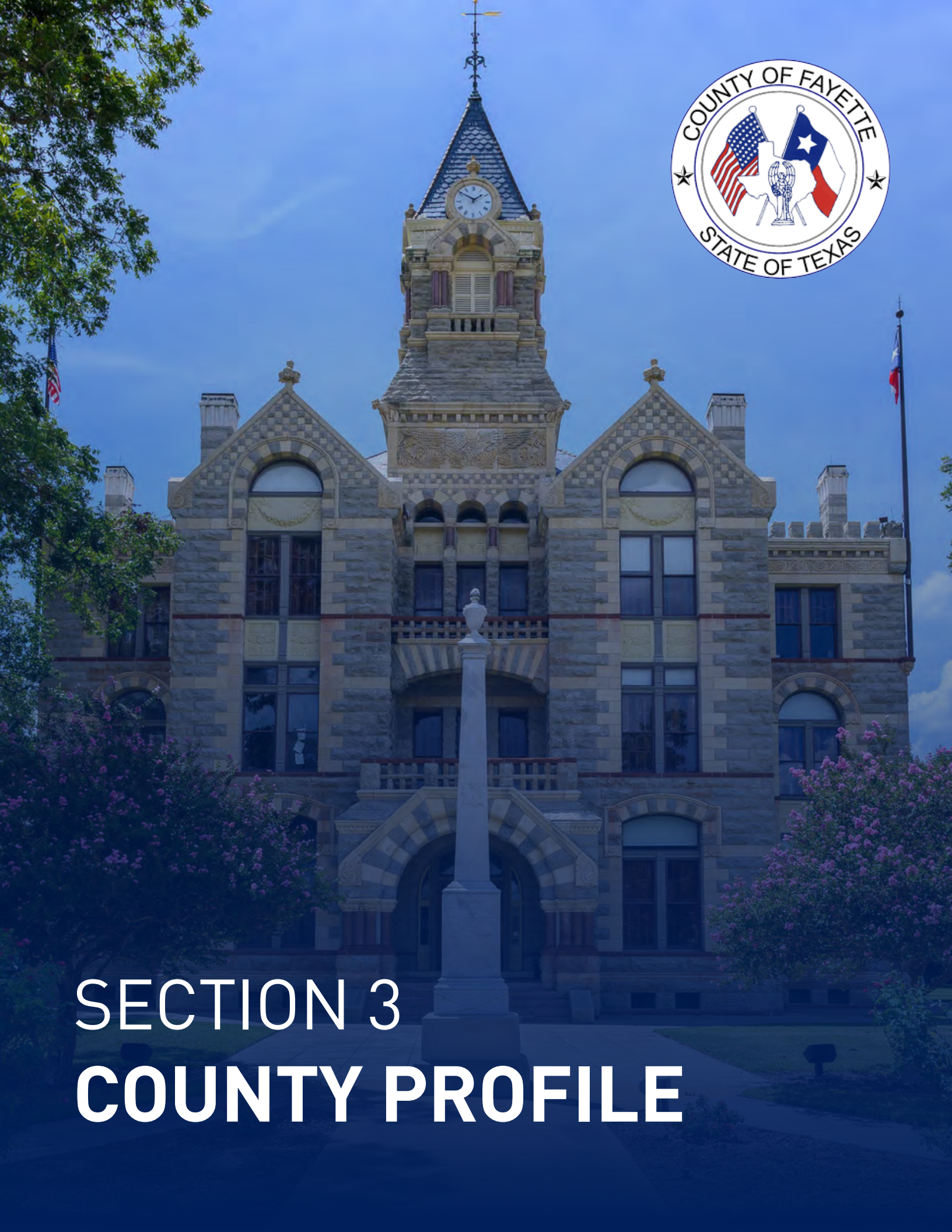
A series of public meetings were held throughout the planning area to collect public and stakeholder input. Topics of discussion included the purpose of hazard mitigation, discussion of the planning process, and types of natural hazards. Each participating jurisdiction within Fayette County released information regarding the public meetings in their area to increase public participation in the Plan Update development process, through posting on their website, on social media sources including Facebook and Twitter, through the local media, and/or posting the information on bulletin boards in public facilities. A sampling of these notices can be found in Appendix E, along with the documentation on the public meetings. Representatives from area neighborhood associations and area residents were invited to participate. All three public meetings were held at the Fayette County EMS Station.

Public meetings were held on the following dates:

- October 24, 2022, Fayette County EMS Station
- January 4, 2023, Fayette County EMS Station
- February 9, 2023, Fayette County EMS Station

PUBLIC PARTICIPATION SURVEY

In addition to public meetings, the Planning and Consultant Teams developed a public survey designed to solicit public input during the planning process from citizens and stakeholders and to obtain data regarding the identification of any potential hazard mitigation actions or problem areas. The survey was promoted by local officials and a link to the survey was posted on participating jurisdictions' websites. A total of 51 surveys were completed online. The survey results are analyzed in Appendix B. Participating jurisdictions within Fayette County reviewed the input from the surveys and decided which information to incorporate into the Plan as hazard mitigation actions. For example, results indicate that tornado and flood are the hazards of highest concern for the public, and community education and preparedness as well as drainage improvements were the actions indicated that the local government should take to mitigate risk to these hazards. As a result, the Planning Team has included mitigation actions related to public education around severe weather and tornado risk as well as identified specific areas for drainage improvements to mitigate flooding.



SECTION 3

COUNTY PROFILE

SECTION 3: COUNTY PROFILE

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Population and Demographics 4
ISD Population 5
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Natural, Cutlural, and HIstoric Resouces 11
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Future Growth and Development 15

OVERVIEW

Fayette County is located southeast of Austin and is comprised of 960 square miles of which all is land except for 10 square miles of water. It is located primarily within the Blackland Prairies region of south-central Texas. The Colorado River, which bisects the County from northwest to southeast, is fed by several major creeks: Rabb's, Cedar, and Baylor on the east, and Buckner's and Williams on the west. Cummins Creek flows through the eastern part of the County and the East and West Navidad Rivers flow through the southern part.

The County is about 45 miles long and 26 miles wide wherein the topography is nearly level to undulating; however, some areas are hilly and steep. The elevation ranges from 200 to 500 feet above sea level. The County has an average annual precipitation of thirty-six inches, temperatures ranging from an average low of 41°F in January to an average high of 96°F in July, and a growing season that averages 277 days a year.[1]

Fayette County was created from Bastrop and Colorado Counties in 1837. The seat of government for the county, the City of La Grange, was also designated the county seat of government during that time. During the 1980s and 1990s, the County's economic development was heavily reliant on its natural resources – notably, oil became a significant income source after its discovery in 1943. Agribusiness plays a major role in the county's economy.[2]

Fayette County has seven incorporated jurisdictions: Carmine, Ellinger, Fayetteville, Flatonia, La Grange, Round Top and Schulenburg.

Figure 3-1 shows the general location of Fayette County along with the Cities that are located within the County.

[1] Garrett, Daphne, Fayette County, Texas Almanac, May 28, 2021, https://www.texasalmanac.com/places/fayette-county

[2] Wikimedia Foundation. (2023, January 17). Fayette County, Texas. Wikipedia. Retrieved April 6, 2023, from https://en.wikipedia.org/wiki/Fayette_County,_Texas

Figure 3-1. Location of Fayette County

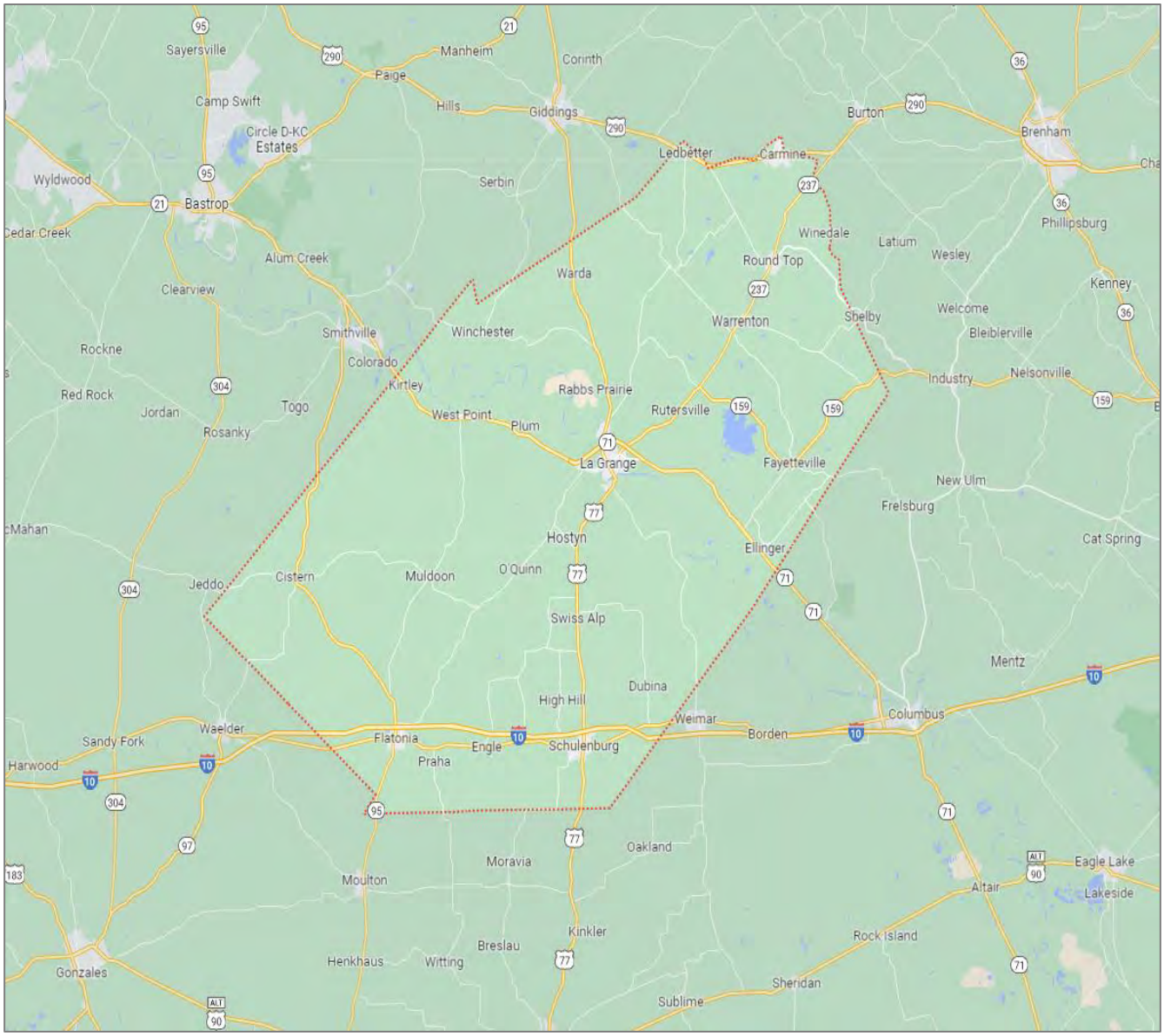
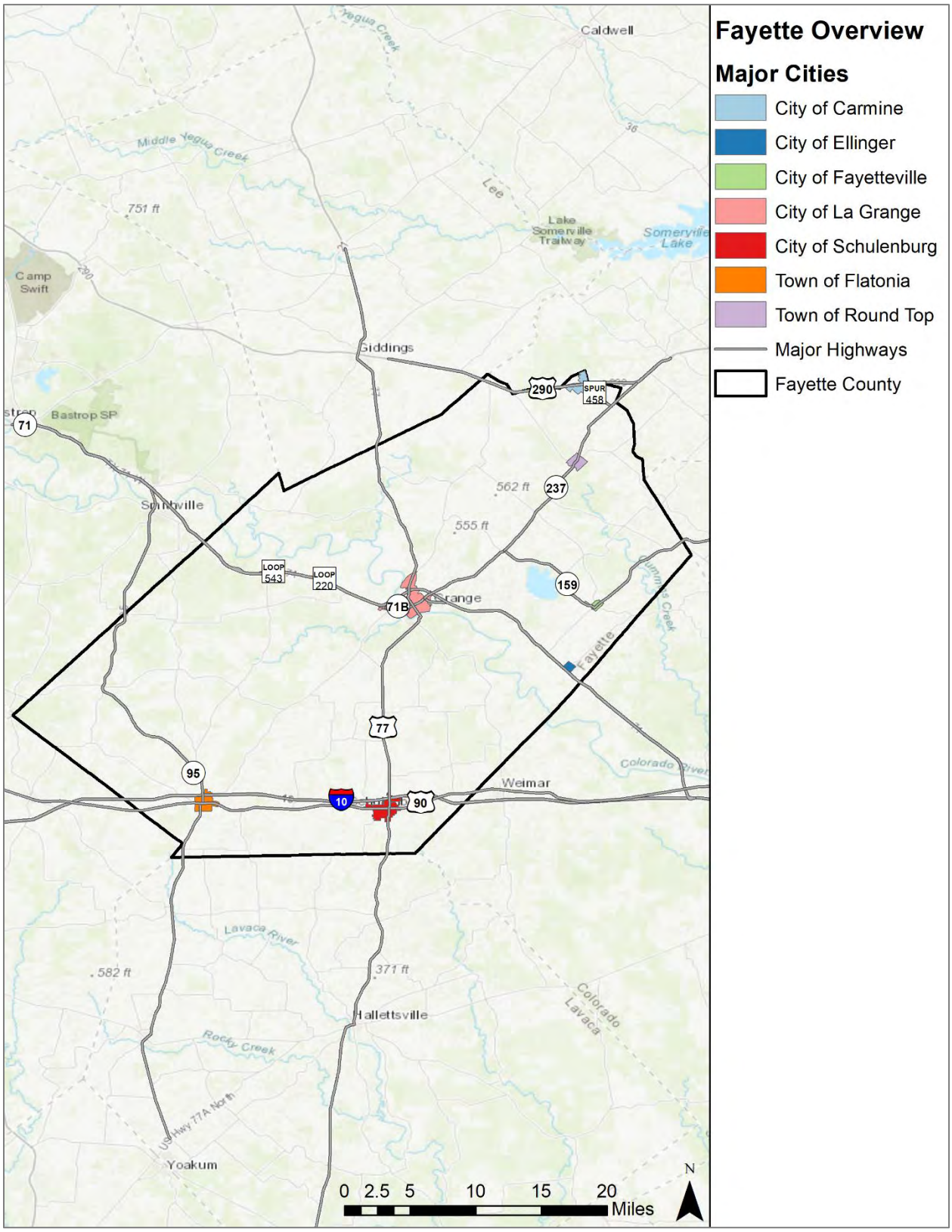


Figure 3-2 shows the participating Cities within Fayette County that are covered in the risk assessment analysis of the Plan Update. The participating Independent School Districts (ISDs) within Fayette County that are covered in the risk assessment analysis of the Plan Update can be seen in Figure 3-3.

Figure 3-2. Participating Cities within the Fayette County Planning Area



Provided in Table 3-1 above is a listing of the jurisdictions in Fayette County that participated in the Fayette County Hazard Mitigation Action Plan Update 2023.

Table 3-1. Participating Jurisdictions

PARTICIPATING JURISDICTIONS	
Fayette County	City of Schulenburg
City of Carmine	Fayetteville ISD
City of Ellinger	Flatonia ISD
City of Fayetteville	La Grange ISD
City of Flatonia	Round Top – Carmine ISD
City of La Grange	Schulenburg ISD
City of Round Top	

POPULATION AND DEMOGRAPHICS

According to the 2020 Census population count, Fayette County has an official population of 24,435 residents, a 0.48 percent decrease since the 2010 census. Table 3-2 summarizes select characteristics of vulnerable or sensitive populations in the Fayette County and the participating jurisdictions using data from the U.S. Census Bureau 2021 American Community Survey (ACS) five-year estimates. Note that in some cases the 2021 ACS estimates may differ from the 2020 Census counts; the ACS estimates are used throughout this section for consistency.[3]

Between official U.S. Census population counts, the estimate uses a formula based on new residential building permits and household size. It is simply an estimate and there are many variables involved in achieving an accurate estimation of people living in each area at a given time.

Table 3-2. Population Distribution by Jurisdiction

JURISDICTION	TOTAL 2020 POPULATION	TOTAL 2021 POPULATION	PERCENTAGE (based on 2021 Population)	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS[4]		
				Youth (Under 5)	Elderly (Over 65)	Below Poverty Level
City of Carmine	244	238	0.97%	4	73	7
City of Ellinger	203	175	0.72%	12	57	0
City of Fayetteville	246	312	1.28%	6	122	15

[3] Source: https://demographics.texas.gov/Data/Decennial/2010/, https://www.census.gov/en.html and https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2021/

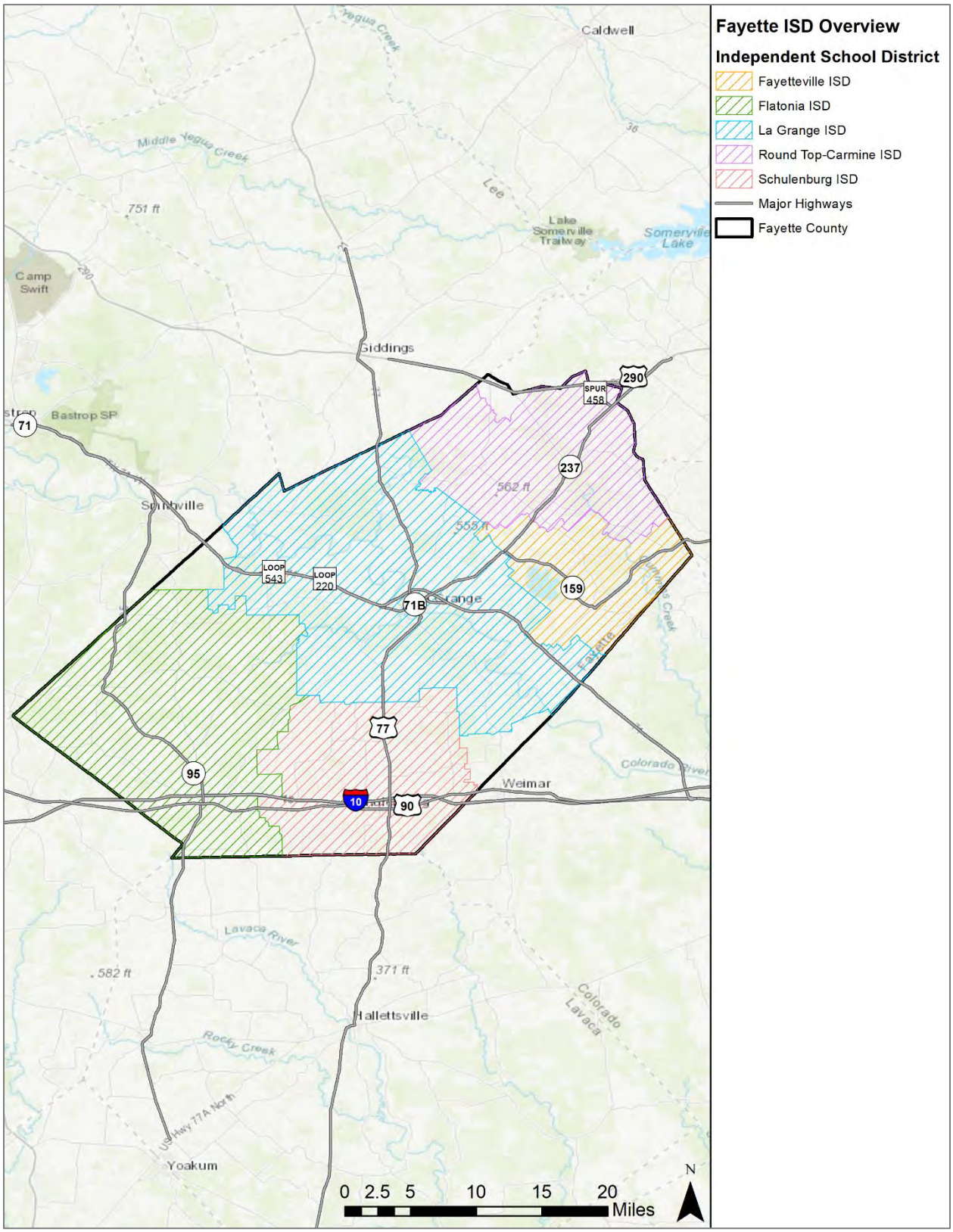
[4] The Estimated Vulnerable or Sensitive Populations are based off the 2021 American Community Survey 5-Year Estimates Data Profiles.

JURISDICTION	TOTAL 2020 POPULATION	TOTAL 2021 POPULATION	PERCENTAGE (based on 2021 Population)	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS[4]		
				Youth (Under 5)	Elderly (Over 65)	Below Poverty Level
City of Flatonia	1,308	1,756	7.18%	78	298	102
City of La Grange	4,391	4,407	18.03%	263	816	532
City of Round Top	87	120	0.49%	0	41	0
City of Schulenburg	2,633	2,909	11.90%	240	519	482
Unincorporated Fayette County	15,323	14,528	59.43%	583	4,264	1,231
Fayette County	**24,435**	**24,445**	**100%**	**1,186**	**6,190**	**2,369**

ISD POPULATION

Figure 3-3 shows the participating Independent School Districts (ISDs) within Fayette County that are covered in the risk assessment analysis of the Plan Update.

Figure 3-3. Participating ISDs within the Fayette County Planning Area



The mission and vision of Fayetteville ISD is to “provide a safe, secure and caring learning environment centered around local family values as we prepare future leaders in an engaging and innovative education environment. Fayetteville ISD will be the premier rural school district in Texas.” The district is made up of two schools, Fayetteville Elementary and Junior High School. The school district provides services for children under the age of 5.

The mission statement of the Flatonia ISD is “FISD builds relationships among students, staff, families, and community in order to provide a consistent, safe learning environment. We are dedicated to developing the academic, social, emotional and physical well-being of each student, preparing all students to reach their individual potential. We hold students to core values and provide innovative programs, so students become life-long learners who contribute to and lead their community.” Flatonia ISD is made up of three schools, Flatonia Elementary School, Flatonia Secondary School, and Whispering Hills Achievement Center. The school district provides services for children under the age of 5.

The vision statement of the La Grange ISD is, “inspires excellence, builds community, and empowers all students for a purposeful life.” La Grange ISD consists of three schools, La Grange Elementary School, La Grange Middle School, and La Grange High School. The school district provides services for children under the age of 5.

The Round Top - Carmine ISD’s mission “states its dedication to providing all of its children with educational programs that maximize their individual strengths while helping them to overcome any environmental disparities they may experience and thereby allowing them to develop their full intellectual, physical and social potentials that: Creates an equity-driven, achievement focused school climate, creates safe nurturing and educational appropriate environments, fosters team work and citizenship, and engages all shareholders in the education of their children.” The Round Top - Carmine ISD consists of two schools, Round Top – Carmine Elementary and High School, while also providing services to children under the age of 5.

The vision of Schulenberg ISD promotes a shared vision amongst students, the learning environment, and the community and district noting: “our students are excited, engaged and motivated, demonstrating strong character values and ethics, while possessing the knowledge and skills to be future ready and rise to challenges and management of life’s adversity, while exhibiting pride in their school and in themselves. The learning environment provides safe and secure campuses, within interactive teaching in a modern, technologically advanced and structured environment with highly qualified teachers promoting mutual trust and respect and a variety of strongly developed programs to explore social, academic, vocational, athletic, and artistic opportunities.” The district unites in purpose and vision through communication and partnerships that cultivate a strong sense of pride and community that facilitates success, values, and diversity amongst the community. Schulenburg ISD is comprised of three campuses, Schulenburg Elementary, Junior and High School, in addition to offering services to children under the age of 5.

Table 3-3 provides the number of people employed, students enrolled, and vulnerable or sensitive populations by each participating ISD, as provided by the ISDs.

Table 3-3. ISD Population

INDEPENDENT SCHOOL DISTRICT	EMPLOYEES	STUDENTS	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS	
			Children (Under 5)	Staff Works Outdoors
Fayetteville ISD	48	302	18	7
Flatonia ISD	110	654	42	50
La Grange ISD	300	1,750	80	50
Round Top – Carmine ISD	52	152	8	4
Schulenburg ISD	130	677	21	14

POPULATION GROWTH

The official 2020 Fayette County population is 24,435. Overall, Fayette County experienced an increase in population between 1980 and 2020 of 30 percent, or an increase of 5,603 residents. The City of Carmine experienced a slight increase in population between 1980 and 2020 of 2 percent, as well as the City of Flatonia (22%), La Grange (17%) and Schulenburg (7%). The City of Fayetteville (-31%) experienced a decrease in population between 1980 and 2020 while the City of Round Top experienced no net change. None of the jurisdictions experienced an increase in population, between 2010 and 2020.

Table 3-4 provides historic growth rates in Fayette County.

Table 3-4. Population Growth by Jurisdictions 1980-2020

JURISDICTIONS	1980	1990	2000	2010	2020	POP CHANGE 1980-2020	PERCENT OF CHANGE	POP CHANGE 2010-2020	PERCENT OF CHANGE
City of Carmine	239	192	228	250	244	5	2%	-6	-3%
City of Ellinger[5]	-	-	-	-	203	-	-	-	-
City of Fayetteville	356	283	261	258	246	-110	-31%	-12	-5%
City of Flatonia	1,070	1,295	1,377	1,383	1,308	238	22%	-75	-5%
City of La Grange	3,768	3,869	4,404	4,641	4,391	623	17%	-250	-5%
City of Round Top	87	81	77	90	87	0	0%	-3	-3%
City of Schulenburg	2,469	2,455	2,699	2,852	2,633	164	7%	-219	-8%
Fayette County	**18,832**	**20,095**	**21,804**	**24,554**	**24,435**	**5,603**	**30%**	**-199**	**-0.5%**

[5] The City of Ellinger was incorporated in November 2020.

ECONOMIC IMPACT

Building and maintaining infrastructure depends on the economy, and therefore, protecting infrastructure from risk due to natural hazards in the planning area is important to the participating jurisdictions within Fayette County. Whether it's expanding culverts under a road that washes out during flash flooding, shuttering a fire station, or flood-proofing a wastewater facility, infrastructure must be mitigated from natural hazards in order to continue providing essential utility and emergency response services in a fast-growing planning area.

Based on the American Community Survey 2021 estimates, 45 percent of the population 16 years and over is employed in the labor force. The per capita income is $33,556 and the median household income countywide is $66,624. It is estimated that 40 percent of households have incomes below $50,000. Families with incomes below the poverty level in 2021 made up 9.8 percent of all families. Of families that have children under 18 years old 10.6 percent are below the poverty level.

The following tables show the various occupations and industries within Fayette County, according to the 2021 estimates by the American Community Survey.

Table 3-5. Occupations of Employed Population in Fayette County[6]

OCCUPATION	ESTIMATE	PERCENT
Civilian employed population 16 years and over	11,064	45.2%
Management, business, science, and arts occupations	3,118	29.2%
Sales and office occupations	2,280	21.4%
Service occupations	1,615	15.1%
Production, transportation, and material moving occupations	2,069	19.4%
Natural resources, construction, and maintenance occupations	1,596	14.9%

Table 3-6. Industries of Employed Population in Fayette County[7]

INDUSTRY	ESTIMATE	PERCENT
Civilian employed population 16 years and over	11,064	45.2%
Educational services, and health care and social assistance	2,090	19.6%
Retail trade	1,246	11.7%
Manufacturing	1,455	13.6%

[6] 2021 American Community Survey 5-Year Estimates Data Profiles.
[7] 2021 American Community Survey 5-Year Estimates Data Profiles.

INDUSTRY	ESTIMATE	PERCENT
Arts, entertainment, and recreation, and accommodation and food services	664	6.2%
Professional, scientific, and management, and administrative and waste management services	481	4.5%
Construction	1,182	11.1%
Finance and insurance, and real estate and rental and leasing	623	5.8%
Transportation and warehousing, and utilities	825	7.7%
Other services, except public administration	689	6.5%
Public administration	437	4.1%
Wholesale trade	375	3.5%
Agriculture, forestry, fishing and hunting, and mining	501	4.7%
Information	110	1.0%

Fayette County's economy is diversified including light manufacturing and processing industries, mineral production and livestock and crop production. Cattle raising is a major agricultural industry within the county including both beef and dairy cattle, while the major crop production includes feed grains and cash crops[8]. Major stakeholders in the local economy in Fayette County include Health Care & Social Assistance (1,294 people), Retail Trade (1,292 people), and Construction (1,227 people)[9]. Reports indicate that in 2020 the City of La Grange held the largest number of employment within the County with an approximate total of 4,793, following the Cities of Schulenburg (2,826), Flatonia (1,533), Round Top (491), and Fayetteville (445)[10]. Table 3-7 shows the major employers within the City of La Grange.

Table 3-7. Major Employers in the City of La Grange [11]

COMPANY	CITY
Colorado Valley Communication	La Grange
HEB	La Grange
La Grange Ford	La Grange
La Grange ISD	La Grange

[8] Texas Water Development Board, https://www.twdb.texas.gov/groundwater/aquifer/majors/trinity.asp

[9] Fayette County, TX | Data USA

[10] Golden Shovel Agency, www.goldenshovelagency.com. (n.d.). Home. Fayette County. Retrieved April 7, 2023, from https://www.experienceguadalupevalley.com/our-counties/fayette-county/p/item/706/fayette-county

[11] Major employers. Welcome to La Grange, TX. (n.d.). Retrieved April 7, 2023, from http://www.cityoflg.com/economic_development/major_employers.php

COMPANY	CITY
Local Government	La Grange
Lower Colorado River Authority	La Grange
McCourt & Sons	La Grange
Mico Machine Company	La Grange
Oviedo Auto Group	La Grange
Power Screen Texas	La Grange
Smyrna Truck and Cargo	La Grange
St. Mark's Medical Center	La Grange
Walmart	La Grange

NATURAL, CUTLURAL, AND HISTORIC RESOUCES

Fayette County's territory is composed of 959.8 square miles in the Gulf Coastal Plain in east-central Texas, with an elevation ranging from 200 feet to 600 feet above sea level. The county's primary source of water is the Colorado River floodplain and some of its tributaries. Major tributaries of the Colorado River include Rabb's, Buckner's and Cummins Creeks. The southern part of the County is drained by the east and west branches of the Navidad River and their tributaries, while the western corner of the county is drained by Peach Creek, a tributary of the Guadalupe River. The topography within Fayette County consists of rolling to hilly uplands and flat flood plains along the major streams. The Gulf Coast, Carrizo-Wilcox, Queen-City, Sparta and Yegua-Jackson aquifers are the major aquifers for groundwater resources within the county.[12]

Major waterways that assist in the drainage of the County include the Colorado River, which bisects the county from northwest to southeast, is fed by several major creeks: Rabb's, Cedar, and Baylor on the east and Buckner's and Williams on the west. Cummins Creek flows through the eastern part of the county and the East and West Navidad rivers through the southern party of Fayette County. Fayette County Reservoir was created in 1978 and is located 3 miles west of the City of Fayetteville, and 10 miles east of the City of La Grange making up 2,400 acres. The reservoir acts as a cooling power station on Cedar Creek in the Colorado River, and is managed by the Lower Colorado River Authority, providing recreational purposes as well.

Fayette County is made up of two major physiographic regions, Post Oak Belt in the northern half, and Blackland Prairie in the southern portion. The Post Oak Belt ecoregion in the northern portion of the county is referred to as the Cross-Timbers with rolling to hills and clay pan soils. Tall grasses and scattered oaks are commonly found in this region, in addition to acidic soils of the Post Oak Belt, with loamy or sandy surfaces.

The Blackland Prairie ecoregion is underlain by Upper Cretaceous chalks, marls and limestone which yield high alkalinity soils making them ideal for cropland, grazing and agricultural use.

[12] Texas Water Development Board, https://www.twdb.texas.gov/groundwater/aquifer/majors/trinity.asp

Common trees that inhabit this region include pecan, cedar elm, various oaks and mesquite. The southern areas, which drain to tributaries of the Trinity River, have blackland soils conducive to the growth of trees such as post oak, bois d'arc, elm, and walnut, as well as various types of grasses.

The Attwater Prairie Chicken National Wildlife Refuge, located southeast of Fayette County, was established in 1968. The refuge is 10,339-acres composed of native prairies, croplands, marshes, ponds, woodlots and riparian areas. The refuge is a habitat for one of the largest remnants of coastal prairie habitat remaining in southeast Texas and protects one of the last populations of the critically endangered Attwater's prairie chicken. Other species include White- tailed and Ferruginous Hawks, Crested Caracaras, LeConte's sparrows, Sprague's Pipits, Loggerhead Shrikes, and additional species during spring and fall migration periods, totaling over 266 and seventeen occasional species that have been sited. The refuse also offers trail tours into the prairies and along the Coushatta Creek. [13]

To further understand natural resources that may be vulnerable to a hazard event, as well as those that need consideration when implementing mitigation activities, it is important to identify at-risk species (i.e., endangered species) in the planning area. An endangered species is any species of fish, plant life, or wildlife that is in danger of extinction throughout all or most of its range. A threatened species is a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Both endangered and threatened species are protected by law and any future hazard mitigation projects are subject to these laws. Candidate species are plants and animals that have been proposed as endangered or threatened but are not currently listed.

According to the U.S. Fish and Wildlife Service, as of January 2023, there are nine federally endangered, threatened, or candidate species in Fayette County. These species are listed in Table 3-8.

Table 3-8. Endangered Species in Fayette County[14]

TYPE OF SPECIES	COMMON NAME	SCIENTIFIC NAME	SPECIES STATUS
Birds	Whooping Crane	Grus Americana	Endangered
Insects	Monarch Butterfly	Danaus Plexippus	Candidate
Birds	Attwater's Greater Prairie Chicken	Tympanuchus Cupido Attwateri	Endangered
Mammals	Tricolored Bat	Perimyotis Subflavus	Proposed Endangered
Clams	False Spike	Fusconaia Mitchelli	Proposed Endangered
Clams	Guadalupe Orb	Cyclonaias Necki	Proposed Endangered
Clams	Texas Pimpleback	Cyclonaias Petrina	Proposed Endangered

[13] U.S. Fish and Wildlife Service, Hagerman National Wildlife Refuge, https://www.fws.gov/refuge/attwater-prairie-chicken

[14] U.S. Fish and Wildlife Service, Environmental Conservation Online System

TYPE OF SPECIES	COMMON NAME	SCIENTIFIC NAME	SPECIES STATUS
Clams	Texas Fawnsfoot	Truncilla Macrodon	Proposed Threatened
Birds	Red Knot	Calidris Canutus Rufa	Threatened

Fayette County's history is conserved through its designated historic buildings and sites. Throughout the County there are 23 buildings and sites listed on the National Register of Historic Places. Historic buildings are vulnerable to natural hazards as their construction pre-dates modern building codes. There are also historic preservation considerations and requirements for historic structures when they are included in mitigation or recovery projects.

Table 3-9. Historic Properties Listed on the National Register of Historic Places[15]

PROPERTY NAME	CITY	ADDRESS
St. John the Baptist Catholic Church	Ammansville	FM 1383
Dubina Historic District	Dubina	Roughly bounded by FM 1383 and City Rd. 480
Pytlovany, Simon, House	Dubina	1.5 mi. S of Dubina on FR 1383
Fayetteville Historic District	Fayetteville	Roughly bounded by E. Bell, N. Thompson (FM 1291), E. Fayette, E.
Zapp Building	Fayetteville	Fayette and Washington St.
Flatonia Historic District	Flatonia	Roughly bounded by N. Main, 7th, Middle, Market, 6th, Penn, S. Main & Faires St.
Nativity of Mary, Blessed Virgin Catholic Church	High Hill	FM 2672
Faison, Nathaniel W., House	La Grange	822 South Jefferson
Fayette County Courthouse and Jail	La Grange	Courthouse Sq. and 104 Main St.
Fayette County Courthouse Square Historic District	La Grange	Roughly bounded by Main, Lafayette, Franklin, Colorado, Jefferson, Washington, and Crockett St.
Kreische, Henry L., Brewery and House	La Grange	S of La Grange off U.S. 77 on Monument Hill
Mier Expedition and Dawson's Men Monument and Tomb	La Grange	414 TX Loop 92, Monument Hill and Kreische Brewery State Historic Sites.
St. James Episcopal Church	La Grange	Monroe and Colorado St.
State Highway 71 Bridge at the Colorado River	La Grange	TX 71, 0.8 mi E of jct. with FM 609

[15] National Register of Historic Places

PROPERTY NAME	CITY	ADDRESS
St. Mary's Church of the Assumption	Praha	FM 1295
Bethlehem Lutheran Church	Round Top	White St.
Cummins Creek Bridge	Round Top	2 mi. NW of Round Top over Cummins Creek
Bedstead Truss Bridge	Schulenburg	0.1 mi. NW. of jct. of Hillje & Kallus St.
East Navidad River Bridge	Schulenburg	FM 1579 at East Navidad R.
Schulenburg Cotton Compress	Schulenburg	James and Main St.
Sengelmann Hall and City Meat Market Building	Schulenburg	527 and 529-533 N. Main St.
Neese, William, Sr., Homestead	Warrenton	TX 237
Winedale Inn Complex	Winedale	Off FM 1457

EXISTING LAND USE AND DEVELOPMENT TRENDS

Zoning ordinance sets forth regulations and standards related to the extent of uses of land and structures that are allowed in certain areas. A zoning map shows the areas within a community where the various zoning districts and standards are located and gives an overall picture of what types of development are located in a community and how a community intends to continue to grow. The following jurisdictions have a zoning ordinance: Cities of Fayetteville, Flatonia, La Grange, Round Top and Schulenburg.

A review of building permits can also give a picture of the built environment and the number of buildings that are being constructed in the County and each jurisdiction. Table 3-9 lists the number of residential buildings and total units authorized through a permit from each jurisdiction, where data was available, between 2017 and 2021. The data includes total buildings and total units permitted. Permits are reported annually in September and the data includes that from 2017 through 2021 to demonstrate growth. Of the residential building permits issued in this period, 95 percent were for single-family buildings and 5 percent for multi-family buildings. Housing type can also be an indication of an individual's ability to recover from a disaster.

Table 3-9. Building Permits, By Jurisdiction, 2017-2021[16]

Jurisdiction	2017		2018		2019		2020		2021	
	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units
Fayette County	9	9	16	16	13	13	47	48	11	11
City of Fayetteville	0	0	0	0	0	0	0	0	0	0

[16] U.S. Census Bureau, Building Permit Survey, 1992-2021, https://www.census.gov/construction/bps/

Jurisdiction	2017		2018		2019		2020		2021	
	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units
City of Carmine	0	0	0	0	0	0	0	0	0	0
City of Round Top	0	0	0	0	2	2	2	2	1	1
City of La Grange	1	1	12	12	3	3	7	8	6	6
City of Schulenberg	3	3	1	1	2	2	35	35	4	4
City of Flatonia	5	5	3	3	6	6	3	3	0	0
City of Ellinger*	-	-	-	-	-	-	-	-	-	-
Grand Total	**18**	**18**	**32**	**32**	**26**	**26**	**94**	**95**	**22**	**22**

*Data for this jurisdiction was not included in the database

FUTURE GROWTH AND DEVELOPMENT

To better understand how future growth and development in the County might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. This section includes an analysis of the projected population change and economic impacts.

Population projections from 2010 to 2050 are listed in Table 3-10, as provided by the Office of the State Demographer, Texas State Data Center, and the Institute for Demographic and Socioeconomic Research. Population projections are based on a 0.5 scenario growth rate, which is 50 percent of the population growth rate that occurred during 2000-2010. This information is only available at the County level; however, the population projection shows an increase in population density for the County, which would mean overall growth for the County.

Table 3-10. Grayson County Population Projections[17]

LAND AREA (SQ MI)	2010		2020		2030		2040		2050	
	Population									
	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)
949.9	24,554	25.8	26,086	27.5	27,749	29.2	28,841	30.4	30,173	31.8

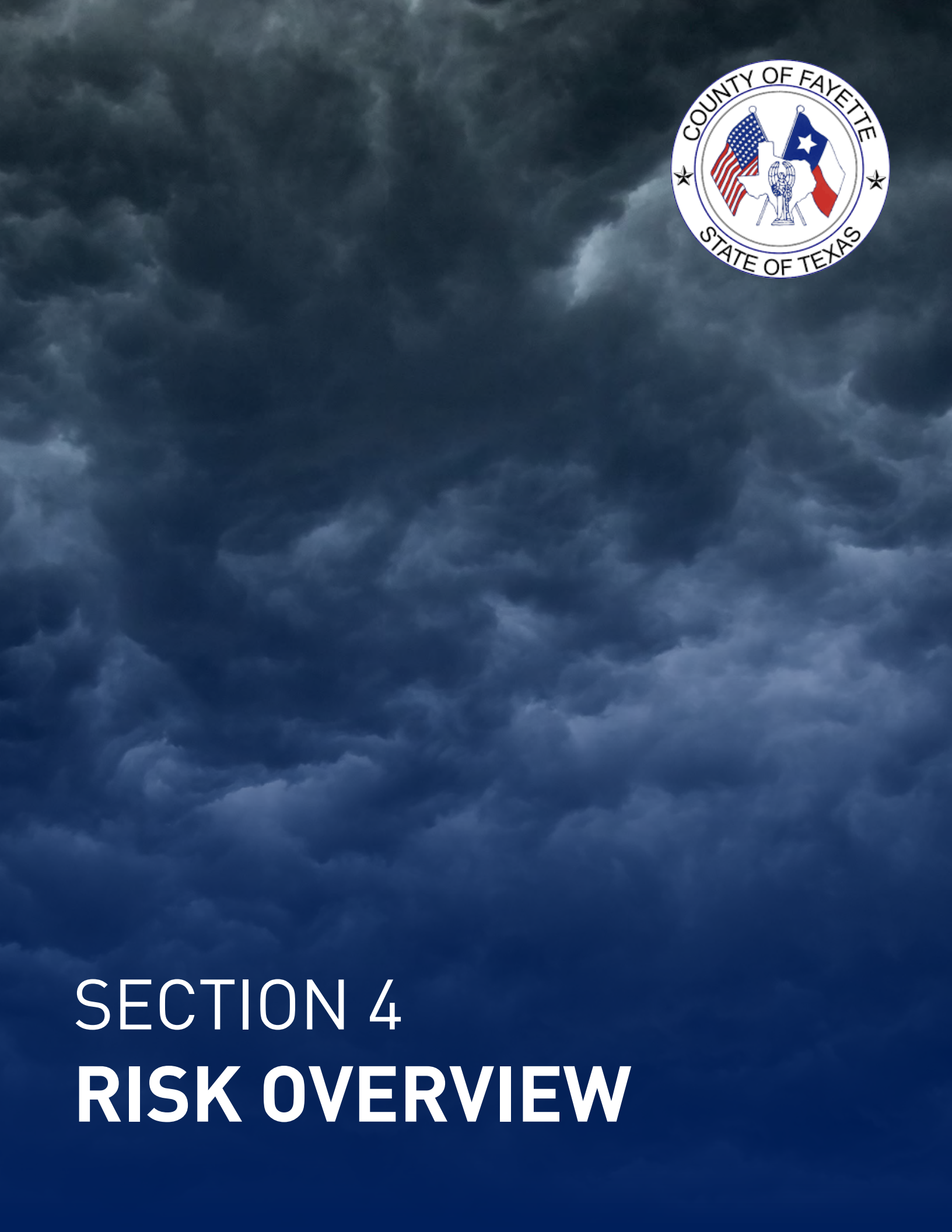
[17] Office of the State Demographer, Texas State Data Center, and the Institute for Demographic and Socioeconomic Research

SECTION 3: COUNTY PROFILE

Comprehensive Plans are guiding documents in a community that sets forth a vision, goals, policies, and guidelines to direct future physical, social and economic development that will occur within a jurisdiction. Comprehensive Plans are part of a continuous process to provide an environment for the citizens and to consider the general desire of the community to conserve, preserve, and protect the natural environment of their jurisdiction. These plans are used to guide city staff, decision-makers, and citizens in making decisions which affect the community with the understanding of the long-term effects. The following jurisdictions in Fayette County have a Comprehensive Plan in place: Cities of Ellinger, Flatonia, La Grange and Schulenburg.

The Flatonia Comprehensive Plan contains the City of Flatonia's official policies on land use, transportation, housing, environment, and utilities. The plan is used by the City Council to evaluate land use changes and to make funding and budget decisions. The plan is used by City Staff to regulate building and development and to make recommendations on projects. It is used by citizens to understand the City's long-range plan and proposals for different areas in the City. The plan provides the basis for the City's development regulations and the foundation for its capital improvements program.

The La Grange Comprehensive Plan 2018-2038 is a fully-developed planning document that can provide guidance for a variety of development activities. As such, it may be used to: communicate the overreaching vision; guide development approvals by representatives such as elected officials; serve as a basis for regulations such as subdivision regulations, building codes, etc.; and inform and support capital improvement plans.



SECTION 4
RISK OVERVIEW

SECTION 4: RISK OVERVIEW

Hazard Description 1
Disaster Declaration History 4
Natural Hazards and Climate Change 5
Overview of Hazard Analysis 7
Hazard Ranking 9

HAZARD DESCRIPTION

Section 4 is the first phase of the Risk Assessment, providing background information for the hazard identification process and descriptions for the hazards identified. The Risk Assessment continues with Sections 5 through 16, which include hazard descriptions and vulnerability assessments.

Upon a review of the full range of natural hazards suggested under FEMA planning guidance, participating jurisdictions within Fayette County identified twelve natural hazards that are addressed in the Hazard Mitigation Plan Update and were identified as significant, as shown in Table 4-1. The hazards were identified through input from Planning Team members and a review of the current 2018 State of Texas Hazard Mitigation Plan (State Plan). Readily available online information from reputable sources such as federal and state agencies were also evaluated and utilized to supplement information as needed.

In general, there are three main categories of natural hazards: atmospheric, hydrologic, and technological. Atmospheric hazards are events or incidents associated with weather generated phenomenon. The following have been identified as significant for the Planning Area include tornado, extreme heat, thunderstorm wind, hail, lightning, and winter storm (Table 4-1).

Hydrologic hazards are events or incidents associated with water related damage and account for over 75 percent of Federal disaster declarations in the United States. Hydrologic hazards identified as significant for the planning area include flood, and drought.

Technological hazards refer to the origins of incidents that can arise from human activities, such as the construction and maintenance of dams. They are distinct from natural hazards primarily because they originate from human activity. The risks presented by natural hazards may be increased or decreased as a result of human activity, however they are not inherently human-induced. Therefore, dam failure is classified as a quasi-technological hazard and referred to as “technological” in Table 4-1 for purposes of description.

For the Risk Assessment, the earthquake, expansive soils and wildfire hazards are considered “other,” since these hazards are not considered atmospheric, hydrologic, nor technological.

Table 4-1. Hazard Descriptions

HAZARD	DESCRIPTION
ATMOSPHERIC	
Extreme Heat	Extreme heat is the condition whereby temperatures hover ten degrees or more above the average high temperature in a region for an extended period of time.
Hail	Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and subsequent cooling of the air mass.
Lightning	Lightning is a sudden electrostatic discharge that occurs during an electrical storm. This discharge occurs between electrically charged regions of a cloud, between two clouds, or between a cloud and the ground.
Thunderstorm Wind	A thunderstorm occurs when an observer hears thunder. Radar observers use the intensity of the radar echo to distinguish between rain showers and thunderstorms. Lightning detection networks routinely track cloud-to-ground flashes, and therefore thunderstorms.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. The destruction caused by tornadoes ranges from light to catastrophic, depending on the location, intensity, size, and duration of the storm.
Winter Storm	Severe winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 miles per hour, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads, and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.
HYDROLOGIC	
Drought	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality.

HAZARD	DESCRIPTION
Flood	The accumulation of water within a body of water, which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, and shallow flooding.
OTHER	
Earthquake	An earthquake is the sudden, rapid, shaking of the earth, caused by the breaking and shifting of subterranean rock as it releases strain that has accumulated over a long time. Initial mild shaking may strengthen and become extremely violent within seconds.
Expansive Soils	Expansive soils are soils and soft rock that tend to swell or shrink due to changes in moisture content. Changes in soils volume present a hazard primarily to structures built on top of expansive soils.
Wildfire	A wildfire is an uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase the risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors.
TECHNOLOGICAL	
Dam Failure	Dam or levee failure is the collapse, breach, or other failure of a dam or levee structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam.

Hazards that weren't considered significant and were not included in the Plan Update are located in Table 4-2, along with the evaluation process used for determining the significance of each of these hazards. Hazards not identified for inclusion at this time may be addressed during future evaluations and updates.

Table 4-2. Other Hazards Deferred

HAZARD CONSIDERED	REASON FOR DETERMINATION
Coastal Erosion	The planning area is not located on the coast, therefore coastal erosion does not pose a risk.

HAZARD CONSIDERED	REASON FOR DETERMINATION
Hurricane Wind	The planning area is not located within 200 miles of the coast; therefore, hurricanes do not pose a risk. Any remnants of a hurricane or tropical storm system would only include thunderstorm winds and rainfall and would be covered under thunderstorm wind or flood mitigation measures.
Land Subsidence	There are no historical occurrences of land subsidence for the planning area and it is located in an area where occurrences are considered rare. There is no history of impact to critical structures, systems, populations or other community assets or vital services as a result of land subsidence and none is expected in the future.

DISASTER DECLARATION HISTORY

One method of understanding hazards that pose a risk to Fayette County is to identify past hazards events that triggered federal or state disaster declarations. Federal and state declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. Table 4-3 lists state and federal disaster declarations received by Fayette County. Many of the disaster events were regional or statewide.

Between 1953 and 2023 Fayette County has received 23 disaster declarations. Out of 23 declared disasters, a majority (12) were related to severe storms, tropical storm and flooding, followed by declarations for wildfires (6). There have been twenty-eight USDA Disaster Designations declarations for drought, between 2012 and 2022.

Table 4-3. Disaster Declaration History in Fayette County, 1953-2023[1]

Year	Declaration Title	Hazard	Declaration Type	Disaster No.
1972	Severe Storms & Flooding	Flood	DR	DR-333
1991	Severe Thunderstorms	Flood	DR	DR-930
1993	Extreme Fire Hazard	Drought	EM	EM-3113
1994	Severe Storm, Thunderstorms & Flooding	Flood	DR	DR-1041
1996	Extreme Fire Hazard	Fire	EM	EM-3117
1998	Tropical Storm Charley	Severe Storm	DR	DR-1239
1999	Extreme Fire Hazard	Fire	EM	EM-3142
1999	Jordan Creek Fire	Fire	FSA	FSA-2287

[1] Data available up to April 7, 2023: Disaster Declarations for States and Counties | FEMA.gov

Year	Declaration Title	Hazard	Declaration Type	Disaster No.
2005	Hurricane Katrina	Hurricane	EM	EM-3216
2005	Hurricane Rita	Hurricane	EM	EM-3261
2005	Hurricane Rita	Hurricane	DR	DR-1606
2206	Extreme Wildfire Threat	Fire	DR	DR-1624
2008	Texas Wildfires	Fire	EM	EM-3284
2011	Texas Wildfires	Fire	DR	DR-4029
2015	Severe Storms, Tornadoes, Straight-line Winds, & Flooding	Severe Storm	DR	DR-4223
2016	Severe Storms & Flooding	Flood	DR	DR-4269
2016	Severe Storms & Flooding	Flood	DR	DR-4272
2017	Hurricane Harvey	Hurricane	DR	DR-4332
2020	COVID-19	Biological	EM	EM-3458
2020	COVID-19 Pandemic	Biological	DR	DR-4485
2021	Severe Winter Storms	Severe Ice Storm	EM	EM-3554
2021	Severe Winter Storms	Severe Ice Storm	DR	DR-4586

NATURAL HAZARDS AND CLIMATE CHANGE

Climate change is defined as a long-term shift in temperature and weather patterns. These shifts can increase or decrease the risk of natural hazards. Global climate change is expected to exacerbate the risks of certain types of natural hazards impacted through rising sea levels, warmer ocean temperatures, higher humidity, the possibility of stronger storms, and an increase in wind and flood damages due to storm surges. Texas is considered one of the more vulnerable states in the U.S. to both abrupt climate changes and to the impact of gradual climate changes to the natural and built environments.

Climate change is expected to lead to an increase in average temperatures as well as an increase in frequency, duration and intensity of extreme heat events. With no reductions in emissions worldwide, the state of Texas is projected to experience an additional 30 to 60 days per year above 100°F than what is experienced now.[2]

[2] Kloesel, K., B. Bartush, J. Banner, D. Brown, J. Lemery, X. Lin, C. Loeffler, G. McManus, E. Mullens, J. Nielsen-Gammon, M. Shafer, C. Sorensen, S. Sperry, D. Wildcat, and J. Ziolkowska, 2018: Southern Great Plains. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change

The State Climatologist's *Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036* identifies ongoing and likely future trends out to the year 2036 based on analysis of historic observations of temperatures, precipitation, and extreme weather. Table 4-4 highlights future trends in extreme weather from the report.

Table 4-4. Future Trends in Extreme Weather in Texas[3]

HAZARDS	EXPECTED TRENDS
Extreme Temperatures	• The average annual surface temperature in 2036 is expected to be 3.0°F warmer than the 1950-1999 average and 1.8°F warmer than the 1991-2020 average. • Nearly double the number of 100°F days by 2036 compared to 2001-2020. • Higher frequency of 100°F days in urban areas. • Extreme monthly summertime temperature trends imply an increase of about 1°F compared to the 1950-1999 average. • Extreme monthly wintertime temperatures are expected to continue to increase at an even faster rate. • The coolest days of the summer are expected to continue becoming warmer.
Precipitation	• Precipitation has increased by 10 percent or more in eastern Texas, but little trend is present in western Texas. • Precipitation trends to 2036 are likely to be dominated by natural variability. • Extreme precipitation is expected to increase in intensity on average statewide by 6-10 percent compared to the 1950-1999 averages and 2-3 percent relative to the 2001-2020 averages. • This translates to an increase in the frequency of extreme rain of 30-50 percent relative to the climatological expected frequency in 1950-1999 and 10-15 percent relative to 2001-2020.
Drought	• Increasing temperatures, rainfall variability, and other factors will on balance decrease water availability, but impact changes will vary strongly across applications. • Impact trends to be highly sector-specific, with the impacts possibly smaller for agriculture than for surface water supply.
Flood	• No long-term river flooding trend has been identified in the observations, nor is such a trend projected at this point, except perhaps for the most extreme floods and areas with normally high rainfall. • Urban flooding is projected to increase, both as a simple matter of urban population increase and because of the projected

Research Program, Washington, DC, USA, pp. 987–1035. doi: 10.7930/NCA4.2018.CH23. https://nca2018.globalchange.gov/chapter/23/

[3] Gammon-Nielsen, John, Holman, Sara, Buley, Austin and Jorgensen, Savannah. Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, 2021 Update. Texas A&M University Office of the Texas State Climatologist. October 7, 2021. https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021Update

HAZARDS	EXPECTED TRENDS
	increase of precipitation intensity, which drives flooding in fast-response drainages like those usually found in urban areas. • The climate-driven trend in urban flood frequency should be similar to the climate-driven trend in extreme precipitation frequency: 30-50 percent in 2036 relative to 1950-1999 and 10-15 percent relative to 2001-2020.
Winter Weather	• As the climate warms, the likelihood of winter weather decreases. • Both extreme cold and snowfall either become less frequent or are expected to do so. • Widespread snowfall events in Texas such as the one that took place in February 2021 are extremely rare.
Thunderstorms (Wind, Hail, Lightning)	• Historical trend data is unreliable. • Indirect evidence supports an increase in the number of days capable of producing severe thunderstorms and an increase in the frequency of very large hail in early springtime, but these possible trends are too uncertain to quantify.
Wildfire	• Weather and climate drivers of wildfire risk are projected to increase the risk of wildfires throughout the state, primarily due to increased rates of drying and increased fuel load.

OVERVIEW OF HAZARD ANALYSIS

The methodologies utilized to develop the Risk Assessment are a historical analysis and a statistical approach. Both methodologies provide an estimate of potential impact by using a common, systematic framework for evaluation.

Records retrieved from National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA) were reported for participating jurisdictions within Fayette County. Remaining records identifying the occurrence of hazard events in the planning area and the maximum recorded magnitude of each event were also evaluated.

The use of geographic information system (GIS) technology to identify and assess risks for Fayette County and evaluate community assets and their vulnerability to the hazards.

The four general parameters that are described for each hazard in the Risk Assessment include frequency of return, approximate annualized losses, a description of general vulnerability, and a statement of the hazard's impact.

Frequency of return was calculated by dividing the number of events in the recorded time period for each hazard by the overall time period that the resource database was recording events. Frequency of return statements are defined in Table 4-5, and impact statements are defined in Table 4-6 below.

Table 4-5. Frequency of Return Statements

PROBABILITY	DESCRIPTION
Highly Likely	Event is probable in the next year.
Likely	Event is probable in the next three years.
Occasional	Event is probable in the next five years.
Unlikely	Event is probable in the next ten years.

Table 4-6. Impact Statements

POTENTIAL SEVERITY	DESCRIPTION
Substantial	Multiple deaths. Complete shutdown of facilities for 30 days or more. More than 50 percent of property destroyed or with major damage.
Major	Injuries and illnesses resulting in permanent disability. Complete shutdown of critical facilities for at least two weeks. More than 25 percent of property destroyed or with major damage.
Minor	Injuries and illnesses do not result in permanent disability. Complete shutdown of critical facilities for more than one week. More than 10 percent of property destroyed or with major damage.
Limited	Injuries and illnesses are treatable with first aid. Shutdown of critical facilities and services for 24 hours or less. Less than 10 percent of property destroyed or with major damage.

Each of the hazard profiles includes a description of a general Vulnerability Assessment. Vulnerability is the total of assets that are subject to damages from a hazard, based on historic recorded damages. Assets in the region were inventoried and defined in hazard zones where appropriate. The total amount of damages, including property and crop damages, for each hazard is divided by the total number of assets (building value totals) in that community to determine the percentage of damage that each hazard can cause to the community. Risk and consequences will be addressed and covered within each hazard profile under the Vulnerability and Impact section as well as under the Assessment of Impact sections, where applicable.

To better understand how future growth and development in the Fayette County region might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. Hazard vulnerability for all participating jurisdictions within Fayette County was reviewed based on recent development changes that occurred throughout the planning area. Fayette County has decreased by 0.5 percent between 2010 and 2020 according to the U.S. Census Bureau, therefore there has been no significant factors or development trends with a

consequential effect or increase in vulnerability to the population, infrastructure and buildings for hazards.

Once loss estimates and vulnerability were known, an impact statement was applied to relate the potential impact of the hazard on the assets within the area of impact.

HAZARD RANKING

During the 2023 planning process, the Planning Team conducted a risk ranking exercise to get input from the Planning Team and stakeholders. Table 4-7 portrays the results of the risk assessment analysis including the frequency of occurrence and potential severity and the Planning Team's self-assessment for hazard ranking, based on local knowledge of past hazard events and impacts for each of the identified hazards. The definitions for frequency of occurrence and potential severity can be found in Table 4-5 and Table 4-6.

Table 4-7. 2023 Hazard Risk Ranking

HAZARD	FREQUENCY OF OCCURENCE	POTENTIAL SEVERITY	RANKING
Flood	Highly Likely	Substantial	High
Drought	Likely	Limited	High
Extreme Heat	Highly Likely	Limited	High
Lightning	Highly Likely	Limited	Moderate
Hail	Highly Likely	Limited	Moderate
Thunderstorm Wind	Highly Likely	Major	Moderate
Tornado	Highly Likely	Major	Moderate
Wildfire	Highly Likely	Limited	Moderate
Winter Storm	Highly Likely	Limited	Moderate
Expansive Soils	Likely	Limited	Low
Dam Failure	Unlikely	Limited	Low
Earthquake	Unlikely	Limited	Low

SECTION 5
FLOOD

SECTION 5: FLOOD

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Significant Events 20
Probability of Future Events 21
Vulnerability and Impact 21
Assessment of Impacts 25
Climate Change Considerations 27
National Flood Insurance Program (NFIP) Participation 28
NFIP Compliance and Maintenance 29
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HAZARD DESCRIPTION

Floods generally result from excessive precipitation. The severity of a flood event is determined by a combination of several major factors, including: stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and the degree of vegetative clearing and impervious surface. Typically, floods are long-term events that may last for several days.

The primary types of general flooding are inland and coastal flooding. Due to Fayette County's inland location, only inland flooding is profiled in this section. Inland or riverine flooding is a result of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Inland or riverine flooding is overbank flooding of rivers and streams, typically resulting from large-scale weather systems that generate prolonged rainfall over a wide geographic area, thus it is a naturally occurring and inevitable event. Some river floods occur seasonally when winter or spring rainfalls fill river basins with too much water, too quickly. Torrential rains from decaying hurricanes or tropical systems can also produce river flooding.

LOCATION

Flooding is one of the more severe hazards facing Fayette County and the planning area. The Flood Insurance Rate Maps (FIRMs) prepared by FEMA provide an overview of flood risk but can also be used to identify the areas of the County that are vulnerable to flooding. FIRMs are used to regulate new development and to control the substantial improvement and repair of substantially damaged buildings. Flood Insurance Studies (FIS) are often developed in conjunction with FIRMs. The FIS typically contains a narrative of the flood history of a community and discusses the engineering methods used to develop the FIRMs. The FIS also contains flood profiles for studied flood sources and can be used to determine Base Flood Elevations (BFEs) for some areas.

Revised or new studies are now presented as countywide FIS's and include incorporated areas. The FIS for Fayette County is dated October 2006 and includes the participating jurisdictions. This FIS compiles all previous flood information and includes data collected on numerous

waterways. Areas that are most vulnerable to flooding include low-lying areas throughout the county. Fayette County continues to acquire homes in these flood prone areas in an effort to save lives and decrease property damage. Fayette County planning area, including the participating jurisdictions and ISDs, have 19 critical facilities located in the identified flood hazard area, including several city halls, the county courthouse, a police station and fire station.

The Flood Insurance Rate Map (FIRM) data provided by FEMA for the Fayette County planning area shows the following flood hazard areas:

- Zone A: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance requirements and floodplain management standards apply.
- Zone AE: Areas subject to inundation by 1-percent-annual-chance shallow flooding. It is the base floodplain where BFEs are provided. AE zones are now used on new format FIRMs instead of A1-30 zones.
- Zone X: Moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones.

Locations of flood zones in the Fayette County planning area, including participating jurisdictions and ISDs, based on the digital Flood Insurance Rate Map (DFIRM) from FEMA are illustrated in Figure 5-1 through Figure 5-13.

Figure 5-1. Estimated Flood Zones in Fayette County

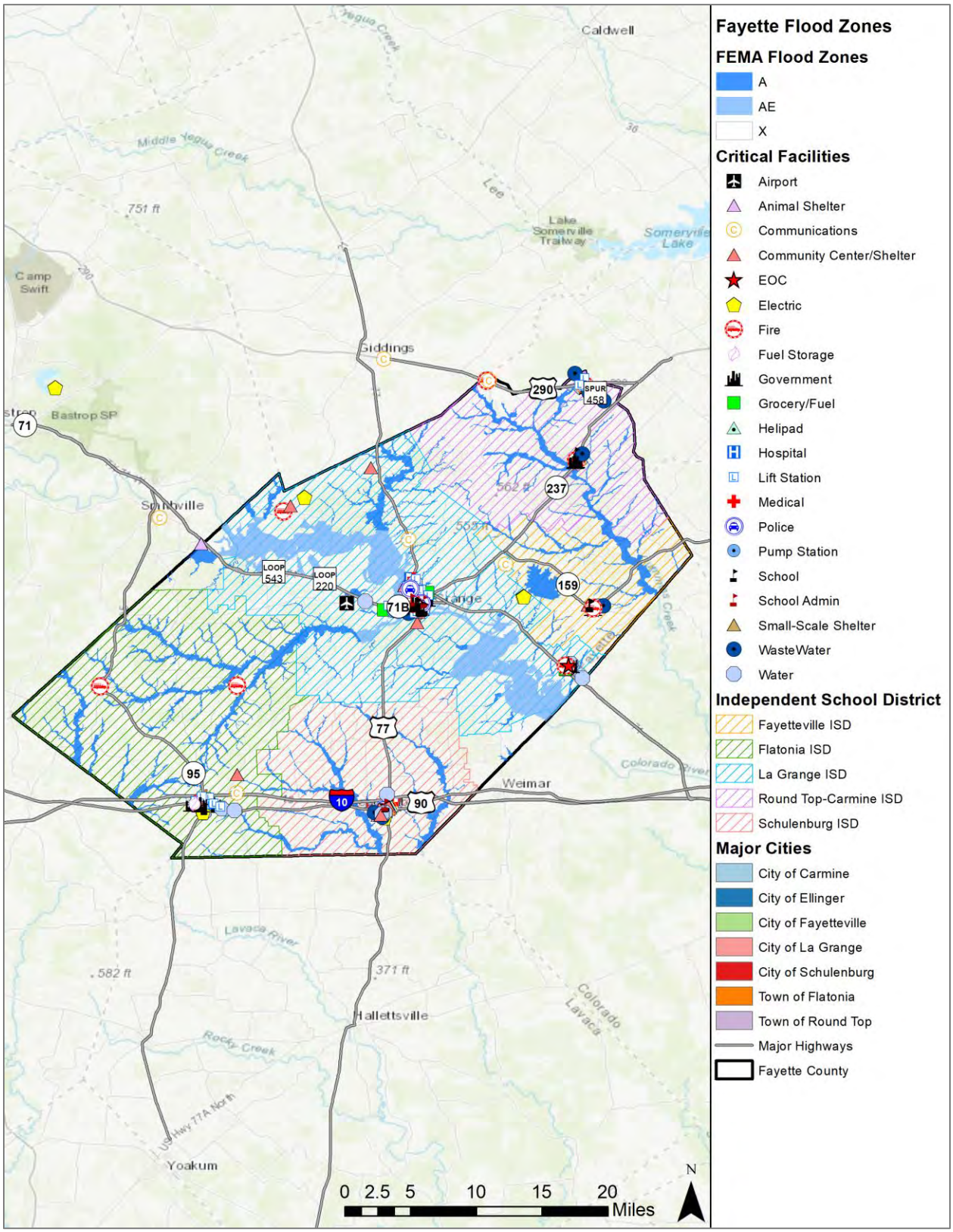


Figure 5-2. Estimated Flood Zones in City of Carmine

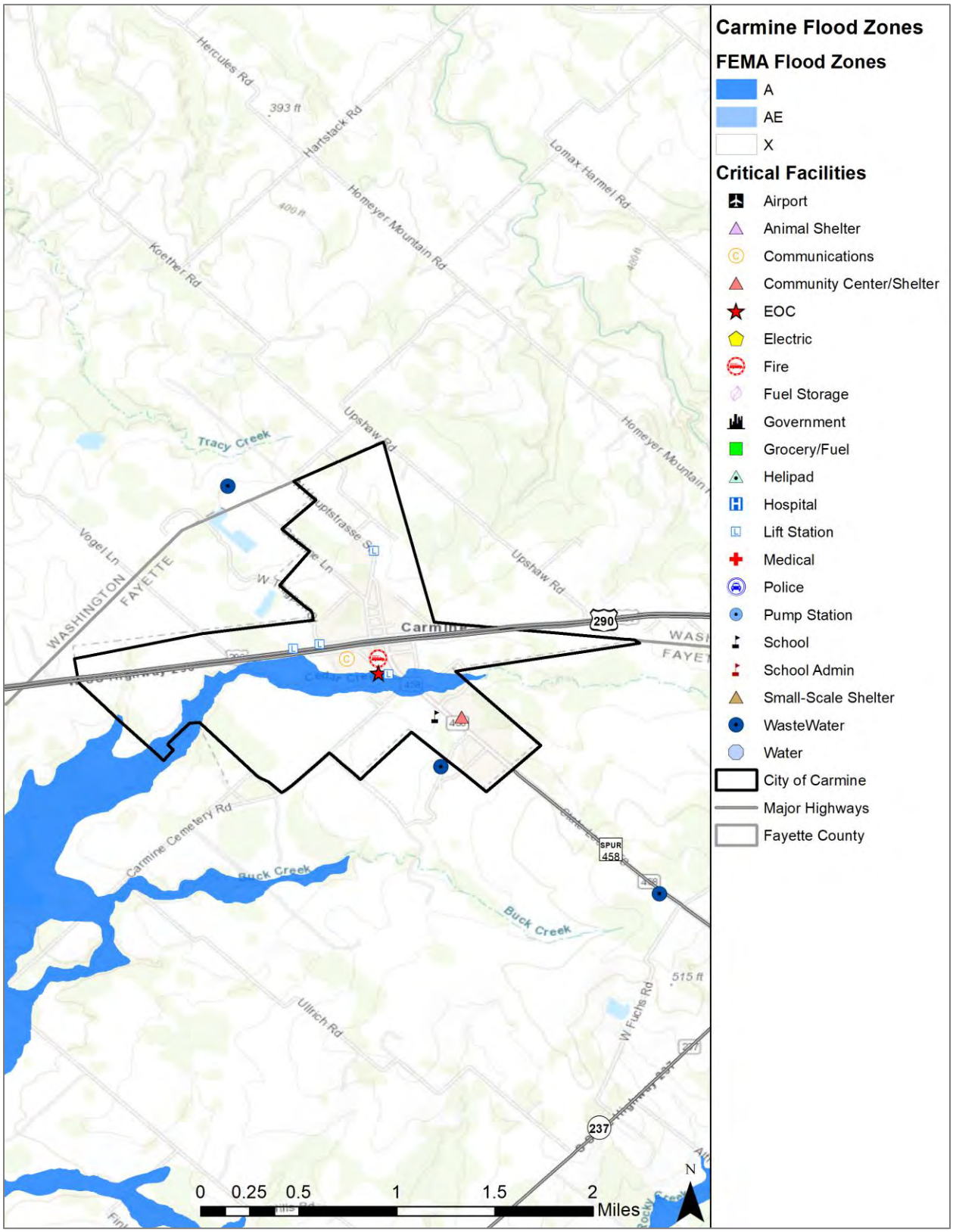


Figure 5-3. Estimated Flood Zones in City of Ellinger

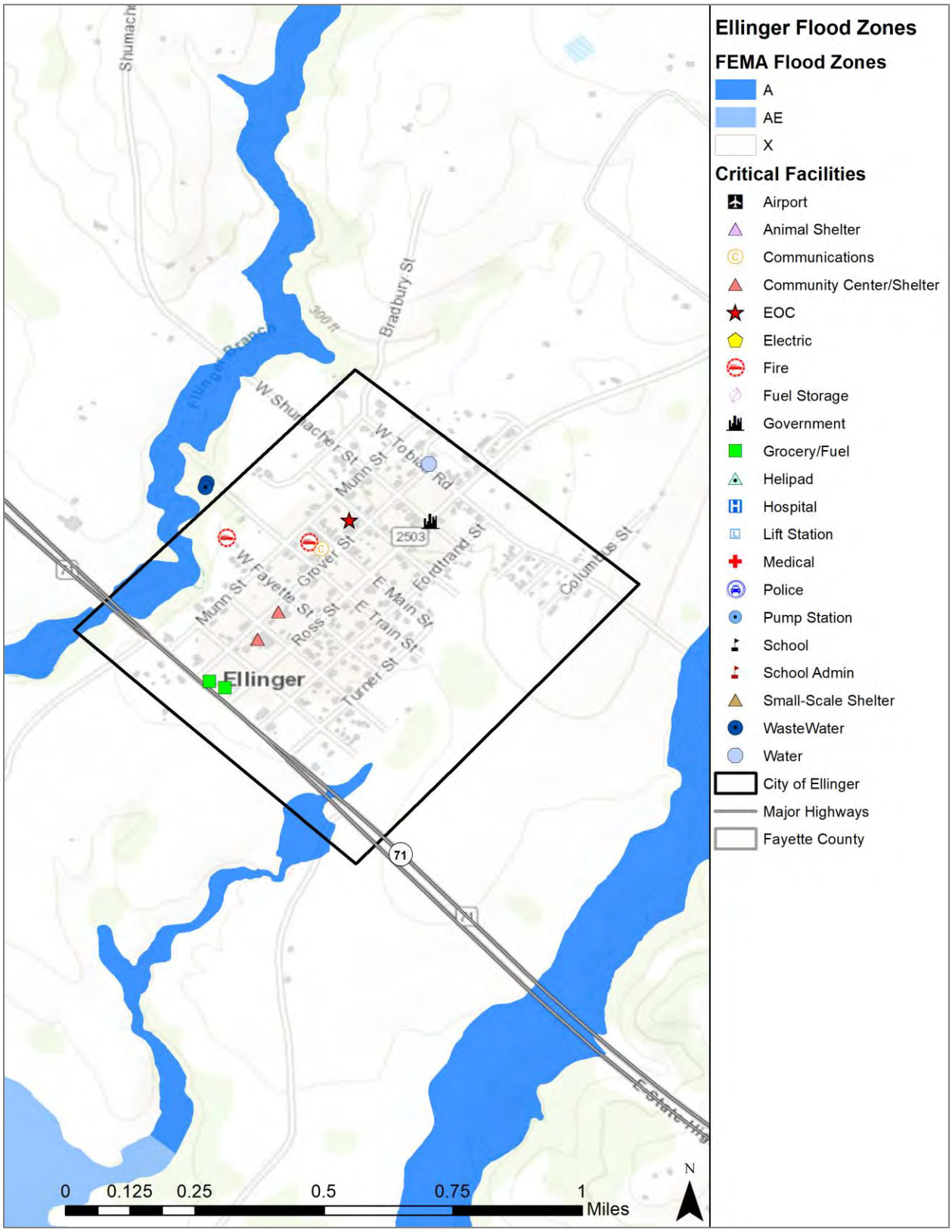


Figure 5-4. Estimated Flood Zones in City of Fayetteville

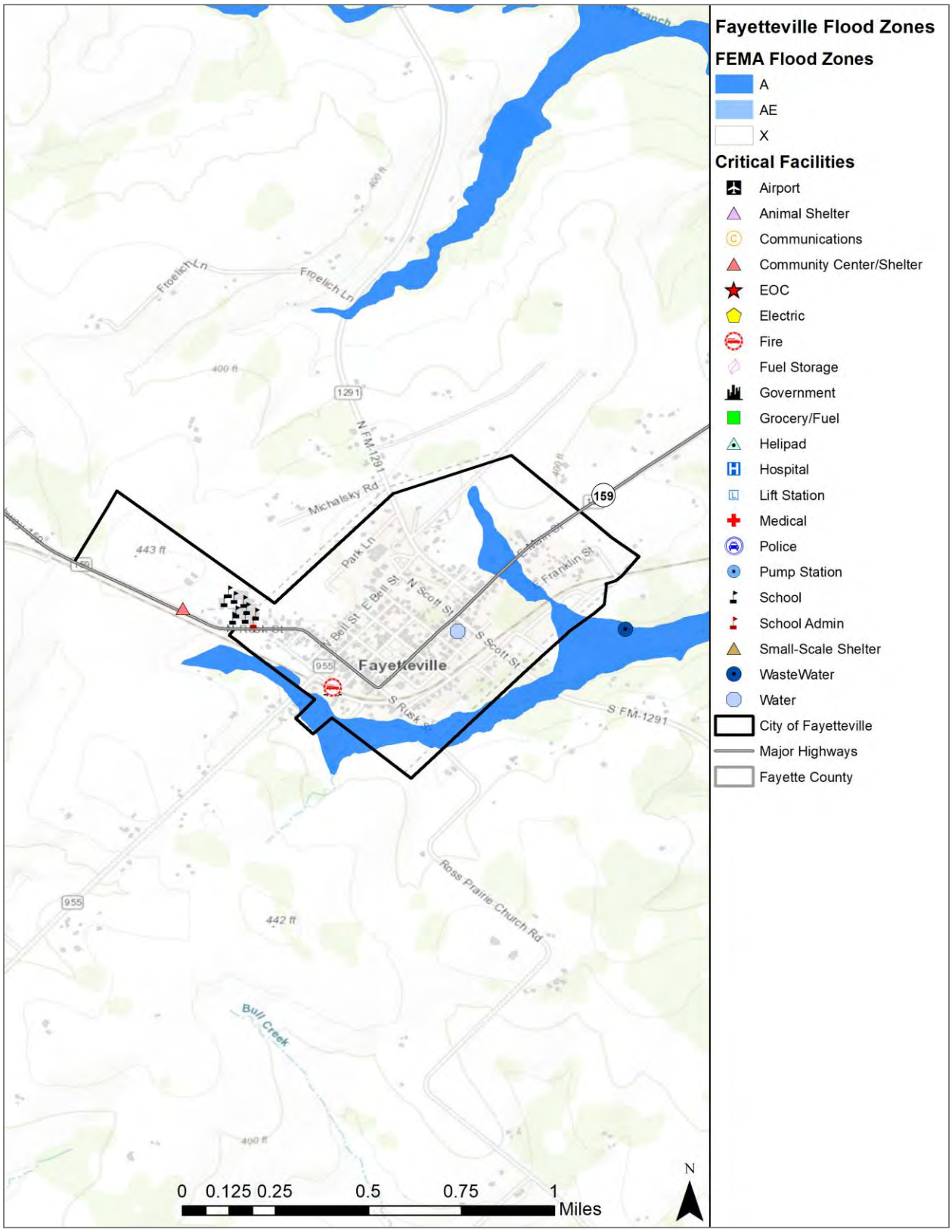


Figure 5-5. Estimated Flood Zones in City of Flatonia

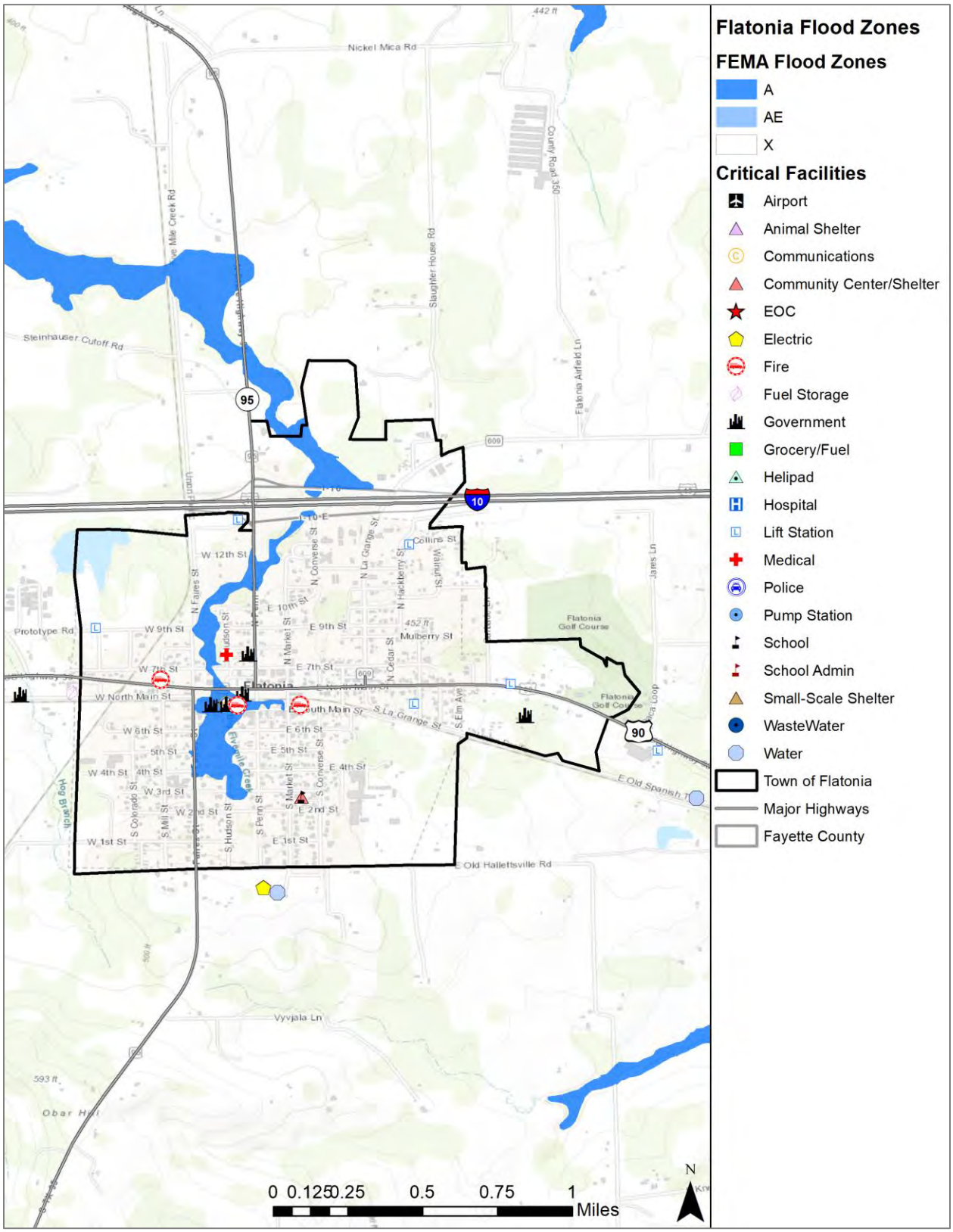


Figure 5-6. Estimated Flood Zones in City of La Grange

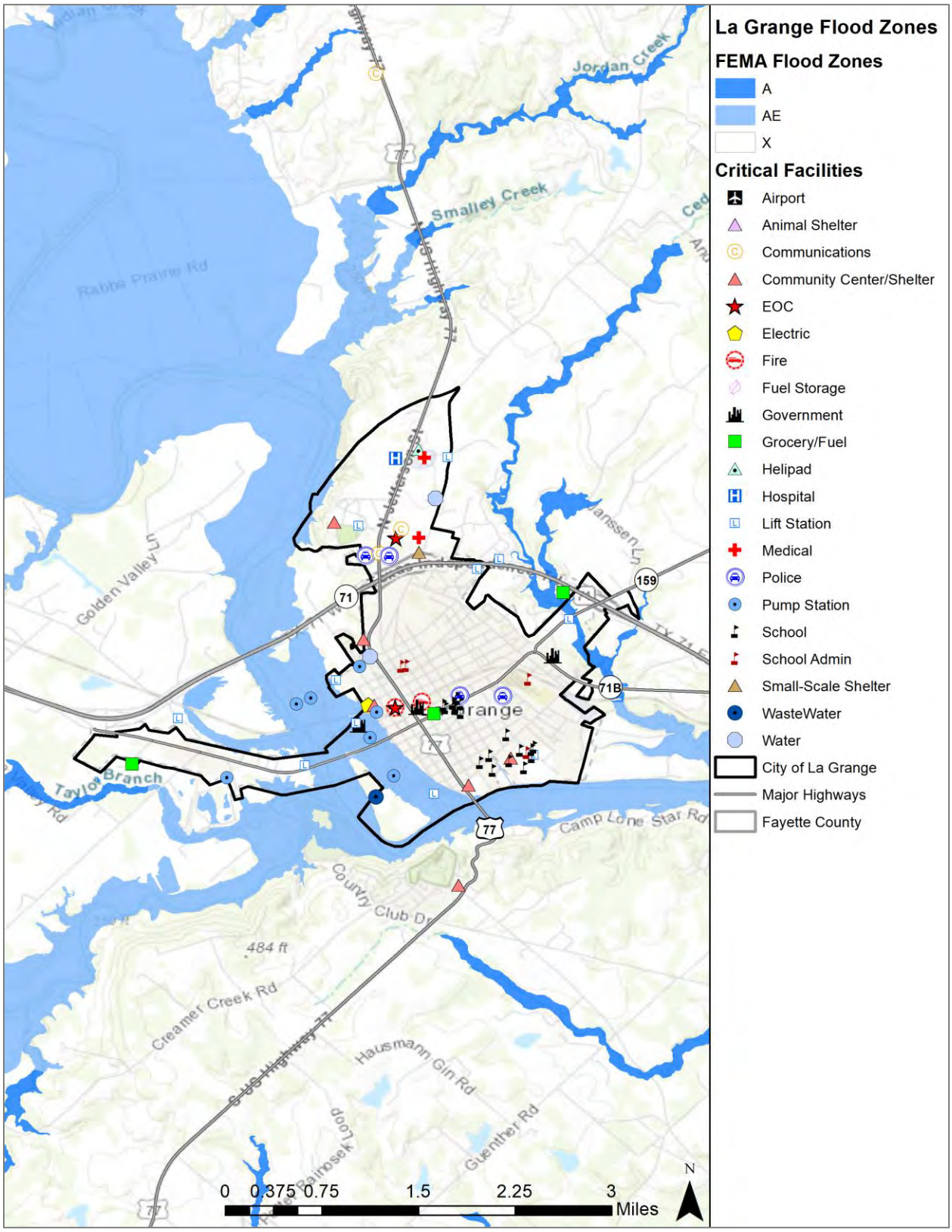


Figure 5-7. Estimated Flood Zones in City of Round Top

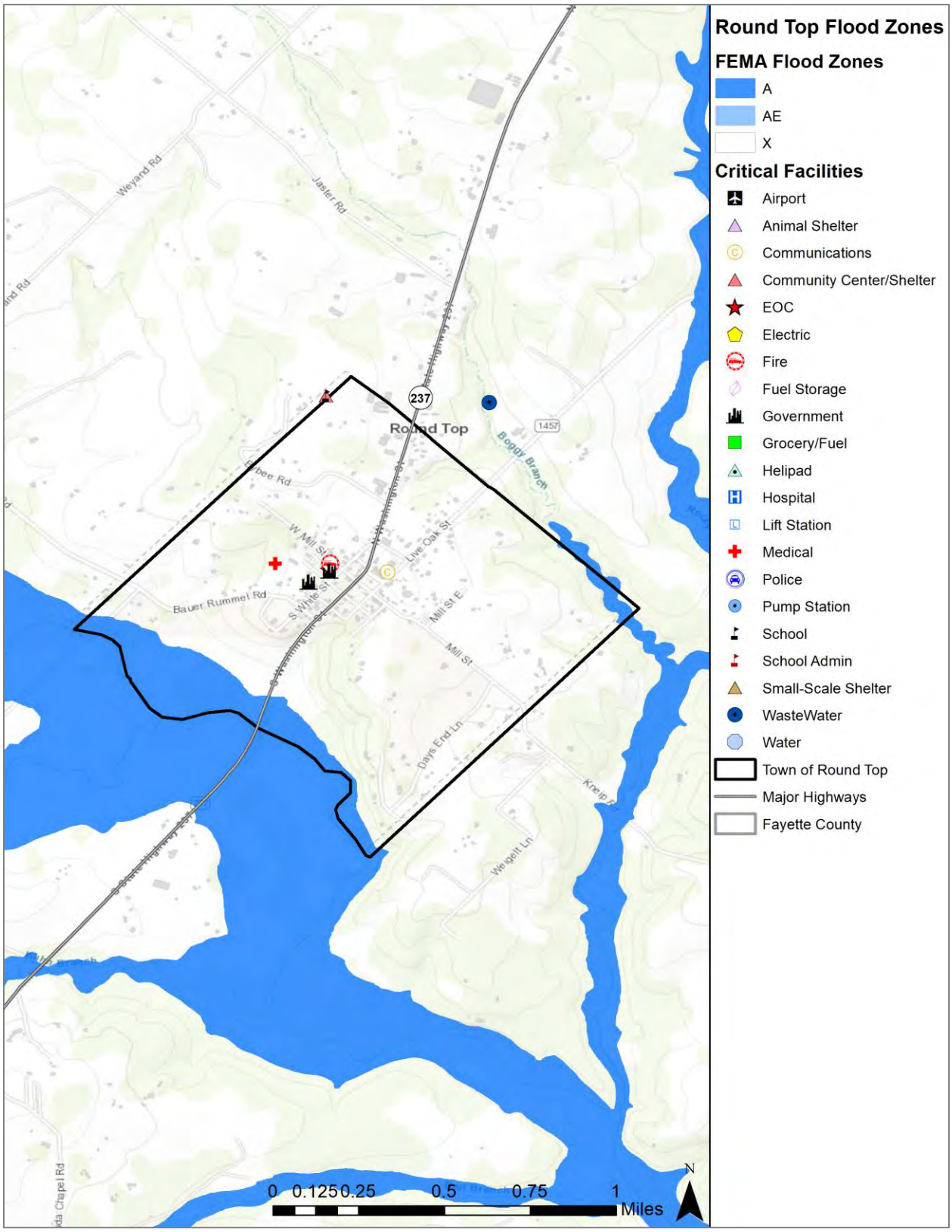


Figure 5-8. Estimated Flood Zones in City of Schulenburg

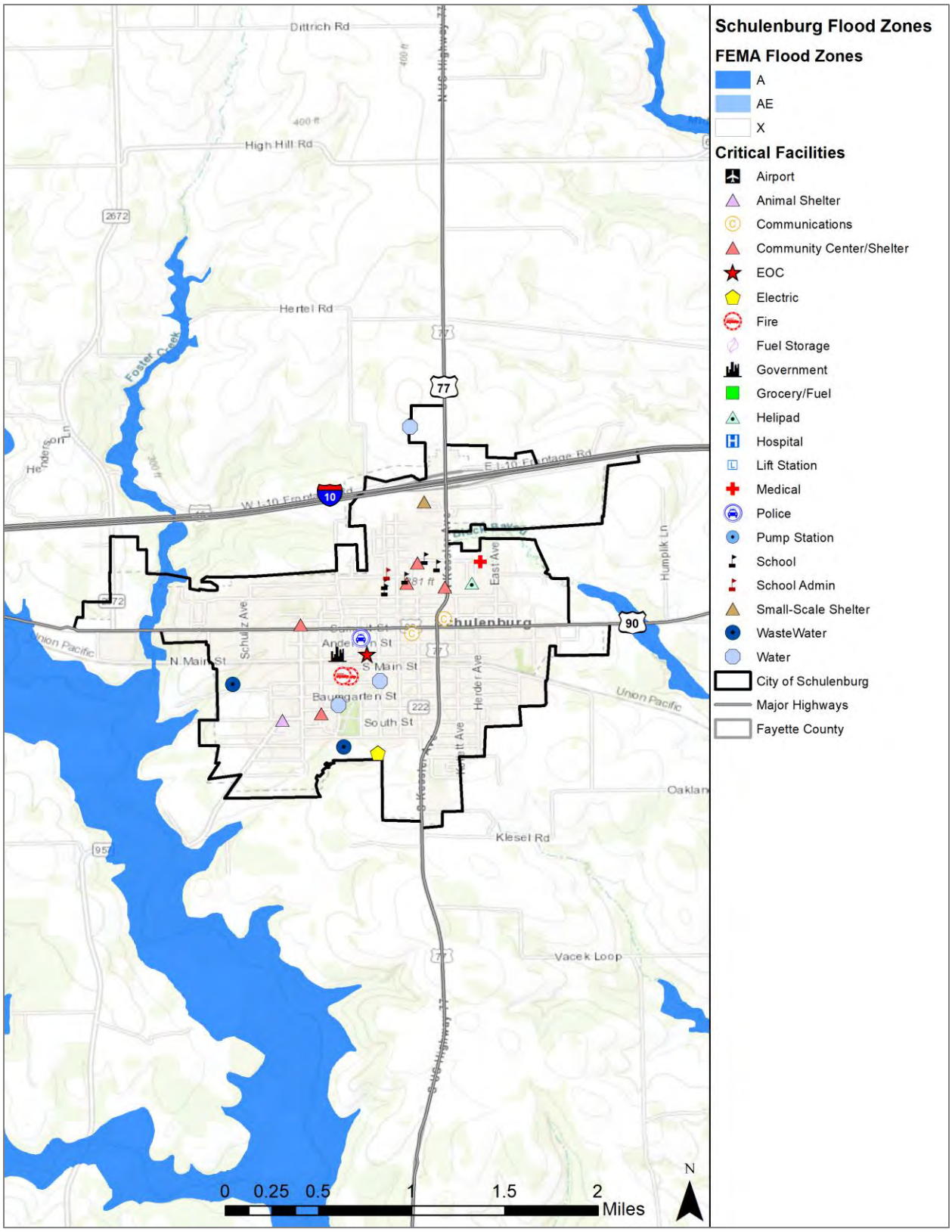


Figure 5-9. Estimated Flood Zones in Fayetteville ISD

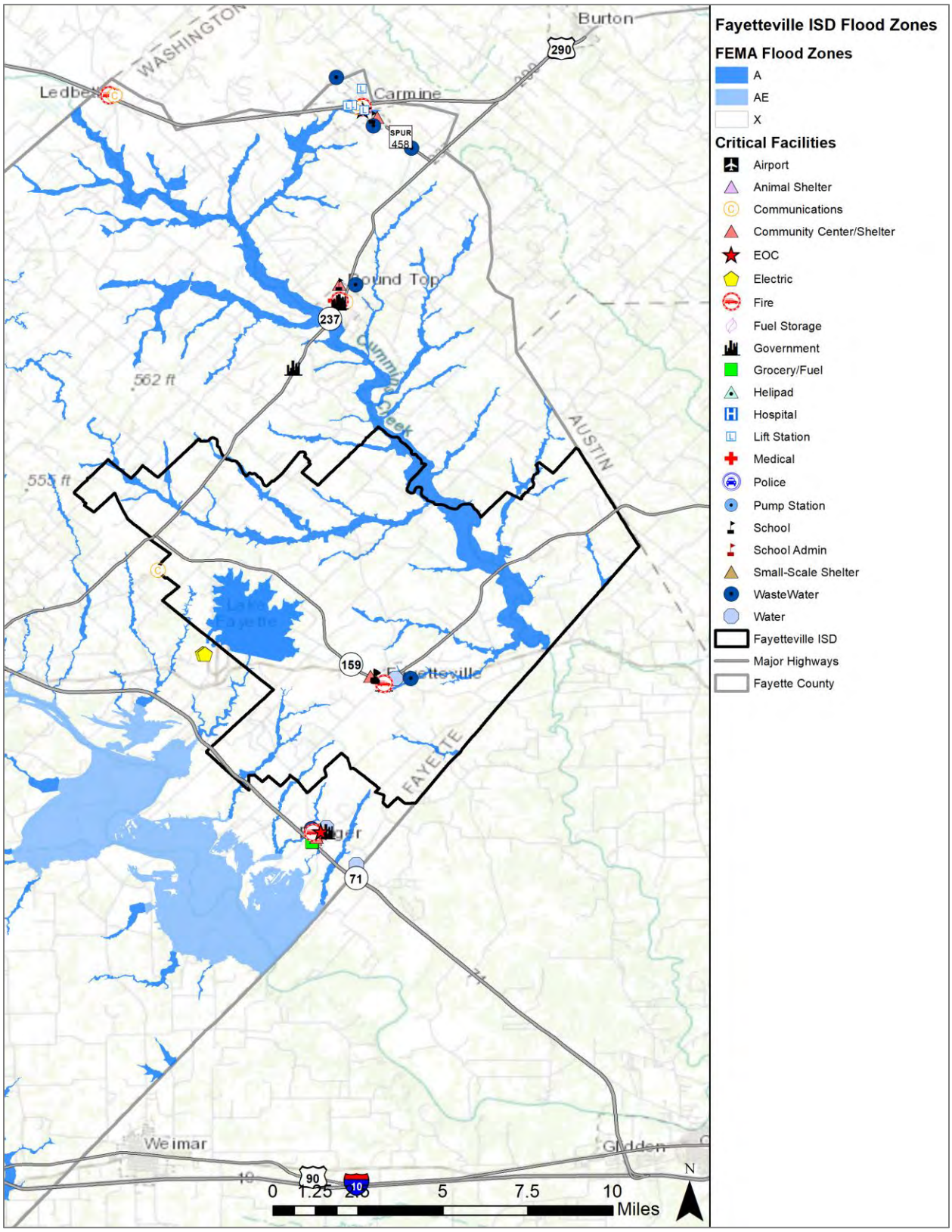


Figure 5-10. Estimated Flood Zones in Flatonia ISD

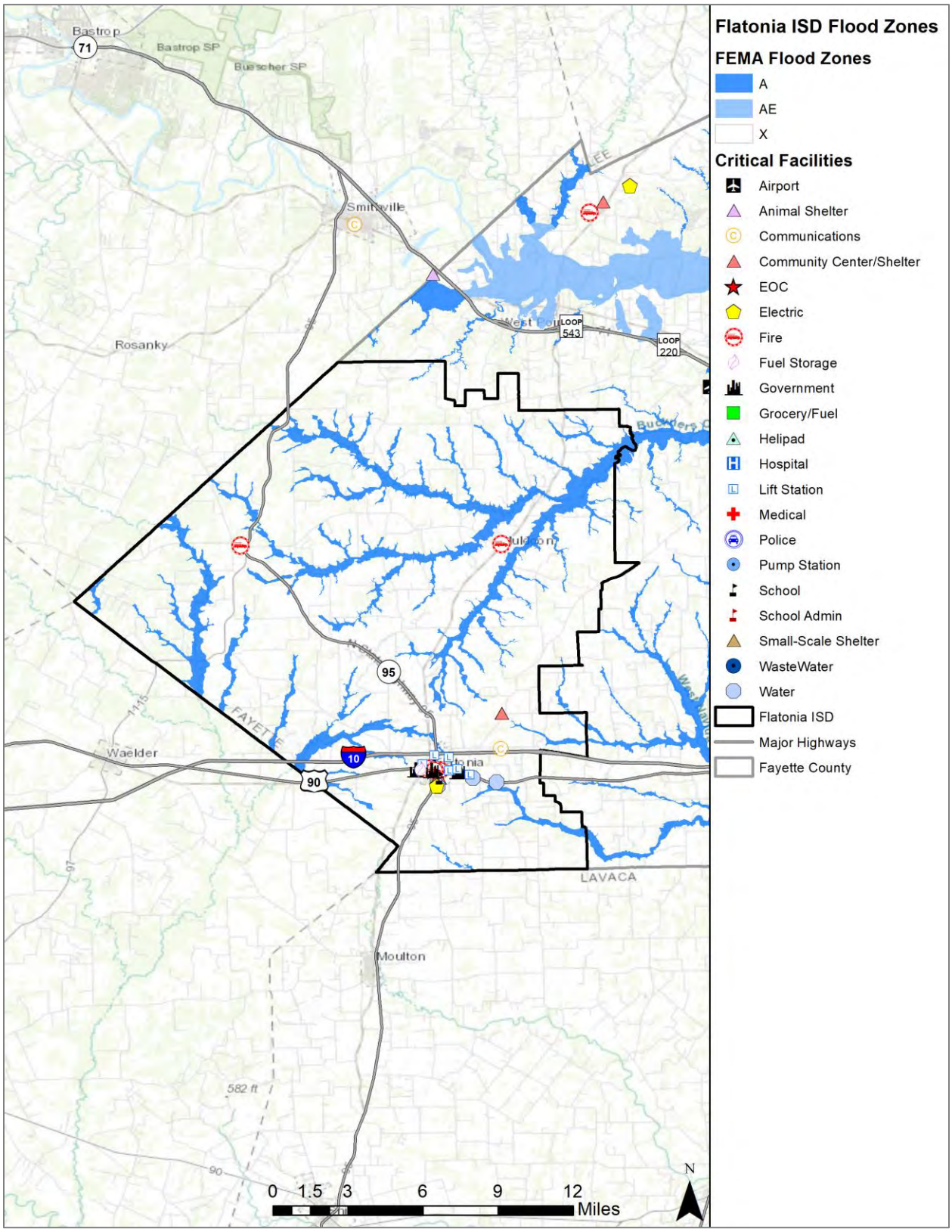


Figure 5-11. Estimated Flood Zones in La Grange ISD

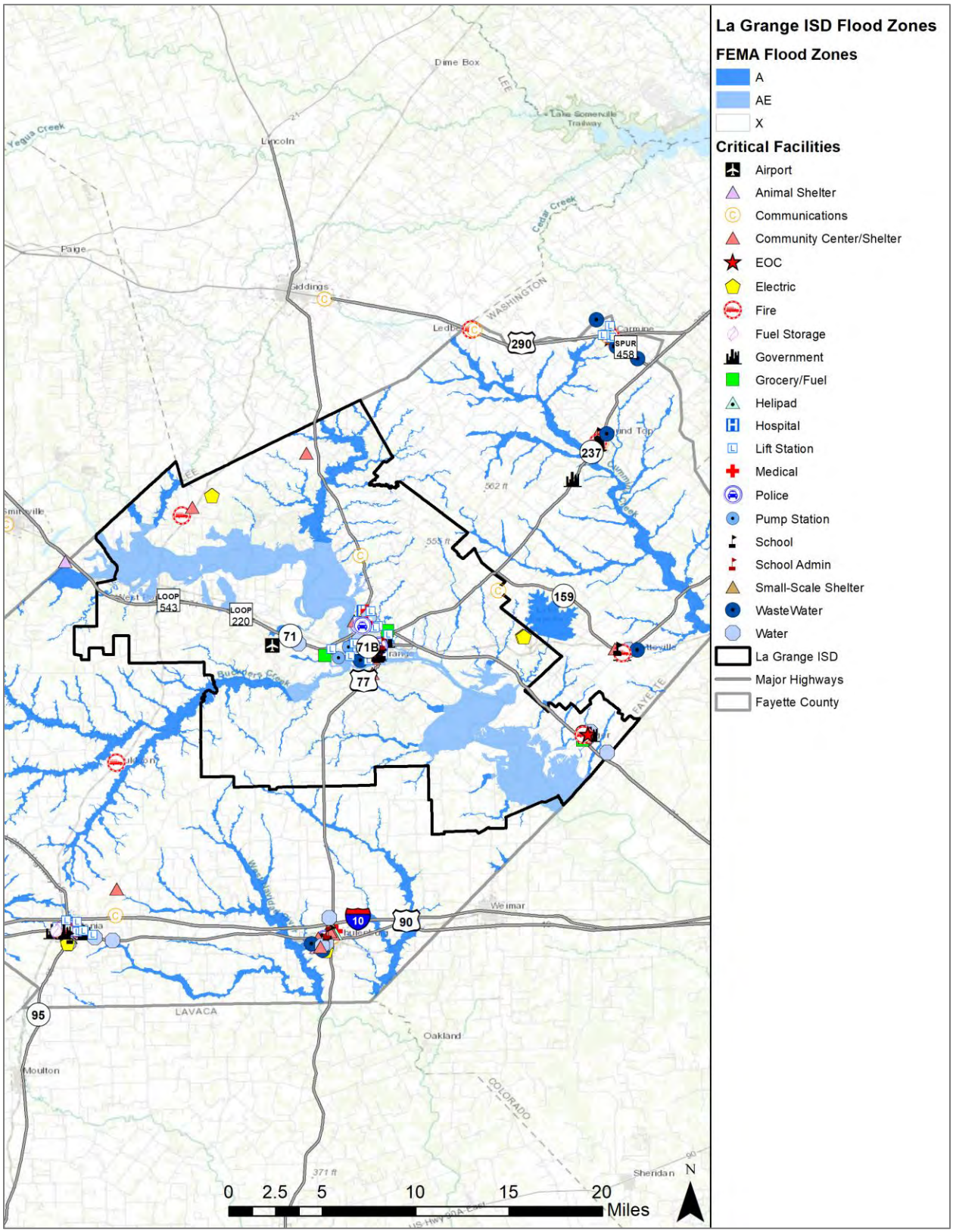


Figure 5-12. Estimated Flood Zones in Round Top - Carmine ISD

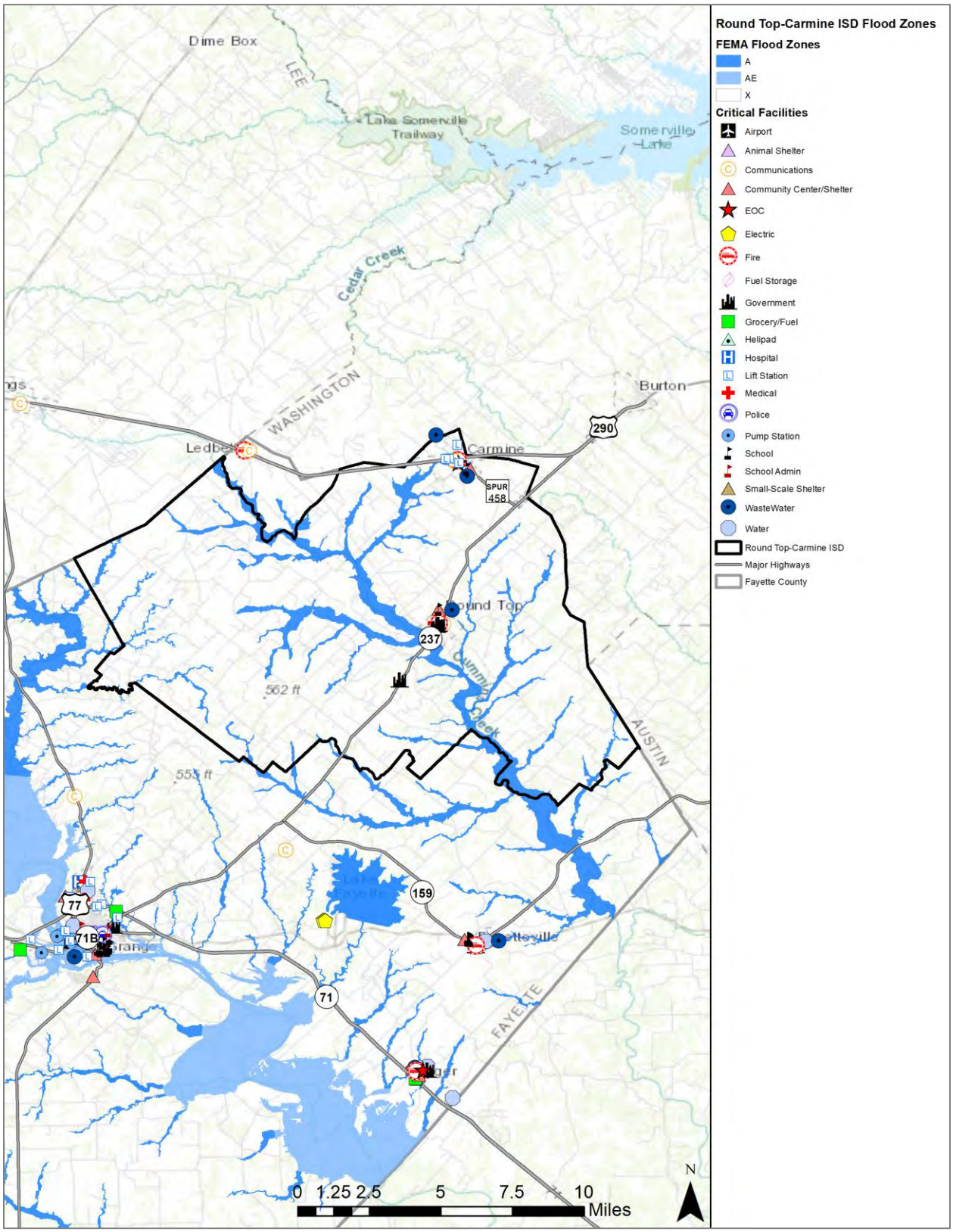
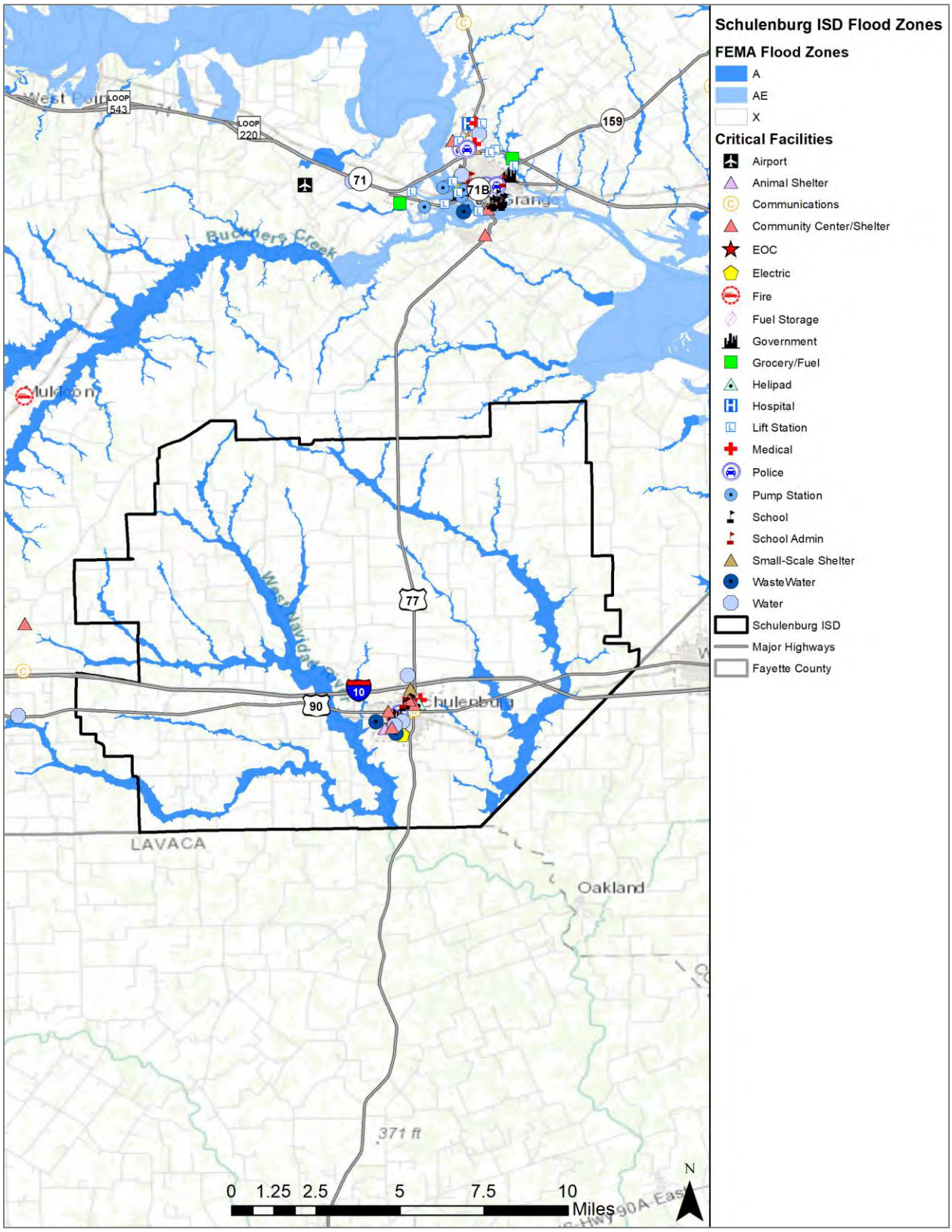


Figure 5-13. Estimated Flood Zones in Schulenburg ISD



EXTENT

The severity of a flood event is determined by a combination of several factors including stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and degree of vegetative clearing and impervious surface. Typically, floods are long-term events that may last for several days.

Determining the intensity and magnitude of a flood event is dependent upon the flood zone and location of the flood hazard area in addition to depths of flood waters. Extent of flood damage can be expected to be more damaging in the areas that will convey a base flood. FEMA categorizes areas on the terrain according to how the area will convey flood water. Flood zones are the categories that are mapped on Flood Insurance Rate Maps. Table 5-1 provides a description of FEMA flood zones and the flood impact in terms of severity or potential harm. Flood Zones A, AE, and X are the only hazard areas mapped in the planning area. Figure 5-1 through Figure 5-13 should be read in conjunction with the extent for flooding in Tables 5-1 and 5-2 to determine the intensity of a potential flood event.

Table 5-1. Flood Zones

INTENSITY	ZONE	DESCRIPTION
HIGH	ZONE A	Areas with a one percent annual chance of flooding and a 26 percent 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 A1-30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a Base Flood Elevation (BFE) (old format).
	ZONE AE	The base floodplain where base flood elevations are provided. AE Zones are now used on the new format FIRMs instead of A1-A30 Zones.
	ZONE AO	River or stream flood hazard areas and areas with a one percent or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from one to three feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
	ZONE AH	Areas with a one percent annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from one to three feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
	ZONE A99	Areas with a one percent annual chance of flooding that will be protected by a federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.

INTENSITY	ZONE	DESCRIPTION
	ZONE AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
HIGH COASTAL	ZONE VE, V1-30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
MODERATE to LOW	ZONE X 500	An area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than one foot or with drainage areas less than one square mile; or an area protected by levees from 100-year flooding.

Zone A is interchangeably referred to as the 100-year flood, the one percent-annual chance flood, the Special Flood Hazard Area (SFHA), or more commonly, the base flood. This is the area that will convey the base flood and constitutes a threat to the planning area. The impact from a flood event can be more damaging in areas that will convey a base flood.

Structures built in the SFHA are subject to damage by rising waters and floating debris. Moving flood water exerts pressure on everything in its path and causes erosion of soil and solid objects. Utility systems, such as heating, ventilation, air conditioning, fuel, electrical systems, sewage maintenance systems and water systems, if not elevated above base flood elevation, may also be damaged.

The intensity and magnitude of a flood event is also determined by the depth of flood water. Table 5-2 describes the stream gauge data provided by the United States Geological Survey (USGS).

Table 5-2. Extent for Fayette County[1]

JURISDICTION[2]	PEAK FLOOD EVENT
Fayette County	Colorado River above La Grange in Fayette County Texas reached an overflow elevation of 54.14 in August 2017. The average overflow elevation for Colorado River is 23.5 feet at this site.

The range of flood intensity that the planning area can experience is high, or Zone A. Based on historical occurrences, the Fayette County planning area could expect to experience 5.5 inches of rain within a 5-hour period, resulting in flash flooding.

[1] Severity estimated by averaging floods at certain stage level over the history of flood events. Severity and peak events are based on U.S. Geological Survey data.
[2] Severity is provided for jurisdictions where peak data was provided.

The data described in Tables 5-1 and 5-2, together with Figures 5-1 through 5-13, and historical occurrences for the area, provides an estimated potential magnitude and severity for the Fayette County planning area, including participating jurisdictions and ISDs. For example, the City of La Grange, as shown in Figure 5-6, has areas designated as Zone A and AE. Reading this figure in conjunction with Table 5-1 means the area is an area of high risk for flood.

HISTORICAL OCCURRENCES

The National Centers for Environmental Information (NCEI) Storm Events database is a national data source organized under the National Oceanic and Atmospheric Administration (NOAA). The NCEI is the largest archive available for historic storm events data; however, it is important to note that only incidents recorded in the NCEI have been factored into this risk assessment unless otherwise noted, therefore it is likely that additional flood occurrences have gone unreported before and during the recording period. Historical evidence indicates that areas within the planning area are susceptible to flooding, especially in the form of flash flooding. Table 5-3 identifies historical flood events in the Fayette County planning area. Table 5-4 provides the historical flood event summary. Historical data is provided by planning team members and the Storm Prediction Center (NOAA), NCEI database for the Fayette County planning area, including participating jurisdictions and ISDs.

There have been 83 recorded flood events in Fayette County, including all participating jurisdictions and ISDs. Historical flood data for each participating ISD are provided within the County / City events per the NCEI database as the database does not have events reported separately for the participating ISDs.

Fayetteville ISD reported a history of areas within their district being prone to flooding, but no significant damages or reported injuries have been provided by the school district.

La Grange ISD reported a history of flooding east of their high school campus reporting 3-4 feet of water in designated areas within the district. The ISD has not provided damage estimates but has identified mitigation actions in an effort to remediate flooding (see Section 19). There have been no reported injuries.

Round Top – Carmine ISD reported a history of damage at both their elementary and high school campuses. Round-Top Carmine ISD indicated an event in May of 2016 causing approximate damage costs at both site locations to be roughly $123,928.00 (2022 dollars). There were no reported injuries as a result of a flood event.

For Flatonia ISD and Schulenburg ISD there has been no reported history of damages or injuries as a result of a flood event.

Table 5-3. Historical Flood Events, 1996-2022[3]

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	4/25/1997	0	0	$9,244	$0
Fayette County	6/6/1997	0	0	$27,714	$0

[3] Only recorded events with fatalities, injuries, and/or damages are listed, values are in 2022 dollars. Historical events are listed from January 1996 through December 2022.

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	10/10/1997	0	0	$54,982	$0
Fayette County	10/13/1997	0	0	$36,655	$0
Fayette County	6/5/1998	0	0	$9,085	$0
Fayette County	10/17/1998	0	5	$361,184	$180,592
Fayette County	10/17/1998	0	10	$541,776	$361,184
Fayette County	11/12/1998	0	0	$72,237	$90,296
Fayette County	11/14/1998	0	0	$36,118	$0
Fayette County	1/1/1999	0	0	$9,013	$0
Fayette County	5/28/1999	0	0	$17,820	$0
Fayette County	11/3/2000	0	0	$8,506	$0
Fayette County	11/5/2000	0	0	$8,506	$0
Fayette County	10/9/2002	0	0	$49,008	$0
Fayette County	11/4/2002	0	0	$24,504	$0
Fayette County	2/20/2003	0	0	$24,263	$0
Fayette County	6/13/2003	0	0	$8,061	$0
City of La Grange	6/3/2007	0	0	$42,645	$0
City of Schulenburg	4/17/2009	1	0	$13,889	$0
City of Schulenburg	5/18/2015	0	0	$12,454	$0
Fayette County	8/27/2017	0	0	$60,315,291	$0
TOTALS		**1**	**15**	**$61,682,955**	**$632,072**

Table 5-4. Summary of Historical Flood Events, 1996-2022

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	57	0	15	$61,613,968	$632,072
City of Carmine	1	0	0	$0	$0
City of Ellinger	2	0	0	$0	$0
City of Fayetteville	2	0	0	$0	$0
City of Flatonia	6	0	0	$0	$0
City of La Grange	10	0	0	$42,645	$0

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Round Top	0	-	-	-	-
City of Schulenburg	5	1	0	$26,343	$0
Fayetteville ISD	0	-	-	-	-
Flatonia ISD	0	-	-	-	-
La Grange ISD	0	-	-	-	-
Round Top – Carmine ISD	1	0	0	$123,928	$0
Schulenburg ISD	0	-	-	-	-
TOTALS	**84**	**1**	**15**	**$61,806,884**	**$632,072**

Based on the list of historical flood events for the Fayette County planning area (listed above), nine events have occurred since the 2016 Plan.

SIGNIFICANT EVENTS

Flood on August 27, 2017 – Fayette County

Hurricane Harvey moved onshore as a Category 4 hurricane moving inland entering southern DeWitt County during the morning of August 26th as a Category 1 hurricane. It continued to weaken as it moved farther inland with several places in Fayette, Lavaca, and Bastrop Counties receiving 20 or more inches of rain. Tropical storm force winds with estimated gusts up to 60 mph caused damage across the region. The highest rainfall total was 29.19 inches outside of the City of La Grange, with the majority of Fayette County receiving 20 or more inches of rain. Flooding and flash flooding forced 608 residents to be evacuated from their homes, with 400 of these residents in Fayette County as the Colorado River at the City of LaGrange rose to 54.2 feet. Much of the City below Waters Street was flooded. Schools in the Fayetteville Independent School District sustained $95,514 (2022 dollars) damage[4]. There were roughly 400 residential structures impacted across the county with reports indicating 200 had substantial flood damage, 150 moderate damage, and 50 minor damage. About 2 dozen businesses in and near the City of La Grange sustained major flood damage. Flooding was mainly along the Colorado River from Bastrop County all the way through Fayette County. Additional flooding and homes flooded along Buckners Creek in the City of La Grange and Cummins Creek near the City of Round Top area. 5 to 6 homes flooded near the City of Fayetteville. Infrastructure loss from roads and bridges across the County was approximately $596,963 (2022 dollars). Insured/uninsured losses are unknown but is likely in the tens of millions.

Flash Flood on May 23 to 25, 2015 – Fayette County

An extreme precipitation event occurred throughout the Central and South Texas regions over Memorial Day weekend. A large volume of precipitation fell within a relatively short period of time, resulting in damaging flood water throughout the region. According to NWS, observed rainfalls in

[4] While the NCEI events include a report of damages to Fayetteville ISD, the school district could not confirm any direct damages during that time period. Therefore, these damages are accounted for under the totals for the city as they are assumed to represent utility or infrastructure damages at or near school facilities.

Comal, Guadalupe, Hays, Comal, Travis, and Kerr Counties exceeded 6 inches within a 48-hour period. Areas within Blanco, Comal, and Kendall Counties received at least 8 inches within 48 hours, and a Blanco County rain gauge managed by LCRA recorded 9.41 inches of rain over the same time period. Fayette County received an average of 2.61 inches of rainfall throughout the County, according to NWS. On May 27, the Colorado River reached a peak flow of over 60,000 cubic feet per second and reached an elevation of about 37.19 feet. There were multiple injuries and fatalities from this event throughout the state. However, few injuries and no fatalities were reported for Fayette County. Fayette County was declared a Federal Disaster Area on June 11, 2015. While exact damages are still being calculated, an early estimate by FEMA of $31 million was made for the entire state, not just Fayette County.

Flash Flood on April 17, 2009 – City of Schulenburg
An upper-level area of low pressure sent a series of short-wave troughs across south central Texas, which produced severe thunderstorms. A law enforcement official reported a stalled car in an underpass in the City of Schulenburg with the water rising rapidly. An elderly couple was in the car. The woman was rescued, but the elderly man drowned. No other injuries were reported, and property damage for the event amounted to $13,641 (2022 dollars).

Flash Flood on June 4, 2007 – City of La Grange
Up to 3 inches of rain was produced by showers and thunderstorms in less than one hour between Plum and the City of La Grange. As a result of the heavy rainfall, FM 609 and FM 154 were closed through the late night and into the early morning. No injuries or fatalities were reported, but property damage totaled $42,344 (2022 dollars).

PROBABILITY OF FUTURE EVENTS

Based on 83 recorded historical occurrences within a 27-year reporting period within the Fayette County planning area, flooding is highly likely with 3 to 4 events per year anticipated.

Climate change is not projected to substantially change the risk of riverine flooding statewide. This is in large part due to the construction of dams and reservoirs for flood management in the 20th century. There is a mixture of historical trends categorized by season, with no one clear trend to project. In addition, meteorological drivers of river flooding (increased rainfall intensity and decreased soil moisture) are projected to have competing influences. On balance, if an increasing trend is present in river flooding, it will be at the most extreme flood events or in the wettest parts of the state where there is so much rainfall that a decrease in soil moisture would have little mitigating impact.[5] It is that the Fayette County planning area, including participating jurisdictions and ISDs, could experience an increase in the number of extreme precipitation days because of climate change.

VULNERABILITY AND IMPACT

A property's vulnerability to a flood depends on its location and proximity to the floodplain. Structures that lie along banks of a waterway are the most vulnerable and are often repetitive loss structures. Fayette County encourages development outside of the floodplain, and the impact for flood for the entire planning area is "Limited" as facilities and services would be shut down for less

[5] Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

than one week, and less than 10 percent of property destroyed or with major damage. However, with one reported fatality and fifteen injuries, the impact is considered “Substantial”, with multiple deaths possible depending on the size and magnitude of the flood event.

Table 5-4 includes the critical facilities identified in Appendix C that were determined to be located within the SFHA by FIRM mapping.

Table 5-4. Critical Facilities in the Floodplain by Jurisdiction

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals (2 Police Stations, 1 Fire Station located in flood hazard area)	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles can be damaged by rising flood waters. • Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm’s way. • Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities and increasing sheltering needs for displaced residents. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Washed out roads and bridges can impede emergency response vehicle access to areas. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • First responders are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions. • Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities (1 Courthouse, 3 City Hall facilities, 1 Post Office located in	• Structures can be damaged by rising flood waters. • Power outages could disrupt critical care. • Backup power sources could be damaged, inundated or otherwise inoperable. • Critical staff may be impacted and unable to report for duty, limiting response capabilities. • Evacuations may be necessary due to extended power outages, gas line ruptures, or inundation of facilities. • Additional emergency responders and critical aid workers may not be able to reach the area for days. • Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations. • Temporary break in operations may significantly inhibit post event evacuations.

CRITICAL FACILITIES	POTENTIAL IMPACTS
flood hazard area)	• Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.
Utility Services and Infrastructure (electric, water, wastewater, communications) (1 Sewage Plant, 4 Water Plants, treatment, 5 Lift Stations, 1 Communications Tower located in flood hazard area)	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency service vehicles can be damaged by rising flood waters. • Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing emergency service workers in harm's way. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • Service responders are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions. • Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.

Historic loss estimates due to flood are presented in Table 5-5 below. Considering 83 flood events over a 27-year period, frequency is approximately two to three events every year.

Table 5-5. Potential Annualized Losses

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Fayette County	$62,246,040	$2,305,409
City of Carmine	$0	$0
City of Ellinger	$0	$0
City of Fayetteville	$0	$0
City of Flatonia	$0	$0
City of La Grange	$42,645	$1,579
City of Round Top	$0	$0
City of Schulenburg	$26,343	$976
Fayetteville ISD	$0	$0
Flatonia ISD	$0	$0
La Grange ISD	$0	$0
Round Top – Carmine ISD	$123,928	$4,590
Schulenburg ISD	$0	$0

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
TOTAL	$62,438,956	$2,313,554

While all citizens are at risk of the impacts of a flood, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 9.8 percent of the planning area population live below the poverty level. While warning times for these type of hazard events should be substantial enough for individuals to seek shelter, individuals who work and recreate outside are also vulnerable to potential impacts of a flood event.

Table 5-6. Populations at Greatest Risk[6]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Fayette County	2,369
City of Carmine	7
City of Ellinger	0
City of Fayetteville	15
City of Flatonia	102
City of La Grange	532
City of Round Top	0
City of Schulenburg	482

The severity of a flooding event varies depending on the relative risk to citizens and structures located within the planning area. Table 5-7 depicts the level of impact for the Fayette County planning area, including participating jurisdictions and ISDs.

Table 5-7. Impact by Jurisdiction

JURISDICTION	IMPACT	DESCRIPTION
Fayette County	Substantial	While it is anticipated that the Fayette County could anticipate an impact of “limited” with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged, the historical injuries and fatalities resulting from flood indicate a “substantial” impact.
City of Carmine	Limited	It is anticipated that the City could anticipate an impact of “limited” with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.

[6] US Census Bureau American Community Survey Five-Year Estimates 2017-2021 data for Fayette County planning area.

JURISDICTION	IMPACT	DESCRIPTION
City of Ellinger	Limited	It is anticipated that the City could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
City of Fayetteville	Limited	It is anticipated that the City could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
City of Flatonia	Limited	It is anticipated that the City could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
City of La Grange	Limited	It is anticipated that the City could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
City of Round Top	Limited	It is anticipated that the City could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
City of Schulenburg	Substantial	While it is anticipated that the City could anticipate an impact of "minor" with critical facilities shut down for a week or more, and more than 10 percent of property would be destroyed or damaged, the historical injuries and fatalities resulting from flood indicate a "substantial" impact.
Fayetteville ISD	Limited	It is anticipated that the ISD could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
Flatonia ISD	Limited	It is anticipated that the ISD could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
La Grange ISD	Limited	It is anticipated that the ISD could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
Round Top – Carmine ISD	Limited	It is anticipated that the ISD could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.
Schulenburg ISD	Limited	It is anticipated that the ISD could anticipate an impact of "limited" with critical facilities shut down for a week or less, and less than 10 percent of property would be destroyed or damaged.

ASSESSMENT OF IMPACTS

Flooding is the deadliest natural disaster that occurs in the U.S. each year, and it poses a constant and significant threat to the health and safety of the people in the Fayette County planning area. The impact of climate change could produce larger, more severe flood events, exacerbating the

current flood impacts. Worsening flood conditions can be frequently associated with a variety of impacts, including:

- Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way.
- Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities, and increasing sheltering needs for displaced residents.
- Health risks and threats to residents are elevated after the flood waters have receded due to contaminated flood waters (untreated sewage and hazardous chemicals) and mold growth typical in flooded buildings and homes.
- Significant flood events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage can result in an increase in structure fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Floods can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders are exposed to downed power lines, contaminated and potentially unstable debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Emergency operations and services may be significantly impacted due to damaged facilities.
- Significant flooding can result in the inability of emergency response vehicles to access areas of the community.
- Critical staff may suffer personal losses or otherwise impacted by a flood event and unable to report for duty, limiting response capabilities.
- County and City departments may be flooded, delaying response and recovery efforts for the entire community.
- Private sector entities that the jurisdiction and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the flood may be negatively impacted while utilities are being restored or water recedes, further slowing economic recovery.
- When the community is affected by significant property damage it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures substantially damaged by a flood may not be rebuilt for years and uninsured or underinsured residential structures may never be rebuilt, reducing the tax base for the community.

- Large floods may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Flooding may cause significant disruptions of clean water and sewer services, elevating health risks and delaying recovery efforts.
- The psycho-social effects on flood victims and their families can traumatize them for long periods of time, creating long term increases in medical treatment and services.
- Extensive or repetitive flooding can lead to decreases in property value for the affected community.
- Flood poses a potential catastrophic risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Flood related declines in production may lead to an increase in unemployment.
- Large floods may result in loss of livestock, potential increased livestock mortality due to stress and water borne disease, and increased cost for feed.
- Recreation activities at areas such as Monument Hills State Park and Kriesche Brewery may be unavailable and tourism can be unappealing for years following a large flood event, devastating directly related local businesses and negatively impacting economic recovery.
- Parks, recreational areas and nature preserves, such as Park Prairie Park and Oak Thicket Park may suffer significant wildlife mortality during and following a flood due to damaged or destroyed ecosystems and water contamination.

The overall extent of damages caused by floods is dependent on the extent, depth and duration of flooding, and the velocities of flows in the flooded areas. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a flood event.

CLIMATE CHANGE CONSIDERATIONS

Significant precipitation events have caused significant flood-related damage to the Fayette County planning area, including participating jurisdictions and ISDs. River flooding in Texas is projected to have no substantial change through 2036. This is in large part due to the construction of dams and reservoirs for flood management in the 20th century. There is a mixture of historical trends categorized by season, with no one clear trend to project. In addition, meteorological drivers of river flooding (increased rainfall intensity, decreased soil moisture) are projected to have competing influences. On balance, if an increasing trend is present in river flooding, it will be at the most extreme flood events or in the wettest parts of the state where there is so much rainfall that a decrease in soil moisture would have little mitigating impact.[7]

Future projections show a slight increase in the amount of precipitation falling in the wettest 3-day event for the planning area in the coming 20-year period.

[7] Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) PARTICIPATION

Flood insurance offered through the National Flood Insurance Program (NFIP) is one of the best ways for home and business owners to protect themselves financially against the flood hazard. Fayette County and all participating jurisdictions, except the City of Ellinger, are currently participating in the NFIP and are in good standing. The City of Ellinger was incorporated in November 2020 and is not currently participating in the NFIP. The community is considering becoming a participant in the NFIP and has included an action for joining the NFIP in Section 19 of this Plan.

Fayette County currently has adopted higher standards above the NFIP minimum such as 3 foot of freeboard (above the 100-year floodplain) for residential and non-residential structures and requires all structures, equipment, pipeline and/or other development in the 100-year floodplain to be flood-proofed, if not elevated. The Cities of Carmine, Fayetteville, Flatonia, La Grange, Round Top and Schulenburg are considering adopting additional higher regulatory NFIP standards to limit floodplain development.

The flood hazard areas throughout the planning area are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, of which adversely affect public safety.

These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, flood-proofed or otherwise protected from flood damage. Mitigation actions are included to address flood maintenance issues as well, including routinely clearing debris from drainage systems and bridges and expanding drainage culverts and storm water structures to more adequately convey flood waters.

It is the purpose of Fayette County and the participating jurisdictions to continue to promote the public health, safety and general welfare by minimizing public and private losses due to flood conditions in specific areas. The County and Cities are guided by their local Flood Damage Prevention Ordinance. The community will continue to comply with NFIP requirements through local permitting, inspection, and record-keeping requirements for new and substantially developed construction. Further, the NFIP program promotes sound development in floodplain areas and includes provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in floodplains;
- Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and
- Ensure that potential buyers are notified that property is in a flood area.

In order to accomplish these tasks, Fayette County and the participating jurisdictions seeks to follow these guidelines to achieve flood mitigation by:

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

NFIP COMPLIANCE AND MAINTENANCE

Fayette County and the NFIP participating jurisdictions have developed mitigation actions that relate to either NFIP maintenance or compliance. Compliance and maintenance actions can be found in Section 19.

Flooding was identified as a high-risk hazard during hazard ranking activities at the Risk Assessment Workshop by the vast majority of the planning team. As such, many of the mitigation actions were developed with flood mitigation in mind. A majority of these flood actions address compliance with the NFIP and implementing flood awareness programs. The Fayette County planning area, including NFIP participating jurisdictions, recognizes the need and is continually working towards adopting higher NFIP regulatory standards to further minimize flood risk in their community.

In addition, the Fayette County planning area is focusing on public flood awareness activities. This includes promoting the availability of flood insurance by placing NFIP brochures and flyers in public libraries or public meeting places around the county.

Fayette County and the NFIP participating jurisdictions have designated floodplain administrators. The floodplain administrator for the planning area will continue to maintain compliance with the NFIP including continued floodplain administration, zoning ordinances, and development regulation. The floodplain ordinance adopted by the county and the participating jurisdictions outlines the requirements for development in special flood hazard areas.

REPETITIVE LOSS

The Severe Repetitive Loss (SRL) Grant Program under FEMA provides federal funding to assist states and communities in implementing mitigation measures to reduce or eliminate the long-term risk of flood damage to severe repetitive loss residential structures insured under the NFIP. The Texas Water Development Board (TWDB) administers the SRL grant program for the State of Texas. One of the goals of the FMA program is to reduce the burden of repetitive loss and severe repetitive loss properties on the NFIP through mitigation activities that significantly reduce or eliminate the threat of future flood damages.

Repetitive Loss properties are defined as structures that are:

- Any insurable building for which 2 or more claims of more than $1,000 each, paid by the National Flood Insurance Program (NFIP) within any 10-year period, since 1978;
- May or may not be currently insured under the NFIP.

Severe Repetitive Loss properties are defined as residential properties that are:

- Covered under the NFIP and have at least four flood related damage claim payments (building and contents) over $5,000.00 each, and the cumulative amount of such claims payments exceed $20,000; or
- At least two separate claim payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

In either scenario, at least two of the referenced claims must have occurred within any ten-year period and must be greater than 10 days apart.[8] Table 5-8 shows repetitive loss and severe repetitive loss properties for the Fayette County planning area.

Table 5-8. Repetitive Loss and Severe Repetitive Loss Properties

JURISDICTION	BUILDING TYPE	NUMBER OF STRUCTURES	NUMBER OF LOSSES
Fayette County	Single Family	9	22
Carmine	N/A	0	N/A
Ellinger	N/A	0	N/A
Fayetteville	N/A	0	N/A
Flatonia	N/A	0	N/A
La Grange	Single Family	3	6
Round Top	N/A	0	N/A
Schulenburg	N/A	0	N/A

[8] Source: Texas Water Development Board

SECTION 6
DROUGHT

SECTION 6: DROUGHT

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HAZARD DESCRIPTION

Drought is a period of time without substantial rainfall that persists from one year to the next. Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of anticipated natural precipitation reduction over an extended period of time, usually a season or more in length. Droughts can be classified as meteorological, hydrologic, agricultural, and socioeconomic. Table 6-1 presents definitions for these different types of droughts.

Droughts are one of the most complex of all natural hazards as it is difficult to determine their precise beginning or end. In addition, droughts can lead to other hazards such as extreme heat and wildfires. Their impact on wildlife and area farming is enormous, often killing crops, grazing land, edible plants, and even in severe cases, trees. A secondary hazard to drought is wildfire because dying vegetation serves as a prime ignition source. Therefore, a heat wave combined with a drought is a very dangerous situation.

Table 6-1. Drought Classification Definitions[1]

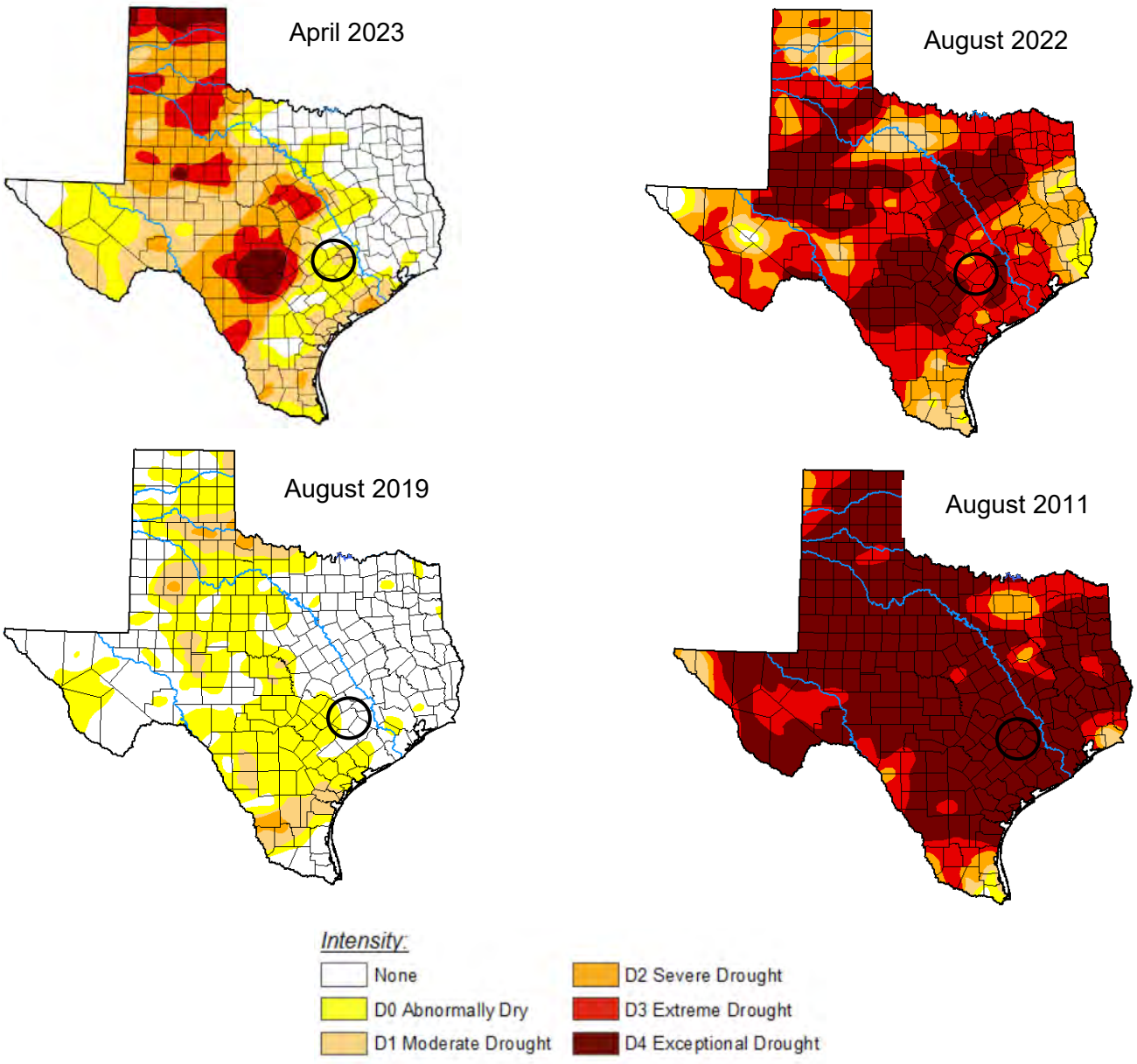
METEOROLOGICAL DROUGHT	The degree of dryness or departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
HYDROLOGIC DROUGHT	The effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
AGRICULTURAL DROUGHT	Soil moisture deficiencies relative to water demands of plant life, usually crops.
SOCIOECONOMIC DROUGHT	The effect of demands for water exceeding the supply as a result of a weather-related supply shortfall.

[1] Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA

LOCATION

Droughts occur regularly throughout Texas and the Fayette County planning area, including participating jurisdictions and ISDs, and are considered a normal condition. However, they can vary greatly in their intensity and duration. The U.S. Drought Monitor, produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, U.S. Department of Agriculture and the National Oceanic and Atmospheric Administration, shows the planning area is currently experiencing abnormally dry and moderate drought conditions and has historically experienced a range of conditions from abnormally dry to exceptional drought conditions over the last decade. There is no distinct geographic boundary to drought; therefore, it can occur throughout the Fayette County planning area equally.

Figure 6-1. U.S. Drought Monitor, August 2011, August 2019, August 2022, April 2023



EXTENT

The Palmer Drought Index is used to measure the extent of drought by measuring the duration and intensity of long-term drought-inducing circulation patterns. Long-term drought is cumulative, with the intensity of drought during the current month dependent upon the current weather patterns plus the cumulative patterns of previous months. The hydrological impacts of drought (e.g., reservoir levels, groundwater levels, etc.) take longer to develop. Table 6-2 depicts magnitude of drought, while Table 6-3 describes the classification descriptions.

Table 6-2. Palmer Drought Index

DROUGHT INDEX	DROUGHT CONDITION CLASSIFICATIONS						
	Extreme	Severe	Moderate	Normal	Moderately Moist	Very Moist	Extremely Moist
Z Index	-2.75 and below	-2.00 to -2.74	-1.25 to -1.99	-1.24 to +.99	+1.00 to +2.49	+2.50 to +3.49	n/a
Meteorological	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above
Hydrological	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above

Table 6-3. Palmer Drought Category Descriptions[2]

CATEGORY	DESCRIPTION	POSSIBLE IMPACTS	PALMER DROUGHT INDEX
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.	-1.0 to -1.9
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-2.0 to -2.9
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-3.0 to -3.9
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions.	-4.0 to -4.9
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.	-5.0 or less

[2] Source: National Drought Mitigation Center

SECTION 6: DROUGHT

Drought is monitored nationwide by the National Drought Mitigation Center (NDMC). Indicators are used to describe broad scale drought conditions across the U.S. and correspond to the intensity of drought.

Based on the historical occurrences for drought, the Fayette County planning area, including participating jurisdictions and ISDs, can anticipate a range of drought from abnormally dry to exceptional, or D0 to D4, based on the Palmer Drought Category. The entire planning area has experienced exceptional drought conditions. This is the most extreme drought conditions the planning area can anticipate in the future based on historical events.

The County monitors drought conditions by following regulations placed by the local service providers, Fayette Water Supply Corporation and Fayette County WCID - Monument Hill Water District, with FWSC being the largest water cooperative within the County, interconnecting with Monument Hill Water District. The following participating jurisdictions have their own drought contingency plans: Cities of La Grange, Schulenburg, and Flatonia and initiate protocols during periods of higher-than-normal temperatures and lower than normal rainfall. The City of Ellinger follows protocols enacted by Ellinger Sewer and Water Supply Corporation. Table 6-4 reflects an outline of the Fayette Water Supply Corporation Drought Contingency Plan.

Table 6-4. Four Stages of Fayette Water Supply Corporation Drought Contingency Plan[3]

STAGE	DESCRIPTION
Stage I: Customer Awareness	When average daily use reaches 85% of plant capacity 539,000 gallons per day on the Rutersville/Walhalla System for three consecutive days, consideration will be given to the weather condition, time of year, and customer complaints. The stage will end when average daily water use drops below 75% of plant capacity for three consecutive days. An announcement will be designed to increase customer awareness of water conservation and encourage the most efficient use of water. Water customers are requested to voluntarily limit the use of water for nonessential purposes and to practice water conservation.
Stage II: Voluntary Water Conservation	When average daily water use reaches 90% of plant capacity, 571,000 gallons per day on the Rutersville/Walhalla System for three consecutive days; or water storage levels are decreasing and fall below 40% (50,000 gallons) for 48 hours; or water pressure drops to 35 psi. Restricted hours, days, and other uses that would waste water such as water running down the gutter will be implemented.
Stage III: Mandatory Water Use Restrictions	When water demand exceeds 95% of capacity (603,000 gallons per day for the Rutersville/Walhalla System) for two consecutive days; or Supply reservoir levels reduce to a point where demand exceed supply or imminent/actual failure of system components affecting health and safety. Mandatory water use restrictions will be in effect applying to all customers, this includes: selected days

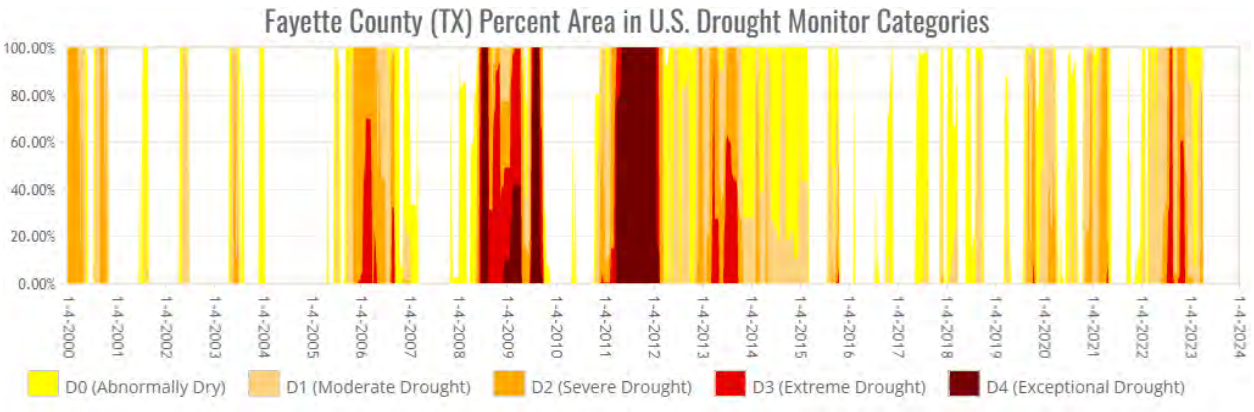
[3] March 14, 2023, & March 13, 2023. (n.d.). Drought contingency. Fayette Water Supply Corporation. Retrieved March 15, 2023, from https://www.fayettewsc.com/drought-contingency

STAGE	DESCRIPTION
	for irrigations of landscaping, prohibiting use of water to wash vehicles, fill/refill/add water to any type of swimming pools except on designated days and times, prohibiting operations of aesthetic or scenic foundation or pond unless to support aquatic life, limiting use of water from hydrants or flush valves, in addition to prohibiting nonessential watering such as: wash down of hard surfaces, building, dust control, flushing gutters or street, etc.

HISTORICAL OCCURRENCES

The Fayette County planning area, including participating jurisdictions and ISDs, may experience a severe drought in any given year. According to the U.S. Drought Monitor, in the 1,200 weeks between January 1, 2000, and December 31, 2022, the Fayette County planning area spent 554 weeks (46 percent of the time) in some level of drought as defined as Abnormally Dry (D0) or worse conditions. There have been twenty-eight USDA Disaster Designations declarations for drought, all but one of which was a USDA declaration between 2012 and 2022.

Figure 6-2. Fayette County Drought Intensity, January 2000-December 2022[4]



Historical drought information shows drought activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical drought data for are provided on a county-wide basis per the NCEI Storm Events database.

Table 6-5 lists historical events that have occurred in Fayette County as reported in the National Centers for Environmental Information Storm Events Database (NCEI). A total of 37 reported historical drought events, with 9 unique drought periods that have impacted Fayette County between 1996 and 2022. Historical drought events reported in the NCEI database for the Fayette County planning area, including all participating jurisdictions and ISDs, over the 27-year reporting period has resulted in negligible property and crop damages.

[4] U.S. Drought Monitor

Table 6-5. Historical Drought Years[5]

DROUGHT YEAR
1996
2000
2011-2012
2012
2013
2014
2019
2020-2021
2022
9 unique events

Table 6-6. Historical Drought Events, 1996-2022

DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
4/1/1996	0	0	$0	$0
5/1/1996	0	0	$0	$0
6/1/1996	0	0	$0	$0
7/1/1996	0	0	$0	$0
8/1/1996	0	0	$0	$0
8/1/2000	0	0	$0	$0
9/1/2000	0	0	$0	$0
10/1/2000	0	0	$0	$0
5/1/2011	0	0	$0	$0
6/1/2011	0	0	$0	$0
7/1/2011	0	0	$0	$0
8/1/2011	0	0	$0	$0
9/1/2011	0	0	$0	$0

[5] Historical data is reported from January 1996 through December 2022.

DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
10/1/2011	0	0	$0	$0
11/1/2011	0	0	$0	$0
12/1/2011	0	0	$0	$0
1/1/2012	0	0	$0	$0
2/1/2012	0	0	$0	$0
2/1/2013	0	0	$0	$0
3/1/2013	0	0	$0	$0
4/1/2013	0	0	$0	$0
6/1/2013	0	0	$0	$0
7/1/2013	0	0	$0	$0
8/1/2013	0	0	$0	$0
2/1/2014	0	0	$0	$0
10/1/2019	0	0	$0	$0
11/1/2019	0	0	$0	$0
12/1/2020	0	0	$0	$0
1/1/2021	0	0	$0	$0
2/1/2021	0	0	$0	$0
3/1/2021	0	0	$0	$0
4/1/2021	0	0	$0	$0
7/1/2022	0	0	$0	$0
8/1/2022	0	0	$0	$0
9/1/2022	0	0	$0	$0
10/1/2022	0	0	$0	$0
Total	**0**	**0**	**$0**	**$0**

Table 6-7. Historical Drought Events Summary, 1996-2022

JURISDICTION	NUMBER OF EVENTS	DEATH	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	37	0	0	$0	$0

Based on the list of historical drought events for the Fayette County planning area, 3 unique events were reported to the NCEI since the 2016 plan.

SIGNIFICANT EVENTS

July 2022 through November 2022 – Fayette County

July was another month with below normal precipitation across nearly all of South-Central Texas and the drought continued to worsen, with Bastrop and Fayette Counties in D2. All public water systems encouraged at least voluntary water restrictions, and many had mandatory restrictions in effect. Area reservoirs continued to fall farther below normal conservation pool levels. All of the counties in D2 or worse drought had outdoor burn bans in effect. The 7-day average streamflow on the Upper Guadalupe River was near the all-time low. All of the other rivers in the region were below to much below normal. Conditions continued with several heavy rain episodes during August leading to above normal precipitation across South Central Texas. Much of the western half of the area received three to four times their normal. The result was an improvement on the drought in all with Fayette County improving from D2 to less than D2. Dry weather returned in September with conditions worsening within Fayette County to D2 with outdoor burn bans in effect. At the end of the month the 7-day average streamflow was normal to below normal on the upper Colorado River, and much below normal on the lower Colorado. Most public water systems encouraged at least voluntary water restrictions, and many had mandatory restrictions in effect. Moving into October, the lack of rain worsened the drought from D2 to D3 in Fayette and Gonzales Counties, with outdoor burn bans continuing to remain in effect at the end of the month. The 7-day average streamflow at the end of the month was below normal (10%-24%) on the upper Colorado River. Public water systems continued to encourage voluntary water restrictions and mandatory restrictions were still in effect. Within November, parts of South-Central Texas received above normal rainfall with positive effects on the drought in multiple counties including Fayette County, improving to less than Severe (D2) drought.

October 1, 2019 through October 31, 2019 – Fayette County

Nearly all of South-Central Texas had less than normal rainfall during October. Much of the northwestern part of the area had less than 50 percent of normal. This put Bandera, Bastrop, Blanco, Burnet, Caldwell, Edwards, Fayette, Lavaca, and Real Counties into Severe Drought (D2). Burn bans were in effect for all of the counties in D2. Larger Public Water Systems in multiple counties, including Fayette, were in Voluntary or Stage 1 water restrictions. The Texas A&M AgriLife Texas Crop and Weather Report stated ranchers around the district were still culling herds due to drought conditions despite some improvement. Cattle market prices were low due to the high numbers of livestock for sale.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, there have been 9 extended time periods of drought within a 27-year reporting period. The probability of future events is considered “Likely” or an event probable in the next two to three years for the Fayette County planning area, including all

participating jurisdictions and ISDs. See additional information on climate change at the end of this section as it relates to future events.

VULNERABILITY AND IMPACT

Loss estimates were based on 27 years of statistical data from the NCEI. A drought event frequency-impact was then developed to determine an impact profile on agriculture products and estimate potential losses due to drought in the area. All existing and future buildings, facilities, and populations are exposed to this hazard and could potentially be impacted However, drought impacts are mostly experienced in water shortages, breaks in water lines, or crop and livestock losses on agricultural lands and typically have minimal impact on buildings.

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by drought events. The following critical facilities would be vulnerable to drought events in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

Table 6-7. Critical Facilities Vulnerable to Drought Events

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS, Hospitals)	• Increased law enforcement activities may be required to enforce water restrictions. • Firefighters may have limited water resources to aid in firefighting and suppression activities, increasing risk to lives and property. • Potential for increased number of emergency calls as drought events can lead to cascading hazard events such as wildfires and flash flooding.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Strain on staff as drought may cause health problems related to low water flows and poor water quality. • Water main breaks due to soil shrinking and swelling cycles could lead to facility closures. • Building foundations may crack due to soil shrinking and swelling cycles. • Operations dependent on water supply may be adversely impacted. • Economic disruptions due to cracked foundations and infrastructure damages as a result of soil shrinking and swelling cycles.
Commercial Suppliers (food, gas, etc.)	• Operations dependent on water supply may be adversely impacted. • Economic disruptions due to cracked foundations and infrastructure damage as a result of soil shrinking and swelling cycles.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Potential for increased number of emergency calls as drought events can lead to cascading hazard events such as wildfires and flash flooding. • Water main breaks due to soil shrinking and swelling cycles could lead to facility closures. • Operations dependent on water supply may be adversely impacted.

SECTION 6: DROUGHT

Fayette County monitors drought conditions by following plans in place by Fayette Water Supply Corporation (FWSC) and Fayette County WCID - Monument Hill Water District. The FWSC consists of two systems divided by the Colorado River and serves over 2,400 members. The west system has two-interconnect with Fayette County Water Control and Improvement District (WCID) – Monument Hill and one interconnect with the City of La Grange available in case of an emergency, while the east system has two wells and on interconnect with the City of La Grange. The two wells within this system have a combination of 305,851 gallons, serving the Cities of Fayetteville and Round Top areas.[6] Similar to the FWSC drought contingency plan reference in Table 6-4, the Monument Hill Water District has four stages: Mild, Moderate, Severe, and Extreme Water Storage Conditions. Stage one of their drought contingency plan is initiated when daily water use reached 50% (331,200 gallons) of the plant capacity (460gpm water well) for three consecutive days, and subsequent stages are initiated as followed: 60% (397,400 gallons), 75% (496,800 gallons), and the last stage when plant capacity reaches 90% (596,200 gallons) for two consecutive days[7].

Local lakes and rivers supply the surface water resources for the Fayette County planning area. The planning area relies on the Colorado River as its main source of water supply, and if this supply dwindles, then water restrictions could be enforced. Uninformed residents and business owners on the effects of drought on their properties, and water conservation tactics are more vulnerable. Due to the rural landscape within parts of the planning area, dry climate during times of drought and extreme heat events, water restrictions could be enforced. Rural areas face a longer response time and a commute to emergency services in a time of need, such as a public distribution of potable water. The County's agricultural lands are also vulnerable to drought. A prolonged event would have devastating effects on the land's soil as well as the families and communities that depend on agriculture as a means of income and survival. Communities and residents who are not implementing a Drought Contingency Plan or who are unaware of the risks and hazards associated with extreme drought or how to protect themselves from it are at a greater risk, as they are less able to prepare or respond.

Even with the planning area relying on one primary water resource, high demand can deplete these resources during extreme drought conditions. Potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities. As resources are depleted, potable water is in short supply and overall water quality can suffer, elevating health concerns for all residents but especially vulnerable populations – typically children, the elderly, and the ill. In addition, potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities.

The average person will survive only a few days without potable water, and this timeframe can be drastically shortened for those people with more fragile health – typically children, the elderly, and the ill. Population over 65 in the Fayette County planning area, including participating jurisdictions and ISDs, is estimated at 25.3 percent of the total population, and children under the age of 5 are estimated at 4.9 percent or an estimated total of 7,376 potentially vulnerable residents in the planning area based on age. During summer drought, or hot and dry conditions, elderly persons,

[6] About Us | Fayette Water Supply Corporation (fayettewsc.com)

[7] Drought restrictions. SouthWest Water Company. (2023, January 6). Retrieved March 29, 2023, from https://www.swwc.com/texas/drought/.

small children, infants and the chronically ill who do not have adequate cooling units in their homes may become more vulnerable to injury and/or death. In addition, an estimated 9.8 percent of the planning area's population live below the poverty level which may contribute to overall health impacts of a drought. (Table 6-8).

Table 6-8. Population at Greater Risk by Participating Jurisdiction

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Fayette County	6,190	1,186	2,369
City of Carmine	73	4	7
City of Ellinger	57	12	0
City of Fayetteville	122	6	15
City of Flatonia	298	78	102
City of La Grange	816	263	532
City of Round Top	41	0	0
City of Schulenburg	519	240	482
Fayetteville ISD	N/A	18	N/A
Flatonia ISD	N/A	42	N/A
La Grange ISD	N/A	80	N/A
Round Top – Carmine ISD	N/A	8	N/A
Schulenburg ISD	N/A	21	N/A

The population is also vulnerable to food shortages when drought conditions exist, and potable water is in short supply. All residents in the Fayette County planning area, including participating jurisdictions and ISDs, could be adversely affected by drought conditions, which could limit water supplies and present health threats.

The economic impact of droughts can be significant as they produce a complex web of impacts that spans many sectors of the economy and reach well beyond the area experiencing physical drought. This complexity exists because water is integral to our ability to produce goods and provide services. If droughts extend over a number of years, the direct and indirect economic impact can be significant.

Crop production can also suffer greatly during extreme drought conditions, limiting fresh local food supplies, driving up costs, and negatively impacting the local economy. Drought conditions could adversely affect the agricultural industry throughout the Fayette County planning area, including participating jurisdictions and ISDs, which employes 4.7 percent of the population in the labor force in Fayette County. Based on the USDA 2017 Census of Agriculture, Fayette County's total crop inventory consists of grains, oilseeds, dry beans and peas, cotton/cottonseed, vegetables

and fruits, nut trees, nursey, floriculture and other crops and hay, with forage (hay/haylage) being the top crops in acres (50,302). The livestock industry within the County consists of poultry, eggs, cattle, sheep, goats, horses, and other animal products, with cattle having the largest inventory within the area (96,079). Table 6-9 provides an overview for the planning area.

Table 6-9. Fayette County 2017 Census of Agriculture[8]

JURISDICTION	NUMBER OF FARMS	LAND IN FARM (ACRES)	TOTAL CROPS	TOTAL LIVESTOCK INVENTORY	TOTAL AG PRODUCT SOLD
Fayette County	3,166	521,522	10,677	36,704	$47,382,000

Habitat damage is a vulnerability of the environment during periods of drought for both aquatic and terrestrial species, including the Attwater Prairie Chicken National Wildlife Refugee incorporating 10,339 acreas of native prairies, croplands, marshes, and iparian areas. The environment also becomes vulnerable during periods of extreme or prolonged drought due to severe erosion and land degradation.

Impacts of past droughts experienced in the Fayette County planning area, including particapting jursidcitions and ISDs, have not resulted injuries or fatalities supporting a “Limited” severity of impact meaning injuries and/or illnesses are treatable with first aid, shutdown of facilities and services for less than 24 hours, and less than 10 percent of property is destroyed or with major damage. The annualized estimated losses due to drought over the 27-year reporting period in the Fayette County planning area is considered negligible. Table 6-10 shows annualized exposure.

Table 6-10. Estimated Annualized Losses for Fayette County

JURISDICTION	TOTAL PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Fayette County	$0	$0

ASSESSMENT OF IMPACTS

The Drought Impact Reporter was developed in 2005 by the University of Nebraska-Lincoln to provide a national database of drought impacts. Droughts can have an impact on agriculture, business and industry; energy; fire; plants and wildlife; relief, response, and restrictions; society and public health; tourism and recreation; and water supply and quality. The reports are submitted by individuals to Federal, State, and local agencies, as well as the general public. Table 6-11 lists the drought impacts to the Fayette County planning area, including participating jurisdictions and ISDs, from 2005 to 2022 based on reports received by the Drought Impact Reporter.

[8] *United States Department of Agriculture*. 2017 State and County Profiles | 2017 Census of Agriculture | USDA/NASS. (n.d.). Retrieved April 20, 2023, from https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/index.php

Table 6-11. Drought Impacts, 2005-2022[9]

DROUGHT IMPACTS 2005-2022	
Agriculture	2,346
Business & Industry	397
Energy	266
Fire	2,182
Plants & Wildlife	3,910
Relief, Response & Restrictions	1,012
Society & Public Health	299
Tourism & Recreation	727
Water Supply & Quality	2,543

Drought has the potential to impact people in the Fayette County planning area, including participating jurisdictions and ISDs. While it is rare that drought, in and of itself, leads to a direct risk to the health and safety of people in the U.S., severe water shortages could result in inadequate supply for human needs. With consideration for future growth, Fayette County is expected to have an 87 percent growth percentage by 2050 which can cause concern for the current water infrastructure and demand for the planning area. Severe drought conditions can be frequently associated with a variety of impacts, including:

- Dry clay soil can lead to water main lines shifting and breaking. Often repair to water lines includes shutting off water to multiple homes at one time.
- The number of health-related low-flow issues (e.g., diminished sewage flows, increased pollution concentrations, reduced firefighting capacity, and cross-connection contamination) will increase as the drought intensifies.
- Public safety from forest/range/wildfires will increase as water availability and/or pressure decreases.
- Respiratory ailments may increase as the air quality decreases.
- There may be an increase in disease due to wildlife concentrations (e.g., rabies, Rocky Mountain spotted fever, Lyme disease).
- Residents may disagree with the County and jurisdictions over water use/water rights, creating conflict.
- Political conflicts may increase between municipalities, counties, states, and regions.
- Water management conflicts may arise between competing interests.
- Increased law enforcement activities may be required to enforce water restrictions.
- Severe water shortages could result in inadequate supply for human needs as well as lower quality of water for consumption.

[9] Drought Impact Reporter

- Firefighters may have limited water resources to aid in firefighting and suppression activities, increasing risk to lives and property.
- During drought there is an increased risk for wildfires and dust storms.
- The community may need increased operational costs to enforce water restriction or rationing.
- Prolonged drought can lead to increases in illness and disease related to drought.
- Utility providers can see decreases in revenue as water supplies diminish.
- Utilities providers may cut back energy generation and service to their customers to prioritize critical service needs.
- Hydroelectric power generation facilities and infrastructure would have significantly diminished generation capability. Dams simply cannot produce as much electricity from low water levels as they can from high water levels.
- Fish and wildlife food and habitat will be reduced or degraded over time during a drought and disease will increase, especially for aquatic life.
- Wildlife will move to more sustainable locations creating higher concentrations of wildlife in smaller areas, increasing vulnerability, and further depleting limited natural resources.
- There are nine federally endangered threatened, or candidate species within Fayette County. Severe and prolonged drought can result in the reduction of a species or cause the extinction of a species altogether.
- Plant life will suffer from long-term drought. Wind and erosion will also pose a threat to plant life as soil quality will decline. The urban tree canopy, including county-wide parks, are vulnerable to the impacts of prolonged drought.
- Dry and dead vegetation will increase the risk of wildfire.
- Drought poses a significant risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Drought-related declines in production may lead to an increase in unemployment.
- Drought may limit livestock grazing resulting in decreased livestock weight, potential increased livestock mortality, and increased cost for feed.
- Negatively impacted water suppliers may face increased costs resulting from the transport water or developing supplemental water resources.
- Long term drought may negatively impact future economic development.

The overall extent of damage caused by periods of drought is dependent on its extent and duration. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a drought event. The Fayette County planning area, including all participating jurisdictions and ISDs, will implement a drought contingency plan / protocol based on their area during time of drought.

CLIMATE CHANGE CONSIDERATIONS

With the range of factors influencing drought conditions, it is impossible to make quantitative statewide projections of drought trends; however, many factors point toward increased drought severity. Drought will continue to be driven largely by precipitation variability over multiple decades, with long-term precipitation trends expected to be relatively small. Other factors affecting drought impacts, such as increased temperatures and improved plant water use

efficiency, decrease water availability but will cause drought impact trends to be highly sector-specific, with the impacts possibly smaller for agriculture than for surface water supply.[10]

The Fayette County planning area can anticipate an increased likelihood of droughts in the future due to an estimated increase in the number of dry days in the Fayette County area. In addition, it is projected that future changes to Fayette County and the participating jurisdictions and ISDs will include increased temperatures, longer multi-day heatwaves and greater variability in precipitation, with an expected decrease in precipitation in the summer and increase in the fall.

[10] Cleaveland, M. K., T. H. Votteler, D. K. Stahle, R. C. Casteel, and J. L. Banner, 2011: Extended Chronology of Drought in South Central, Southeastern and West Texas. Texas Water Journal, 2, 54-96, as cited in as cited in Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

SECTION 7
EXTREME HEAT

SECTION 7: EXTREME HEAT

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Vulnerability and Impact 5
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HAZARD DESCRIPTION

Extreme heat is a prolonged period of excessively high temperatures and exceptionally humid conditions. Extreme heat during the summer months is a common occurrence throughout the State of Texas, and the Fayette County planning area, including participating jurisdictions and ISDs, are no exception. The County typically experiences extended heat waves or an extended period of extreme heat and is often accompanied by high humidity.

Although heat can damage buildings and facilities, it presents a more significant threat to the safety and welfare of citizens. The major human risks associated with extreme heat include heat cramps; sunburn; dehydration; fatigue; heat exhaustion; and even heat stroke. The most vulnerable population to heat casualties are children and the elderly or infirmed who frequently live on low fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being.

LOCATION

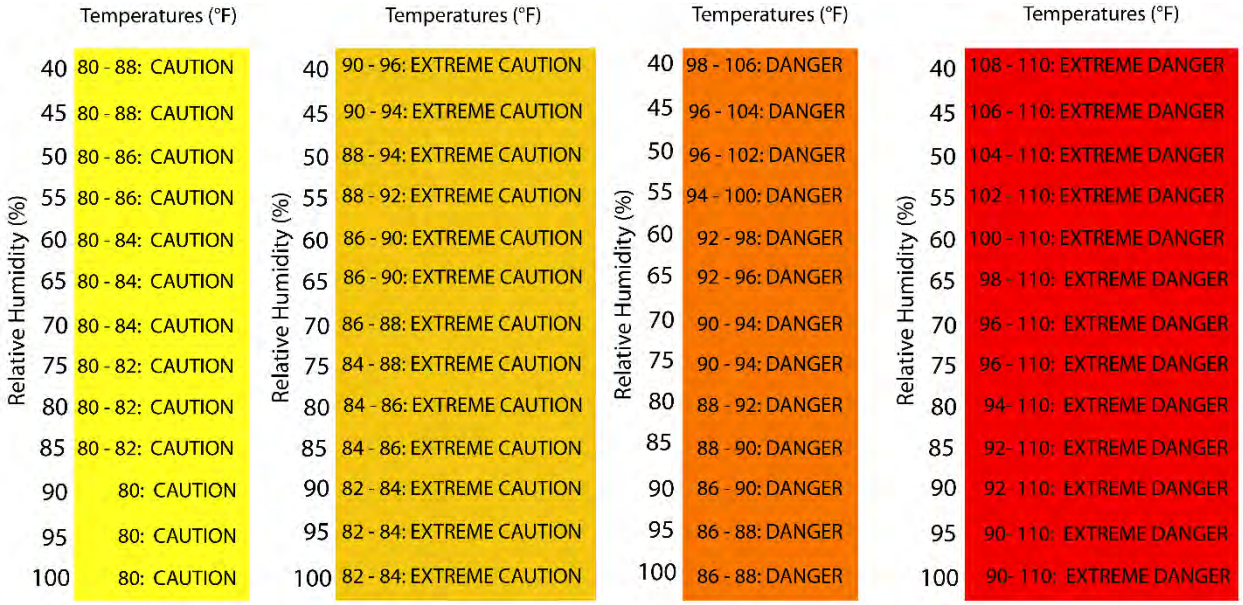
While extreme heat events can occur throughout the Fayette County planning area, including participating jurisdictions and ISDs, the areas where heat stays throughout the day is largely dependent on the type of land use and ground cover. Areas with large amounts of impervious and dark surfaces such as roads and roofs, heat up quickly and remain hot throughout the day. These areas, which tend to be urban and industrial, are not able to cool down overnight and start the day with higher morning temperatures in comparison to less dense areas that have more trees and vegetation. While extreme heat was found to be more prevalent is certain areas of the County, with no geographic boundary, extreme heat can occur anywhere in the Fayette County planning area.

EXTENT

The magnitude or intensity of an extreme heat event is measured according to temperature in relation to the percentage of humidity. According to the National Oceanic Atmospheric

Administration (NOAA), this relationship is referred to as the "Heat Index" and is depicted in Figure 7-1. This index measures how hot it feels outside when humidity is combined with high temperatures.

Figure 7-1. Extent Scale for Extreme Summer Heat[1]



The Extent Scale in Figure 7-1 displays varying categories of caution depending on the relative humidity combined with the temperature. For example, when the temperature is at 90 degrees Fahrenheit (°F) or lower, caution should be exercised if the humidity level is at or above 40 percent.

The shaded zones on the chart indicate varying symptoms or disorders that could occur depending on the magnitude or intensity of the event. "Caution" is the first category of intensity, and it indicates when fatigue due to heat exposure is possible. "Extreme Caution" indicates that sunstroke, muscle cramps, or heat exhaustion are possible, and a "Danger" level means that these symptoms are likely. "Extreme Danger" indicates that heat stroke is likely. The National Weather Service (NWS) initiates alerts based on the Heat Index as shown in Table 7-1.

Table 7-1. Heat Index and Warnings

CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
Extreme Danger	125°F and higher	Heat stroke or sun stroke likely.	An Excessive Heat Warning is issued if the Heat Index rises above 105°F at least 3 hours during the day or above 80°F at night.
Danger	103 – 124°F	Sunstroke, muscle cramps, and/or heat exhaustion are likely. Heatstroke possible with	

[1] Source: NOAA

CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
		prolonged exposure and/or physical activity.	
Extreme Caution	90 – 103°F	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.	A heat advisory will be issued to warn that the Heat Index may exceed 105°F.
Caution	80 – 90°F	Fatigue is possible with prolonged exposure and/or physical activity.	

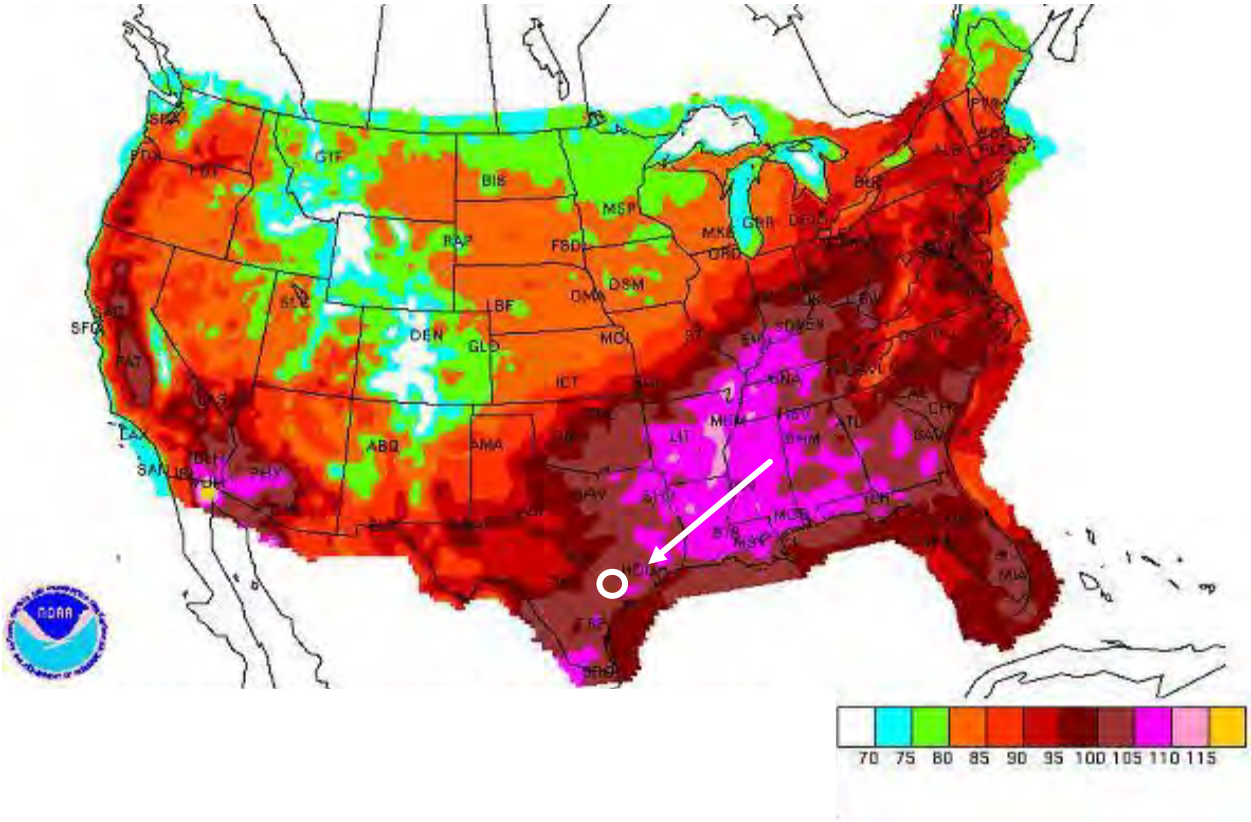
Fayette County follows the National Weather Service protocol when it comes to extreme heat. The County will activate a heat advisory when the heat index reaches 105°F -110°F degrees on at least two consecutive days.

Fayette County lies largely in the central portion of the Gulf coastal plain, with the Colorado River generally flowing southeast through the City of La Grange. Typically, elevation rises approximately one foot per mile inland, with elevations ranging from 200 to 600 feet above sea level. Fayette County has two major regions the Post Oak Belt in the northern half of the county, characterized by rolling hills, tall grasses, and scattered oak, while the southern portion of the county is within the Blackland Prairies have a variety of soils that promote tree growth and various types of vegetation. Fayette County has an annual average rainfall of 36 inches, and a temperature average ranging from a minimum of 41°F in January to a maximum of 96°F in July. The average growing season is 277 days.

Due to its geography and its warm, sunny, and humid subtropical climate, the Fayette County planning area can expect an extreme heat event each summer. Citizens, especially children and the elderly should exercise caution by staying out of the heat for prolonged periods when a heat advisory or excessive heat warning is issued. In addition, those working or remaining outdoors for extended periods of time are at greater risk.

Figure 7-2 displays the daily maximum heat index as derived from NOAA based on data compiled from 1838 to 2015. The white circle shows the Fayette County planning area. The planning area is primarily represented in brown, which indicates an average daily heat index of 100°F to 105°F. The daily heat index coupled with the historic high temperatures indicate that the Fayette County planning area and the participating jurisdictions and ISDs could experience dangerous heat from 100°F to 110°F, and should mitigate to the extent of “Danger,” which can include sunstroke, muscle cramps, heat exhaustion and potential heat stroke. This is the highest temperature (extreme caution category) the planning area can anticipate based on historical events.

Figure 7-2. Average Daily Maximum Heat Index Days[2]



HISTORICAL OCCURRENCES

Previous occurrences for extreme heat are derived from the NCEI database, which identifies extreme heat events on a county-wide level for each event. According to heat related incidents located solely within Fayette County, there has been 1 extreme heat event on record for the County which includes all participating jurisdictions and ISDs (Table 7-2). Historical extreme heat information, as provided by the NCEI, shows extreme heat activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event.

Historical extreme heat data for the Fayette County planning area per the NCEI database from 1996 through December 2022, though no extreme heat events were reported in the database prior to 2020. Only extreme heat events that have been reported have been factored into this Risk Assessment. It is highly likely additional extreme heat occurrences have gone unreported before and during the recording period. Due to the limited number of reported events, average high temperatures have been analyzed in order to determine the probability of future events.

[2] NRDC and the white circle indicates the Fayette County planning area.

Table 7-2. Historical Extreme Heat Events, 1996-2022[3]

DATE	DEATH	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
7/13/2020	0	0	$0	$0
Total	**0**	**0**	**$0**	**$0**

Table 7-3. Historical Extreme Heat Events Summary, 1996-2022

JURISDICTION	NUMBER OF EVENTS	DEATH	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	1	0	0	$0	$0

Based on the list of historical extreme heat events for the Fayette County planning area, one event was reported to the NCEI since the 2016 Plan.

SIGNIFICANT EVENTS

July 13, 2020 – Fayette County

Temperatures exceeded 105 degrees across multiple counties, including Fayette County, with reported highs of 109-110°F.

PROBABILITY OF FUTURE EVENTS

According to historical records the Fayette County planning area has experienced 1 event in a 27-year reporting period. However, it can be assumed that events have gone unreported due to the average daily temperatures throughout the summer, providing a frequency of occurrence of approximately one event every year. This frequency supports a highly likely probability of future events. See additional information on the impacts of climate change at the end of this section.

VULNERABILITY AND IMPACT

There is no defined geographic boundary for extreme heat events. While the entirety of the Fayette County planning area, including participating jurisdictions and ISDs, is exposed to extreme temperatures, existing buildings, infrastructure, and critical facilities are not likely to sustain significant damage from extreme heat events. Therefore, any estimated property losses associated with the extreme heat hazard are anticipated to be minimal across the area.

Every summer, the hazard of heat-related illness becomes a significant public health issue throughout much of the United States. Mortality from all causes increases during heat waves, and excessive heat is an important contributing factor to deaths from other causes, particularly among the elderly. Extreme temperatures present a significant threat to life and safety for the population of the County as a whole. Heat casualties, for example, are typically caused by a lack of adequate air-conditioning or heat exhaustion. The most vulnerable population to heat casualties are the elderly or infirmed who frequently live on fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being. Children may also be more vulnerable if left unattended in vehicles.

[3] NOAA, NCEI Storm Events Database events reported from January 1996 through December 2022.

Students are also susceptible to sporting events and practices are often held outside during early fall or late spring when temperatures are at the highest. In addition, populations living below the poverty level are unable to run air-conditioning on a regular basis and are limited in their ability to seek medical treatment. Another segment of the population at risk are those whose jobs consist of strenuous labor outdoors (Table 7-4).

Table 7-4. Outdoor Employees by Participating ISDs

ISD	EMPLOYEES WORKING OUTDOORS
Fayetteville ISD	48
Flatonia ISD	110
La Grange ISD	300
Round Top – Carmine ISD	52
Schulenburg ISD	130

The population over 65 in Fayette County is estimated at 25.3 percent of the total population and children under the age of 5 are estimated at 4.9 percent, or an estimated total of 7,376 potentially vulnerable residents in the planning area based on age. In addition, an estimated 9.8 percent of the planning area population live below the poverty level. Under privileged populations disproportionately impacted by extreme heat events as they are less likely to be able to afford air conditioning during the hot summer months as well as less likely to have access to medical care.

Table 7-5. Populations at Greater Risk by Participating Jurisdictions

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Fayette County	6,190	1,186	2,369
City of Carmine	73	4	7
City of Ellinger	57	12	0
City of Fayetteville	122	6	15
City of Flatonia	298	78	102
City of La Grange	816	263	532
City of Round Top	41	0	0
City of Schulenburg	519	240	482
Fayetteville ISD	N/A	18	N/A
Flatonia ISD	N/A	42	N/A
La Grange ISD	N/A	80	N/A

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Round Top – Carmine ISD	N/A	8	N/A
Schulenburg ISD	N/A	21	N/A

Extremely high temperatures can have significant secondary impacts, leading to droughts, water shortages, increased fire danger, and prompt excessive demands for energy. The possibility of rolling blackouts increases with unseasonably high temperatures in what is a normally mild month with low power demands. Typically, more than 12 hours of warning time would be given before the onset of an extreme heat event.

In terms of vulnerability to structures, the impact from extreme heat would be considered Limited. It is possible that critical facilities and infrastructure could be shut down for 24 hours if cooling units are running constantly, leading to a temporary power outage. Less than ten percent of residential and commercial property could be damaged if extreme heat events lead to structure fires. Based on historical records over a 27-year period, annualized property and crop losses for the Fayette County planning area, including participating jurisdictions and ISDs, are negligible.

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by extreme heat events. The following critical facilities would be vulnerable to extreme heat events in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

Table 7-6. Critical Facilities Vulnerable to Extreme Heat Events[4]

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS, Hospitals)	• Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications. • Exposure to heat can cause heat illnesses in first responders, especially for those in heavy equipment. • Roads may become impassable due to excessive heat causing asphalt roads to soften and concrete roads to shift or buckle impacting response times by emergency services. • Extended power outages due to increased usage may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.
Airport, Academic Institutions, Community Residential	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Power outages due to increased usage could disrupt critical care. • Backup power sources could be damaged.

[4] The following critical facilities would be vulnerable to extreme heat events in the Fayette County planning area. For a comprehensive list by participating jurisdiction see Appendix C.

CRITICAL FACILITIES	POTENTIAL IMPACTS
Facilities, Evacuation Centers & Shelters, Governmental Facilities	• Evacuations may be necessary due to extended power outages, breaks in water main lines or other associated damage to facilities. • Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Economic disruption due to power outages negatively impact airport services as well as area businesses reliant on airport operations.
Commercial Suppliers (food, gas, etc.)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications. • Roads may become impassable due to excessive heat causing asphalt roads to soften and concrete roads to shift or buckle impacting response times by emergency services. • Breaks in water main lines or other associated damage to facilities

ASSESSMENT OF IMPACTS

The greatest risk from extreme heat is to public health and safety. Extreme heat conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly (25.3 percent of total population) and children under 5 (4.9 percent of total population), can face serious or life-threatening health problems from exposure to extreme heat including hyperthermia, heat cramps, heat exhaustion, and heat stroke (or sunstroke).
- Response personnel, including utility workers, public works personnel, and any other professions where individuals are required to work outside, are more subject to extreme heat related illnesses since their exposure would typically be greater.
- High energy demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts which would elevate the risk of illness to vulnerable residents.
- Highways and roads may be damaged by excessive heat causing asphalt roads to soften and concrete roads to shift or buckle.
- Vehicle engines and cooling systems typically run harder during extreme heat events resulting in increases in mechanical failures.
- Extreme heat events during times of drought can exacerbate the environmental impacts associated with drought, decreasing water and air quality and further degrading wildlife habitat.
- Extreme heat increases ground-level ozone (smog), increasing the risk of respiratory illnesses.
- Negatively impacted water suppliers may face increased costs resulting from the transport of water resources or development of supplemental water resources.
- Tourism and recreational activities predominant in the planning area may be negatively impacted during extreme heat events, reducing seasonal revenue such as Monument Hills State Park & Kriesche Brewery and Park Prairie Park & Oak Thicket Park.

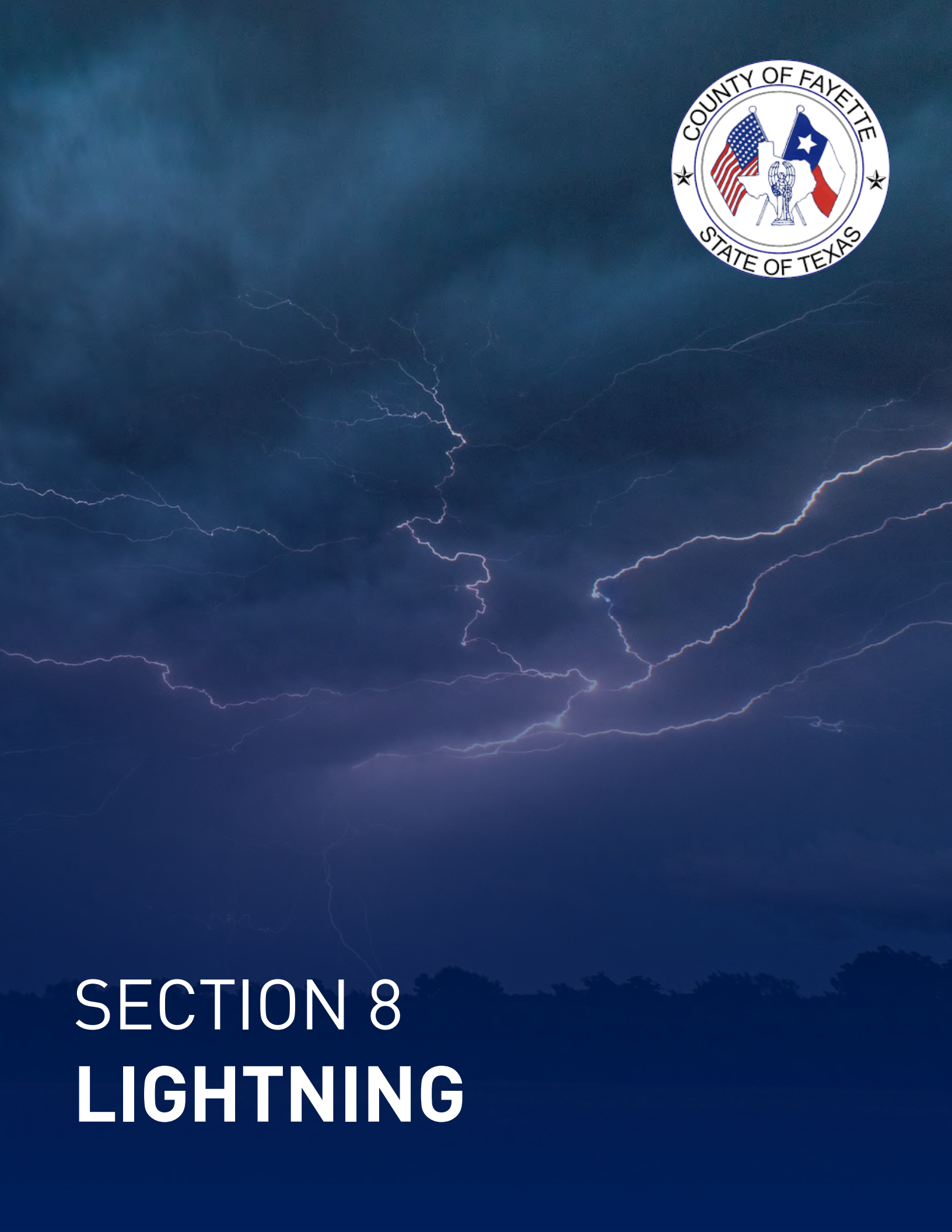
- Outdoor activities may see an increase in school injury or illness during extreme heat events.

The economic and financial impacts of extreme heat on the community will depend on the duration of the event, demand for energy, drought associated with extreme heat, and many other factors. The level of preparedness and the amount of planning done by the jurisdiction, local businesses, and citizens will impact the overall economic and financial conditions before, during, and after an extreme heat event.

CLIMATE CHANGE CONSIDERATIONS

Climate change is expected to lead to an increase in average temperatures as well as an increase in frequency, duration, and intensity of extreme heat events. With no reductions in emissions worldwide, the state of Texas is projected to experience an additional 30 to 60 days per year above 100°F than what is experienced now.[5]

[5] Gammon-Nielsen, John, Holman, Sara, Buley, Austin and Jorgensen, Savannah. Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, 2021 Update. Texas A&M University Office of the Texas State Climatologist. October 7, 2021. https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021Update



SECTION 8
LIGHTNING

SECTION 8: LIGHTNING

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HAZARD DESCRIPTION

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes the thunder which often accompanies lightning strikes. While most often affiliated with severe thunderstorms, lightning often strikes outside of heavy rain and might occur as far as 10 miles away from any rainfall.

According to the National Weather Service (NWS), the 10-year (2012–2021) average for fatalities is 23 people with an average of 300 injuries in the United States each year by lightning. Lightning can occur as cloud to ground flashes or as intra-cloud lightning flashes. Direct lightning strikes can cause significant damage to buildings, critical facilities, infrastructure, and communication equipment affecting emergency response. Lightning is also responsible for igniting wildfires that can result in widespread damages to property before firefighters have the ability to contain and suppress the resultant fire.

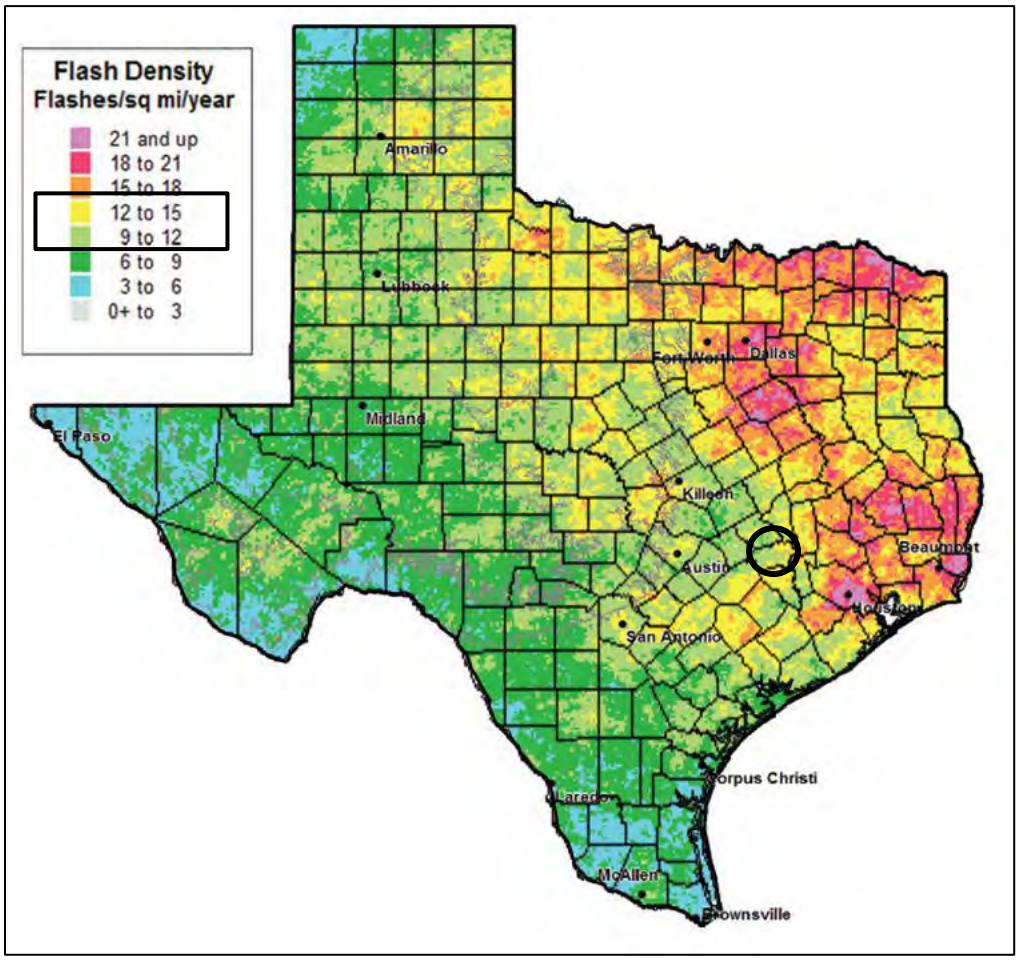
LOCATION

Lightning can strike in any geographic location and is considered a common occurrence in Texas. The Fayette County planning area is in a region of the country that is moderately susceptible to a lightning strike. Therefore, lightning could occur at any location within the entire planning area. It is assumed that the entire Fayette County planning area, including participating jurisdictions and ISDs, are uniformly exposed to the threat of lightning.

EXTENT

According to NOAA, the average number of cloud-to-ground flashes for the State of Texas between 2006 and 2016 was 11.3 flashes per square mile. Vaisala's U.S. National Lightning Detection Network lightning flash density map (Figure 8-1) shows a range of nine to fifteen cloud-to-ground lightning flashes per square mile per year for the entire Fayette County planning area. This rate equates to approximately 8,549 to 14,249 flashes per year for the entire planning area.

Figure 8-1. Lightning Flash Density, 2006-2016



The extent for lightning can be expressed in terms of the number of strikes in an interval. NOAA utilizes lightning activity levels (LALs) on a scale from 1-6. LAL rankings reflect the frequency of cloud-to-ground lightning either forecast or observed (Table 8-1).

Table 8-1. NOAA Lightning Activity Levels (LAL)

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/15 MIN
1	No thunderstorms.	-
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 covers 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

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/15 MIN
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.	

The NCEI does not include the LAL for historical lightning events, therefore in order to determine the extent of lightning strikes, the yearly average range of estimated number of lightning strikes within the planning area (8,549 to 14,249 flashes) and a cloud-to-ground flash density of nine to fifteen per square mile were divided by the number[1] of thunderstorm events that occur annually in the planning area. Fayette County should expect an average range of twenty-two to thirty-seven lightning strikes within 15 minutes at any given time during a lightning or combined lightning and thunderstorm event, indicating lightning strikes have an average LAL range of 4 to 5. The highest anticipated being a 5 on the LAL for the planning area in the future.

HISTORICAL OCCURRENCES

Since January 1996, there have been no recorded events for the Fayette County planning area. It is highly likely multiple lightning occurrences have gone unreported before and during the recording period. The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration and considered a reliable resource for hazards. However, the flash density for the planning area along with input from local team members indicates regular lightning occurrences that simply have not been reported.

Based on no recorded historical lightning events for the Fayette County planning area, there have been no reported events since the 2016 Plan.

Historical lightning event data for the ISDs are provided within the County and/or jurisdiction events per the NCEI database as they do not have events reported separate and apart from the reported county events. Within the Fayette County Plan Update, Flatonia ISD is the only participating district that reported damage as a result of a lightning event. The ISD has reported two events occurring in July and October of 2021 totaling $33,607.70 in damages. There were no reported injuries as a result of these events within the school district.

PROBABILITY OF FUTURE EVENTS

Based on historical records and input from the planning team the probability of occurrence for future lightning events in the Fayette County planning area is considered highly likely, or an event

[1] Analysis includes the highest number of events recorded in a given year during the reporting period in order to account for typical under reporting of thunderstorm and lightning events.

probable in the next year. The planning team stated that lightning occurs regularly in the area. According to NOAA, the Fayette County planning area, including participating jurisdictions and ISDs, are in an area of the country that experiences approximately nine to fifteen lightning flashes per square mile per year (approximately 8,549 to 14,249 flashes per year). Given this estimated probability of events, it can be expected that future lightning events will continue to threaten life and cause minor property damage throughout the planning area. Impacts of climate change are not expected to increase the average frequency of lightning events but may lead to an increase in the intensity of events when they do occur. See additional information on climate change at the end of this section.

VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since lightning events can occur at different strength levels, in random locations, and can create a broad range of damage depending on the strike location. Due to the randomness of these events, all existing and future structures and facilities in the Fayette County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from lightning strikes.

The direct and indirect losses associated with these events include injury and loss of life, damage to structures and infrastructure, agricultural losses, utility failure (power outages), and stress on community resources. The entire population of the Fayette County planning area, including participating jurisdictions and ISDs, are considered exposed to the lightning hazard. The peak lightning season in the State of Texas is from June to August; however, the most fatalities occur in July. Fatalities occur most often when people are outdoors and/or participating in some form of recreation. Population located outdoors is considered at risk and more vulnerable to a lightning strike compared to being inside a structure (Table 8-2). Moving to a lower risk location will decrease a person's vulnerability.

Table 8-2. Outdoor Employees by Participating ISDs

ISD	EMPLOYEES WORKING OUTDOORS
Fayetteville ISD	48
Flatonia ISD	110
La Grange ISD	300
Round Top – Carmine ISD	52
Schulenburg ISD	130

The entire general building stock and all infrastructure of the Fayette County planning area, are considered exposed to the lightning hazard. Lightning can be responsible for damages to buildings, cause electrical, forest and/or wildfires, and damage infrastructure such as power transmission lines and communication towers.

While all citizens are at risk to the impacts of lightning, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term

stay away from home, and to rebuild or repair their homes. An estimated 9.8 percent of the planning area population live below the poverty level (Table 8-3).

Table 8-3. Populations at Greatest Risk by Jurisdiction[2]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Fayette County	2,369
City of Carmine	7
City of Ellinger	0
City of Fayetteville	15
City of Flatonia	102
City of La Grange	532
City of Round Top	0
City of Schulenburg	482

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by lightning events. The following critical facilities would be vulnerable to lightning events in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

Table 8-4. Critical Facilities Vulnerable to Lightning Events

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	• Emergency operations and services may be significantly impacted due to power outages, damaged facilities, fires and/or loss of communications as a result of lightning strikes. • Emergency vehicles, including critical equipment, can be damaged by lightning strikes or by falling trees damaged by lightning. • Power outages could disrupt communications, delaying emergency response times. • Downed trees due to lightning strikes can impede emergency response vehicle access to areas. • Lightning strikes can be associated with structure fires and wildfires, further straining the capacity and resources of emergency personnel. • Extended power outages may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.
Airport, Academic Institutions,	• Structures can be damaged by falling trees damaged by lightning. • Power outages could disrupt critical care. • Backup power sources could be damaged.

[2] US Census Bureau, American Community Survey Five-Year Estimates, 2021

CRITICAL FACILITIES	POTENTIAL IMPACTS
Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Evacuations may be necessary due to extended power outages, fires, or other associated damages to facilities. • Economic disruption due to power outages and fires negatively impact airport services as well as area businesses reliant on airport operations.
Commercial Supplier (food, gas/fuel, etc.)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations and critical services may be significantly impacted due to power outages, damaged facilities, fires and/or loss of communications as a result of lightning strikes. • Emergency vehicles, including critical equipment, can be damaged by lightning strikes or by falling trees damaged by lightning. • Power outages could disrupt communications, delaying emergency response times. • Downed trees due to lightning strikes can impede emergency response vehicle access to areas. • Lightning strikes can be associated with structure fires and wildfires, further straining the capacity and resources of emergency personnel. • Extended power outages may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.

Impact of lightning experienced in the Fayette County planning area has resulted in no injuries and fatalities. The historical injuries and fatalities indicate a “Limited” impact with injuries treatable with first aid, with servics shuttdown for 24 hours or less, and less than 10 percent of property destroyed. Overall, the average loss estimate for the planning area (in 2022 dollars) is considered negligible (Table 8-5).

Table 8-5. Potential Annualized Losses by Jurisdiction[3]

JURISDICTION	TOTAL PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
Fayette County	$0	$0

ASSESSMENT OF IMPACTS

Lightning events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. Additional impacts to the planning area can include:

[3] Damage values are in 2022 dollars.

- The Fayette County planning area features park space developed parks and green spaces. Lightning events could impact recreational activities, placing residents and visitors in imminent danger, potentially requiring emergency services or park evacuation.
- Older structures built to less stringent building codes may suffer greater damage from a lightning strike as they are typically built with less fire-resistant materials and often lack any fire mitigation measures such as sprinkler systems. 60.9 percent of homes in the county were built before 1980. Within Fayette County, 23 buildings and sites are on the National Register of Historic Places, many of which similarly lack fire mitigation materials or measures.
- Vegetation in urban parks may be destroyed by lightning caused brush fires, impacting air quality and public health.
- Individuals exposed to the storm can be directly struck, posing significant health risks and potential death.
- Structures can be damaged or crushed by falling trees damaged by lightning, which can result in physical harm to the occupants.
- Lightning strikes can result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Lightning strikes can be associated with structure fires and wildfires, creating additional risk to residents and first responders.
- Emergency operations and services may be significantly impacted due to power outages and/or loss of communications.
- County and City departments may be damaged, delaying response and recovery efforts for the entire community.
- Economic disruption due to power outages and fires negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by lightning events may be negatively impacted while utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damage without a backup power source.

The economic and financial impacts of lightning on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the County, City, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any significant lightning event.

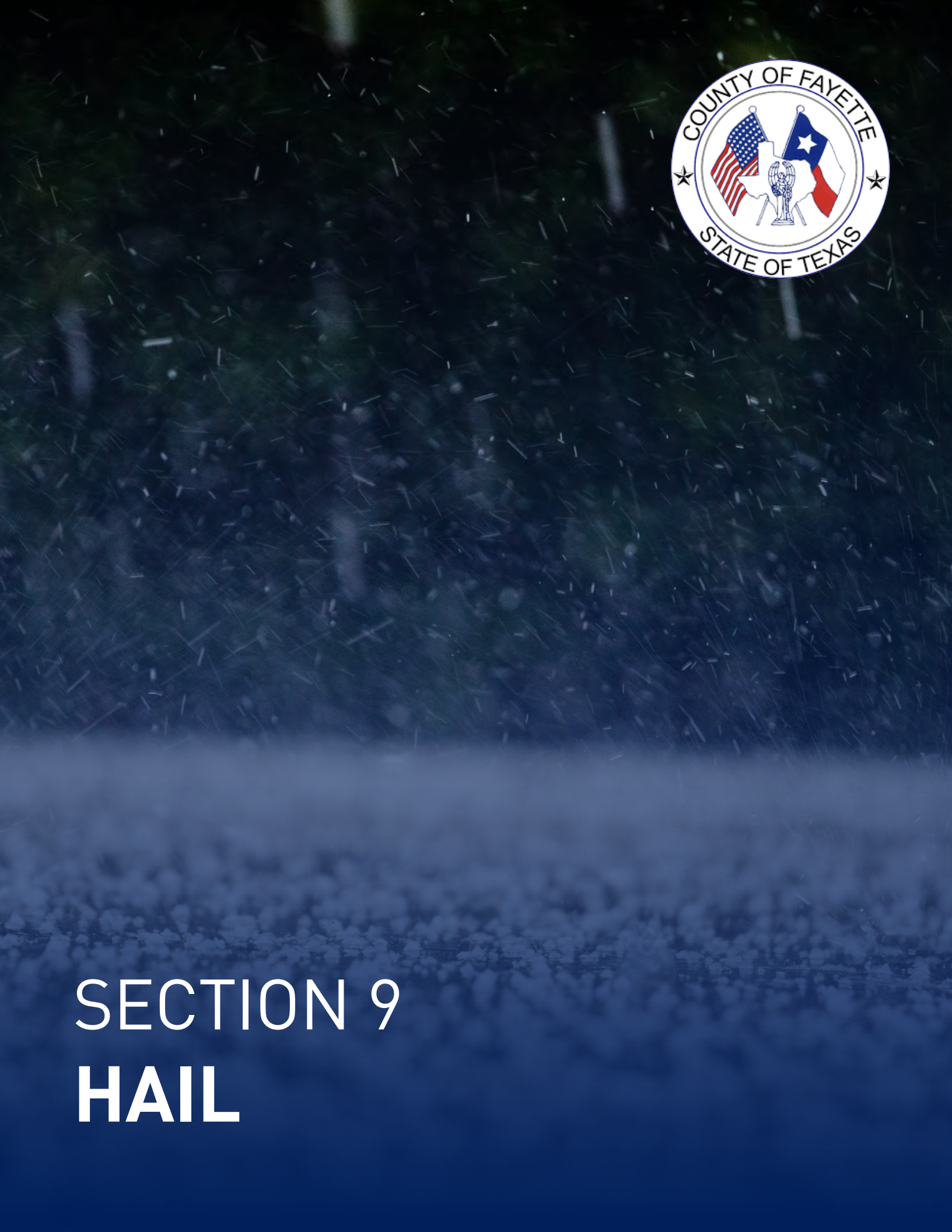
CLIMATE CHANGE CONSIDERATIONS

As CO_2 increases and the land surface warms, stronger updrafts are more likely to produce lightning. In a climate with double the amount of CO_2, we may see fewer lightning storms overall, but 25 percent stronger storms, with a 5 percent increase in lightning. Lightning damage is also likely to increase because of its role in igniting forest fires, where dry vegetation, also caused by rising temperatures, creates more ‘fuel’ for fires, so even a small climate change may have huge consequences. While the impact climate change will have on our weather still remains uncertain,

researchers agree that implementing simple measures like lightning detection systems and installing grounding systems in buildings could go a long way in avoiding deaths and injuries.[4]

Lightning events have the potential to pose a significant risk to people and property throughout the planning area. The economic and financial impacts of lightning on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. While no increase in the number of hazard events is anticipated, the impact of the hazard may see an increase in losses. As populations grow and urban development continues to rise, the overall vulnerability and impact are expected to increase in the next five years.

[4] Environmental Journal, Nathan Neal, January 11, 2021.



SECTION 9
HAIL

SECTION 9: HAIL

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HAZARD DESCRIPTION

Hailstorm events are a potentially damaging outgrowth of severe thunderstorms. During the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere, and the subsequent cooling of the air mass. Frozen droplets gradually accumulate into ice crystals until they fall as precipitation that is round or irregularly shaped masses of ice typically greater than 0.75 inches in diameter. The size of hailstones is a direct result of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a by-product of heating on the Earth's surface. Higher temperature gradients above Earth's surface result in increased suspension time and hailstone size.

According to the National Insurance Crime Bureau (NICB), between 2018 and 2020 the State of Texas had the greatest number of hail loss claims in the United States with 605,866 loss claims (23 percent of total hail claims in the U.S.) due to hail events. In this two-year period Texas experienced a total of 584 severe hail days.

In 2021, 6.8 million properties in the U.S. experienced one or more damaging hail events, resulting in a total of $16.5 billion in insured losses. Texas had the highest number of properties affected by hail with over 1.5 million properties or 17 percent of total properties in the state affected; an increase of 80,000 properties affected between 2020 and 2021. Texas hailstorms accounted for almost a quarter of total U.S. properties affected by hail in 2021.

LOCATION

Hailstorms are an extension of severe thunderstorms that could potentially cause severe damage. As a result, they are not confined to any specific geographic location and can vary greatly in size, location, intensity, and duration. Therefore, the entire Fayette County planning area, including participating jurisdictions and ISDs, is equally at risk to hail events. Refer to Figure 9-1 for the location of past hail events in the planning area.

EXTENT

The National Weather Service (NWS) classifies a storm as "severe" if there is hail three-quarters of an inch in diameter (approximately the size of a penny) or greater, based on radar intensity or as seen by observers. The intensity category of a hailstorm depends on hail size and the potential damage it could cause, as depicted in the National Centers for Environmental Information (NCEI) Intensity Scale in Table 9-1.

Table 9-1. Hail Intensity and Magnitude[1]

SIZE CODE	INTENSITY CATEGORY	SIZE (Diameter 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 – 1.20	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 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 intensity scale in Table 9-1 ranges from H0 to H10, with increments of intensity or damage potential in relation to hail size (distribution and maximum), texture, fall speed, speed of storm translation, and strength of the accompanying wind. Based on the best available data regarding the previous occurrences for the area, the Fayette County planning area, including participating jurisdictions and ISDs, may experience hailstorms ranging from an H0 (pea size) to an H6 (ping

[1] NCEI Intensity Scale, based on the TORRO Hailstorm Intensity Scale.

pong ball). The largest hail event in the Fayette County planning area occurred during six separate events. The most recent taking place on March 18, 2018, and resulted in hail measuring 2 inches in diameter, or a H6, which is considered a destructive hailstorm that can cause severe damages to structures. This is likely the greatest extent the Fayette County planning area, including participating jurisdictions and ISDs, can anticipate in the future: H6 hail.

HISTORICAL OCCURRENCES

Historical evidence shown in Figure 9-1 demonstrates that the planning area is vulnerable to hail events overall. Historical events with reported damages, injuries, or fatalities are shown in Table 9-2. A total of 76 reported historical hail events impacted the Fayette County planning area, including participating jurisdictions and ISDs, between 1963 through 2022; these events were reported to NCEI and NOAA databases and may not represent all hail events to have occurred during the past 60 years. Only those events for the planning area with latitude and longitude available were plotted (Figure 9-1). None of the participating school districts reported any additional events related to a hail event, therefore historical hail data for each participating ISD would be provided within the County / City events per the NCEI database.

Figure 9-1. Spatial Historical Hail Events, 1963-2022

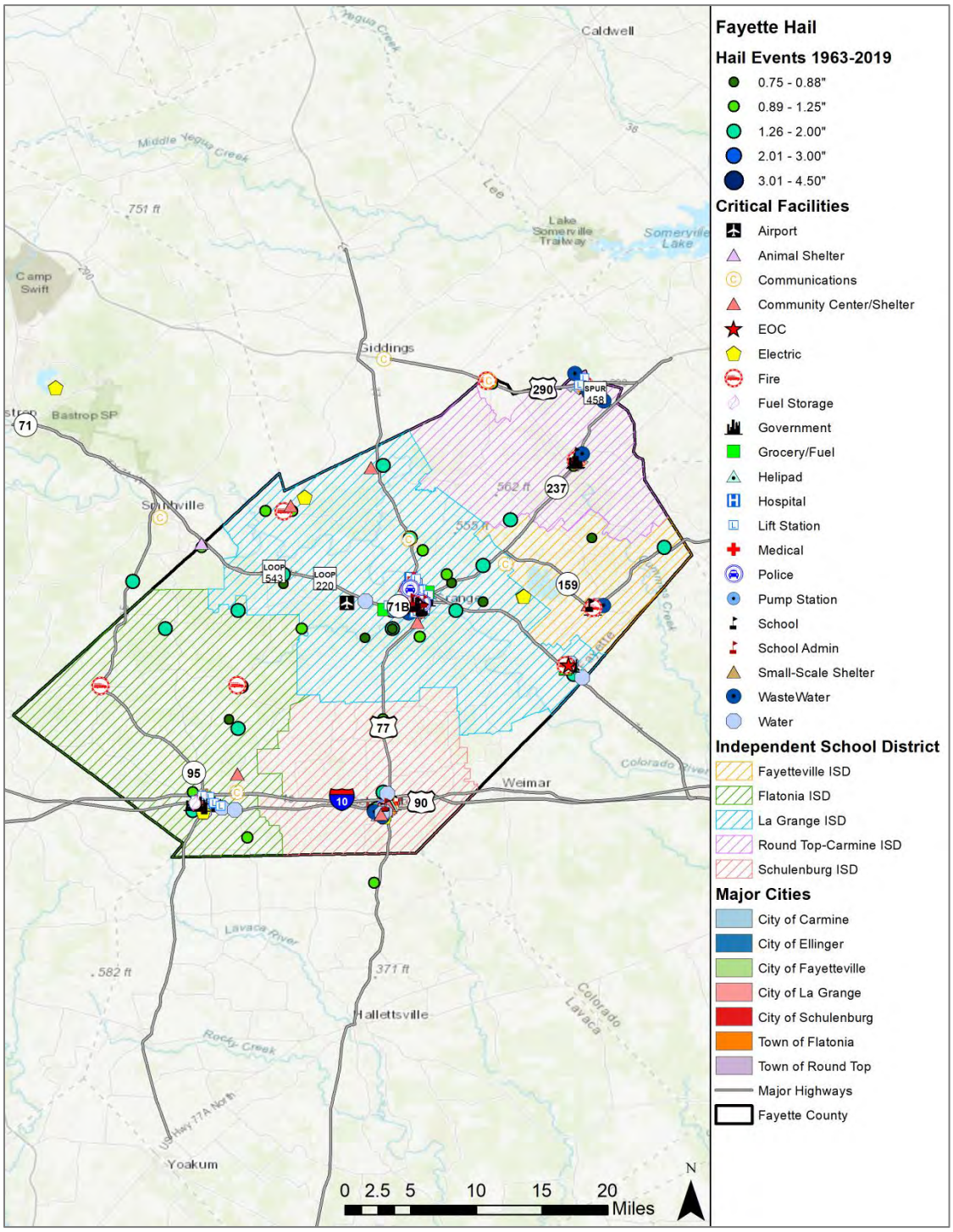


Table 9-2. Historical Hail Events, 1963-2022[2]

LOCATION	DATE	MAGNITUDE (inches)	PROPERTY DAMAGE	CROP DAMAGE
City of Flatonia	2/27/1994	1	$10,094	$0
City of Flatonia	1/11/1998	1.75	$5,498	$0
City of Flatonia	1/11/1998	2	$18,327	$0
City of La Grange	4/27/1998	1.5	$18,226	$9,113
Total		**(MAX EXTENT)**	**$52,145**	**$9,113**

Table 9-3. Historical Hail Events Summary, 1963-2022

LOCATION	NUMBER OF EVENTS	MAGNITUDE (inches)	DEATH	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	45	2	0	0	$0	$0
City of Carmine	1	1.75	0	0	$0	$0
City of Ellinger	0	-	-	-	-	-
City of Fayetteville	0	-	-	-	-	-
City of Flatonia	11	2	0	0	$33,919	$0
City of La Grange	11	1.5	0	0	$18,226	$9,113
City of Round Top	1	0.75	0	0	$0	$0
City of Schulenburg	7	1.75	0	0	$0	$0
Fayetteville ISD	0	-	-	-	-	-
Flatonia ISD	0	-	-	-	-	-
La Grange ISD	0	-	-	-	-	-
Round Top – Carmine ISD	0	-	-	-	-	-
Schulenburg ISD	0	-	-	-	-	-
Total	**76**	**(MAX EXTENT)**	**0**	**0**	**$52,145**	**$9,113**

[2] Only recorded events with damages are listed. No reports of injuries or fatalities were recorded in the NCEI database.

Based on the list of historical hail events for the Fayette County planning area (listed above), eleven events have occurred since the 2016 Plan according to reports in the NCEI database. The most significant event in relation to damages occurred in January of 1998 and April of 1998 with most events reporting a little over $18,000 in damages the Cities of Flatonia and La Grange. The most reported events, 11, occurred in both these jurisdictions, followed by 7 events reported for the City of Schulenburg.

SIGNIFICANT EVENTS

March 18, 2018 – Fayette County

Thunderstorms formed in the eastern part of South-Central Texas. Some of these storms produced large hail and damaging winds. Reports indicate hail up to 2 inches fell throughout impacted areas, including Fayette County. No reported damages were reported during this hail event.

May 26, 2016 – City of Carmine

An upper level moved out of the southern Rockies and caused thunderstorms in west Texas. These storms moved into South Central Texas producing large hail, damaging wind gusts, and heavy rain that led to flash flooding. The event did not indicate any damage or injuries, but reports yielded hail size of 1.75 inches for the planning area.

May 25, 2011 – City of Schulenburg

Severe thunderstorms occurring on consecutive days occurred through the South-Central portion of Texas impacting affected counties, which included Fayette. Hail the size of 1.75 inches was reported with no damages or injuries indicated as a result of the event.

April 27, 1998 – City of La Grange

Hail up to 1.5 inches fell in the City of La Grange causing approximately $17,954 (2022 dollars) in property damage and $9,977 (2022 dollars) in crop damage.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, 76 events in a 60-year reporting period for Fayette County planning area provides a probability of one to 2 events per year. This frequency supports a highly likely probability of future events for the planning area, including participating jurisdictions and ISDs. See additional information on climate change at the end of this section.

VULNERABILITY AND IMPACT

Much of the damage inflicted by hail is to crops. Even relatively small hail can shred plants to ribbons in a matter of minutes. Vehicles, roofs of buildings and homes, and landscaping are most commonly damaged by hail.

Utility systems on roofs of buildings and critical facilities would be vulnerable and could be damaged. Hail could cause a significant threat to people as they could be struck by hail and falling trees and branches. Outdoor activities and events may elevate the risk to residents and visitors when a hailstorm strikes with little warning. Portable buildings typically utilized by schools and commercial sites such as construction areas would be more vulnerable to hail events than the typical site-built structures.

The Fayette County planning area features mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to hail events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area including all participating jurisdictions which would also be more vulnerable. The U.S. Census data indicates a total of 1,938 (14.7 percent of total housing stock) manufactured homes located in the Fayette County planning area. In addition, 60.9 percent (approximately 8,040 structures) of the housing structures in the planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant hail events.

Table 9-4. Structures at Greater Risk to Hail Events

JURISDICTION	MANUFACTURED HOMES[3]	SFR STRUCTURES BUILT BEFORE 1980
Fayette County	1,938	8,040
City of Carmine	16	113
City of Ellinger	8	60
City of Fayetteville	4	173
City of Flatonia	121	414
City of La Grange	150	1,690
City of Round Top	0	57
City of Schulenburg	65	840
Fayetteville ISD	1	4
Flatonia ISD	3	2
La Grange ISD	0	6
Round Top – Carmine ISD	0	5
Schulenburg ISD	5	8

While all citizens are at risk to the impacts of a hail event, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 9.8 percent of the planning area's population live below the poverty level (Table 9-5). While warning times for this type of hazard event should be substantial enough for these individuals to seek shelter, individuals who work and recreate outside (Table 9-6) are also vulnerable to potential impacts of a hail event.

[3] Manufactured structures and/or portable building numbers are reported by each participating ISD.

Table 9-5. Populations at Greater Risk to Hail Events

JURISDICTION	POPULATION BELOW POVERTY LEVEL[4]
Fayette County	2,369
City of Carmine	7
City of Ellinger	0
City of Fayetteville	15
City of Flatonia	102
City of La Grange	532
City of Round Top	0
City of Schulenburg	482

Table 9-6. Outdoor Employees by Participating ISDs

ISD	EMPLOYEES WORKING OUTDOORS
Fayetteville ISD	48
Flatonia ISD	110
La Grange ISD	300
Round Top – Carmine ISD	52
Schulenburg ISD	130

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by hail events. The following critical facilities would be vulnerable to hail events in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

[4] US Census Bureau 2021 data for Fayette County.

Table 9-7. Critical Facilities Vulnerable to Hail

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles can be damaged by hailstones. • Power outages could disrupt communications, delaying emergency response times. • Accumulated hail on the streets may impede emergency response vehicle access to areas. • Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures can be damaged by hailstones. • Power outages could disrupt critical care. • Backup power sources could be damaged. • Evacuations may be necessary due to extended power outages, gas line ruptures, or structural damage to facilities. • Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations. • Temporary break in operations may significantly inhibit post event evacuations. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations. • Economic disruption due to power outages and fires negatively impact airport services as well as area businesses reliant on airport operations.
Commercial Supplier (food, gas/fuel, etc.)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles can be damaged by hailstones. • Power outages could disrupt communications, delaying emergency response times. • Accumulated hail on the streets may impede emergency response vehicle access to areas. • Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.

Hail has been known to cause injury to humans and occasionally has been fatal. Overall, the average loss estimate of property and crops in the planning area is considered $61,258 with an average annualized loss of $1,021. Based on historic loss and damages, the impact of hail damages on the Fayette County planning area, including participating jurisdictions and ISDs, can be considered “Limited” severity of impact, meaning minor quality of life lost, critical facilities and

services shut down for 24 hours or less, and less than 10 percent of property destroyed or with major damage.

Table 9-8. Estimated Annualized Losses by Participating Jurisdiction

JURISDICTION	TOTAL PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Fayette County	$0	$0
City of Carmine	$0	$0
City of Ellinger	$0	$0
City of Fayetteville	$0	$0
City of Flatonia	$33,919	$565
City of La Grange	$27,339	$456
City of Round Top	$0	$0
City of Schulenburg	$0	$0
Fayetteville ISD	$0	$0
Flatonia ISD	$0	$0
La Grange ISD	$0	$0
Round Top – Carmine ISD	$0	$0
Schulenburg ISD	$0	$0
Total	**$61,258**	**$1,021**

ASSESSMENT OF IMPACTS

Hail events have the potential to pose a significant risk to people and can create dangerous situations. Hail conditions can be frequently associated with a variety of impacts, including:

- Hail may create hazardous road conditions during and immediately following an event, delaying first responders from providing for or preserving public health and safety.
- Individuals and first responders who are exposed to the storm may be struck by hail, falling branches, or downed trees resulting in injuries or possible fatalities.
- Residential structures can be damaged by falling branches, which can result in physical harm to occupants.
- Large hail events will likely cause extensive roof damage to residential structures along with siding damage and broken windows, creating a spike in insurance claims and a rise in premiums.
- Automobile damage may be extensive depending on the size of the hail and length of the storm.

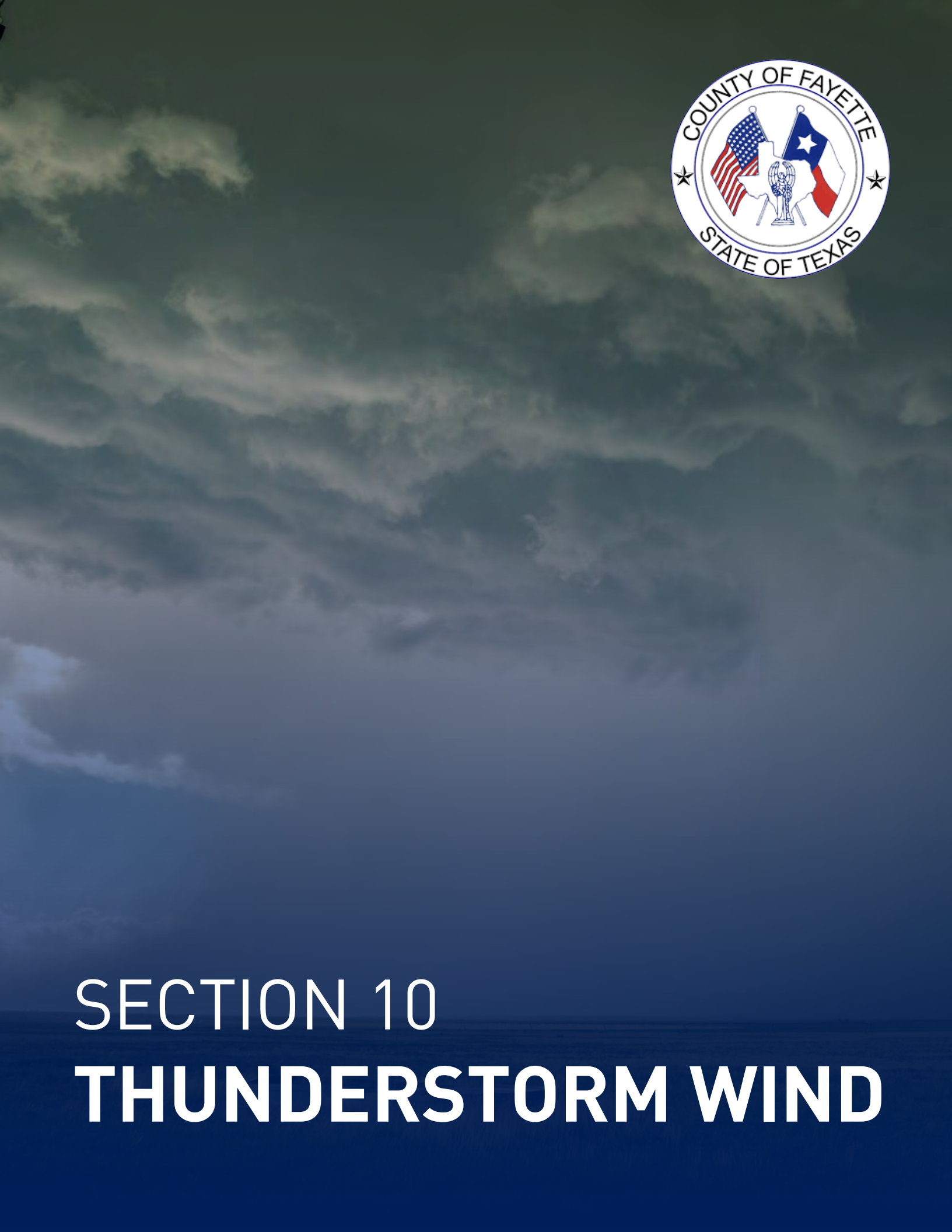
- Hail events can result in power outages over widespread areas increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage can result in an increase in structure fires and/or carbon monoxide poisoning, as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, damaged structures, hazardous spills, and debris that often accompany hail events, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Downed power lines and large debris, such as downed trees, can result in the inability of emergency response vehicles to access areas of the community.
- Hazardous road conditions may prevent critical staff from reporting for duty, limiting response capabilities.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by the hail event may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damage without a backup power source.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by large hail events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A significant hail event could significantly damage agricultural crops, resulting in extensive economic losses for the community and surrounding area.
- Hail events may injure or kill livestock and wildlife, especially endangered species within the Attwater Prairie Chicken National Wildlife Refuge.
- A large hail event could impact the accessibility of recreational areas and parks due to extended power outages or debris clogged access roads.
- Historical sites and properties, a total of 23 sites within Fayette County, are listed on the National Register of Historic Places and are a higher risk of impact.

The economic and financial impacts of hail will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning conducted by the community, local businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of any hail event.

CLIMATE CHANGE CONSIDERATIONS

While the impact of climate change on the frequency and severity hailstorm events is unclear, the increase of warmer temperatures will likely lead to less hail events during the summer months but is expected to increase the risk of large hailstones during the spring season.[5]

[5] Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.



SECTION 10
THUNDERSTORM WIND

SECTION 10: THUNDERSTORM WIND

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Historical Occurrences 3
Significant Events 6
Probability of Future Events 7
Vulnerability and Impact 7
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HAZARD DESCRIPTION

Thunderstorms create extreme wind events which includes straight line winds. Wind is the horizontal motion of the air past a given point, beginning with differences in air pressures. Pressure that is higher at one place than another sets up a force pushing from the high toward the low pressure; the greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air accelerates.

Thunderstorms are created when heat and moisture near the Earth's surface are transported to the upper levels of the atmosphere. By-products of this process are the clouds, precipitation, and wind that become the thunderstorm.

According to the National Weather Service (NWS), a thunderstorm occurs when thunder accompanies rainfall. Radar observers use the intensity of radar echoes to distinguish between rain showers and thunderstorms.

Straight line winds are responsible for most thunderstorm wind damages. 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

Thunderstorm wind events can develop in any geographic location and are considered a common occurrence in Texas. Therefore, a thunderstorm wind event could occur at any location within the Fayette County's planning area as these storms develop randomly and are not confined to any geographic area within the county. It is assumed that the entire Fayette County planning area, including participating jurisdictions and ISDs, is uniformly exposed to the threat of thunderstorm winds.

EXTENT

The extent or magnitude of a thunderstorm wind event is measured by the Beaufort Wind Scale. Table 10-1 describes the different intensities of wind in terms of speed and effects, from calm to violent and destructive.

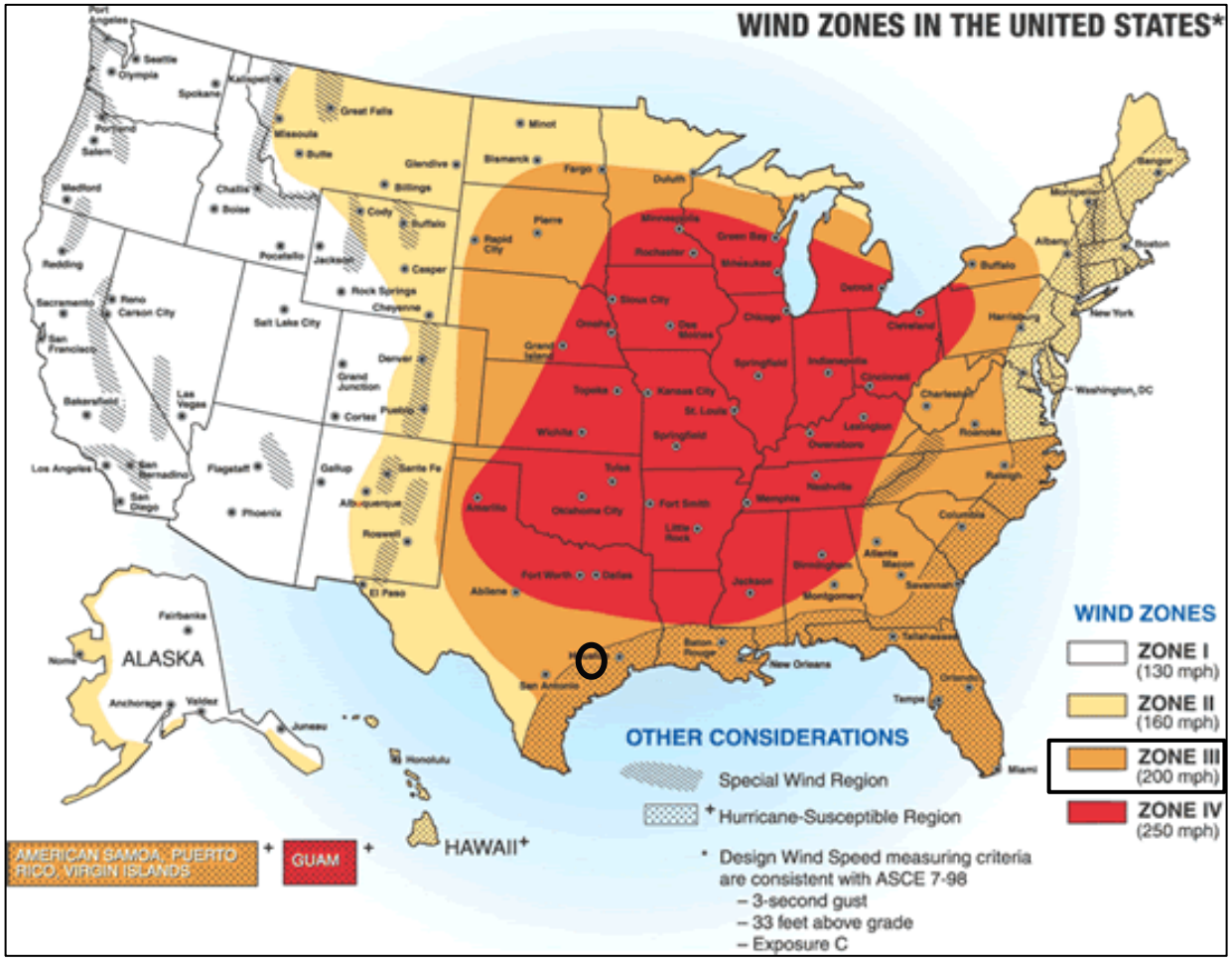
Table 10-1. Beaufort Wind Scale[1]

FORCE	WIND (MHP)	WIND (Knots)	WMO CLASSIFICATION	APPEARANCE OF WIND EFFECTS
0	Less than 1	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-7	4-6	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	8-12	7-10	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	13-18	11-16	Moderate Breeze	Dust, leaves and loose paper lifted, small tree branches move
5	19-24	17-21	Fresh Breeze	Small trees in leaf begin to sway
6	25-31	22-27	Strong Breeze	Larger tree branches moving, whistling in wires
7	32-38	28-33	Near Gale	Whole trees moving, resistance felt walking against wind
8	39-46	34-40	Gale	Whole trees in motion, resistance felt walking against wind
9	47-54	41-47	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	55-63	48-55	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	64-72	56-63	Violent Storm	If experienced on land, widespread damage
12	72-83	64-71	Hurricane	Violence and destruction

Figure 10-1 displays the wind zones as derived from NOAA.

[1] Source: World Meteorological Organization

Figure 10-1. Wind Zones in the United States[2]



On average, the planning area experiences 1 to 2 thunderstorm wind events every year. The Fayette County planning area is located within Wind Zone III, meaning it can experience winds up to 200 mph. The County, including participating jurisdictions and ISDs, has experienced substantial and dangerous wind events, or an event with winds exceeding the range of "Force 12" on the Beaufort Wind Scale with winds exceeding 83 mph (71 knots). This is the worst to be anticipated for the entire planning area based on historical events.

A search of past events between 1955 and 2022 shows the greatest magnitude wind event the planning area has experienced was 74 knots (85 mph) in Fayette County on January 10, 2020.

HISTORICAL OCCURRENCES

Historical evidence shows that the Fayette County planning area is vulnerable to thunderstorm events. Tables 10-2 and 10-3 depict historical occurrences of thunderstorm wind events for the Fayette County planning area according to the NCEI database.

Since 1977, 57 thunderstorm wind events are known to have occurred in the Fayette County planning area. Based upon NCEI records 33 events resulted in damage. Table 10-3 presents

[2] The Fayette County planning area is indicated by the black circle.

information on known historical events impacting the Fayette County planning area, including participating jurisdictions and ISDS, resulting in damages, injuries, or fatalities. The strongest event reported in the planning area occurred in Fayette County on August 8, 2003 with reported wind speeds of 60 knots, or 69 mph causing more than $240,000 in damage (2022 dollars).

It is important to note that high wind events associated with other hazards, such as tornadoes, are not accounted for in this section. Property damage estimates are not always available. Where an estimate has been provided in a table for losses, the dollar amounts have been altered to indicate the damage in 2022 dollars.

Historical thunderstorm wind data for the ISDs are provided within the Fayette County events or the participating jurisdictions in which the ISD resides per the NCEI database as they do not have events reported separate and apart from the reported county and jurisdiction events. There have been no separately reported losses as a result of thunderstorm wind for the participating school districts.

Table 10-2. Historical Thunderstorm Wind Events with Reported Damages, 1977-2022

MAXIMUM WIND SPEED RECORDED (Knots)	NUMBER OF REPORTED EVENTS
0-30	9
31-40	1
41-50	9
51-60	15
61-70	13
71-80	1
81-90	0
91-100+	0
Unknown	9

Table 10-3. Historical Thunderstorm Wind Events, 1977-2022[3]

LOCATION	DATE	TIME	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	5/29/1994	11:45 PM	52	0	0	$10,040	$10,040
City of La Grange	5/30/1994	12:30 AM	61	0	0	$10,040	$10,040
Fayette County	6/11/1995	2:40 AM	0	0	0	$19,421	$9,711
Fayette County	4/28/1996	11:58 PM	N/A	0	0	$18,949	$5,685

[3] Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2022 dollars.

SECTION 10: THUNDERSTORM WIND

LOCATION	DATE	TIME	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Schulenburg	5/24/1997	1:00 PM	N/A	0	0	$9,250	$0
City of Flatonia	1/11/1998	4:05 PM	N/A	0	0	$9,164	$0
City of Flatonia	6/5/1998	4:21 PM	N/A	0	0	$36,340	$0
City of Fayetteville	7/14/1998	4:25 PM	N/A	0	0	$36,295	$0
City of Schulenburg	8/20/1998	7:15 PM	N/A	0	0	$54,377	$0
Fayette County	2/27/1999	3:50 PM	N/A	0	0	$18,004	$0
Fayette County	5/29/1999	8:05 PM	N/A	0	0	$8,910	$0
City of Schulenburg	4/8/2002	1:30 AM	N/A	0	0	$82,361	$0
City of La Grange	6/13/2003	5:00 PM	55	0	0	$128,980	$0
Fayette County	8/8/2003	4:00 PM	60	0	0	$240,659	$0
City of Fayetteville	8/11/2003	1:50 PM	60	0	0	$160,439	$0
City of La Grange	8/11/2003	2:55 PM	60	0	0	$80,220	$0
Fayette County	4/25/2008	10:30 PM	50	0	0	$2,757	$0
City of Flatonia	6/29/2008	6:10 PM	50	0	0	$1,354	$0
Fayette County	4/2/2009	2:15 PM	35	0	1	$13,889	$0
Fayette County	8/16/2010	5:58 PM	56	0	0	$13,566	$0
Fayette County	6/26/2012	5:55 PM	43	0	0	$2,581	$0
City of Schulenburg	6/26/2012	6:00 PM	43	0	0	$2,581	$0
Fayette County	4/7/2014	8:15 PM	43	0	0	$6,246	$0
City of La Grange	4/16/2015	6:11 PM	50	0	0	$1,252	$0
Fayette County	3/24/2017	5:05 PM	52	0	0	$1,215	$0
City of La Grange	6/6/2019	3:55 PM	61	0	0	$5,781	$0
City of La Grange	6/6/2019	4:00 PM	65	0	0	$5,781	$0
Fayette County	1/10/2020	9:28 PM	65	0	0	$57,404	$0
Fayette County	1/10/2020	9:40 PM	74	0	0	$28,702	$0
Fayette County	8/18/2020	7:00 PM	61	0	0	$5,697	$0
Fayette County	5/28/2021	8:00 PM	61	0	0	$5,501	$0
City of La Grange	5/28/2021	7:27 PM	70	0	0	$11,002	$0

LOCATION	DATE	TIME	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	6/22/2021	1:25 AM	52	0	0	$2,180	$0
TOTAL			**(MAX EXTENT)**	**0**	**1**	**$1,090,938**	**$35,476**

Table 10-4. Summary of Historical Thunderstorm Wind Events, 1977-2022

LOCATION	NUMBER OF EVENTS	MAGNITUDE	DEATH	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	33	74	0	1	$455,721	$25,436
City of Carmine	0	-	-	-	-	-
City of Ellinger	0	-	-	-	-	-
City of Fayetteville	2	60	0	0	$196,734	$0
City of Flatonia	3	50	0	0	$46,858	$0
City of La Grange	12	70	0	0	$243,056	$10,040
City of Round Top	0	-	-	-	-	-
City of Schulenburg	7	61	0	0	$148,569	$0
Fayetteville ISD	0	-	-	-	-	-
Flatonia ISD	0	-	-	-	-	-
Round Top – Carmine ISD	0	-	-	-	-	-
Schulenburg ISD	0	-	-	-	-	-
Total	**57**	**(MAX EXTENT)**	**0**	**1**	**$1,126,414**	

Based on the list of historical thunderstorm wind events for the Fayette County planning area (listed above), eleven of the events have occurred since the 2016 Plan that have caused impacts to the planning area, including participating jurisdictions and ISDs.

SIGNIFICANT EVENTS

January 10, 2020 – Fayette County

As a cold front moved into a war, moist airmass, thunderstorms generated producing large hail and damaging wind gusts. Within Fayette County winds were estimated at 75-85 mph causing considerable damage to unincorporated jurisdictions within the County. Several buildings were destroyed, numerous trees uprooted, and winds caused an 18-wheeler to be blown over. Total damage costs were approximately $84,808 (2022 dollars).

August 8 through August 11, 2003 – Fayette County and City of Fayetteville
A line of thunderstorms moved southward into Fayette County producing severe winds that knocked down numerous trees, road signs, and damaged roof to residential and business structures within the County. Part of the County was without power for approximately 24 hours. Severe thunderstorms continued south, through eastern Fayette County, producing continued tree and power line damages. Nearly 1,400 residents lost power for several hours. A man was nearly injured due to a detached roof from a store landing beside him. Total damage as a result of the two events was $397,629 (2022 dollars).

August 20, 1998 – City of Schulenburg
It was reported that thunderstorm events across three Counties, including Fayette, had experienced numerous tree damage and power lines blown down due to severe winds as a line of thunderstorm moved across the area. Total reported damage was approximately $53,863 (2022 dollars).

PROBABILITY OF FUTURE EVENTS

Most thunderstorm winds occur during the spring and fall seasons and during the months of March, April, May, and September. Based on available records of historic events, there have been a total of 57 events in a 46-year reporting period, which provides a probability of one to two events every year. Even though the intensity of thunderstorm wind events is not always damaging for the Fayette County planning area, including participating jurisdictions and ISDs, the frequency of occurrence for a thunderstorm wind event is highly likely. This means that an event is probable within the next year for the planning area. See additional information on climate change at the end of this section.

VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since thunderstorm wind events can occur at different strength levels, in random locations, and can create relatively narrow paths of destruction. Due to the randomness of these events, all existing and future structures and facilities within the Fayette County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from strong winds.

Trees, power lines and poles, signage, manufactured housing, radio towers, concrete block walls, storage barns, windows, garbage recepticles, brick facades, and vehicles, unless reinforced, are vulnerable to thunderstorm wind events. More severe damage involves windborne debris, in some instances, patio furniture and other lawn items have been reported to have been blown around by wind and, very commonly, debris from damaged structures in turn have caused damage to other buildings not directly impacted by the event. In numerous instances roofs have been reported as having been torn off of buildings. The portable buildings typically used at schools and construction sites would be more vulnerable to thunderstorm wind events than typical site-built structures and could potentially pose a greater risk for wind-blown debris.

According to the American Community Survey, five-year estimates for 2021, a total of 1,938 manufactured homes are located in the Fayette County planning area (14.7 percent). In addition, 60.9 percent (approximately 8,040 structures) of the housing units were built before 1980 (Table 10-5). These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant wind events.

SECTION 10: THUNDERSTORM WIND

Based on 2021 American Community Survey (ACS) five-year estimates the City of La Grange has the highest reported number of single-family residences built before 1980, as well as the greatest amount of manufactured homes following the County, causing this jurisdiction to potentially sustain more structural damage due to a thunderstorm event.

Table 10-5. Structures at Greatest Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES[4]	SFR STRUCTURES BUILT BEFORE 1980
Fayette County	1,938	8,040
City of Carmine	16	113
City of Ellinger	8	60
City of Fayetteville	4	173
City of Flatonia	121	414
City of La Grange	150	1,690
City of Round Top	0	57
City of Schulenburg	65	840
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Flatonia ISD	3	2
La Grange ISD	0	6
Round Top – Carmine ISD	0	5
Schulenburg ISD	5	8

While all citizens are vulnerable to the impacts of thunderstorm wind, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 9.8 percent of the planning area population live below the poverty level (Table 10-6). While warning times for these type of hazard events should be substantial enough for these individuals to seek shelter, individuals who work and recreate outside are also vulnerable to potential impacts of a thunderstorm wind event (Table 10-7).

[4] Manufactured structures and/or portable building numbers are reported by each participating ISD.

Table 10-6. Populations at Greatest Risk by Jurisdiction

JURISDICTION	POPULATION BELOW POVERTY LEVEL[5]
Fayette County	2,369
City of Carmine	7
City of Ellinger	0
City of Fayetteville	15
City of Flatonia	102
City of La Grange	532
City of Round Top	0
City of Schulenburg	482

Table 10-7. Outdoor Employees by Participating ISDs

ISD	EMPLOYEES WORKING OUTDOORS
Fayetteville ISD	48
Flatonia ISD	110
La Grange ISD	300
Round Top – Carmine ISD	52
Schulenburg ISD	130

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by thunderstorm wind events. The critical infrastructure with the greatest vulnerability to thunderstorms are power and communications facilities. Failures of these facilities can result in a loss of service and cascading impacts including placing individuals dependent on electricity to live independently at great risk of medical emergencies. For a comprehensive list by participating jurisdiction see Appendix C:

[5] US Census Bureau 2022 data for Fayette County

Table 10-8. Critical Facilities Vulnerable to Thunderstorm Wind Events

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles can be damaged by falling trees or flying debris. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Debris/downed trees can impede emergency response vehicle access to areas. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures can be damaged by falling trees or flying debris. • Power outages could disrupt critical care. • Backup power sources could be damaged. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Evacuations may be necessary due to extended power outages, gas line ruptures, or structural damage to facilities. • Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations. • Temporary break in operations may significantly inhibit post event evacuations. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations. • Economic disruption due to power outages and fires negatively impact airport services as well as area businesses reliant on airport operations.
Commercial Supplier (food, gas/fuel, etc.)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles can be damaged by falling trees or flying debris. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Debris/downed trees can impede emergency response vehicle access to areas.

CRITICAL FACILITIES	POTENTIAL IMPACTS
	• Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel.

A thunderstorm wind event can also result in traffic disruptions, injuries and in rare cases, fatalities. Impact of thunderstorms winds experienced in the planning area has resulted in one injury and no fatalities. Impact of thunderstorm wind events experienced in the Fayette County planning area, inlcuding participating jurisdictions and ISDs, would be considered "Limited," with less than 10 percent of property expected to be destroyed and critical facilities shut down for less than 24-hours. However, with one injury, the impact would be considered "Major" depending on the severity of the event. Overall, in the past 46 years there has been a total of $1,126,414 damages (in 2022 dollars) in the Fayette County planning area due to thunderstorm wind events. The estimated average annual loss from a thunderstorm wind event is $24,487.

Table 10-9. Estimated Annualized Losses by Participating Jurisdiction

JURISDICTION	TOTAL PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Fayette County	$481,157	$10,460
City of Carmine	$0	$0
City of Ellinger	$0	$0
City of Fayetteville	$196,734	$4,277
City of Flatonia	$46,858	$1,019
City of La Grange	$253,096	$5,502
City of Round Top	$0	$0
City of Schulenburg	$148,569	$3,230
Fayetteville ISD	$0	$0
Flatonia ISD	$0	$0
La Grange ISD	$0	$0
Round Top – Carmine ISD	$0	$0
Schulenburg ISD	$0	$0
TOTAL	**$1,126,414**	**$24,487**

ASSESSMENT OF IMPACTS

Thunderstorm wind events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. Thunderstorm wind conditions can be frequently associated with a variety of impacts, including:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During exceptionally heavy wind events, first responders may be prevented from responding to calls, as the winds may reach a speed at which their vehicles and equipment are unsafe to operate.
- Thunderstorm wind events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
- Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.
- Critical staff may be unable to report for duty, limiting response capabilities.
- County and city departments may be damaged, delaying response and recovery efforts for the entire community.
- Private sector entities that the County and cities along with residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by thunderstorm wind events may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures built (60.9% of the planning area) to less stringent building codes may suffer greater damage as they are typically more vulnerable to thunderstorm winds.
- Large scale wind events can have significant economic impact on the affected area, as it must now fund expenses such as infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damage without a backup power source.
- Recreational areas and parks, including Monument Hills State Park & Kriesche Brewery and Park Prairie Park & Oak Thicket Park, may be damaged or inaccessible due to downed trees or debris, causing temporary impacts to area businesses.

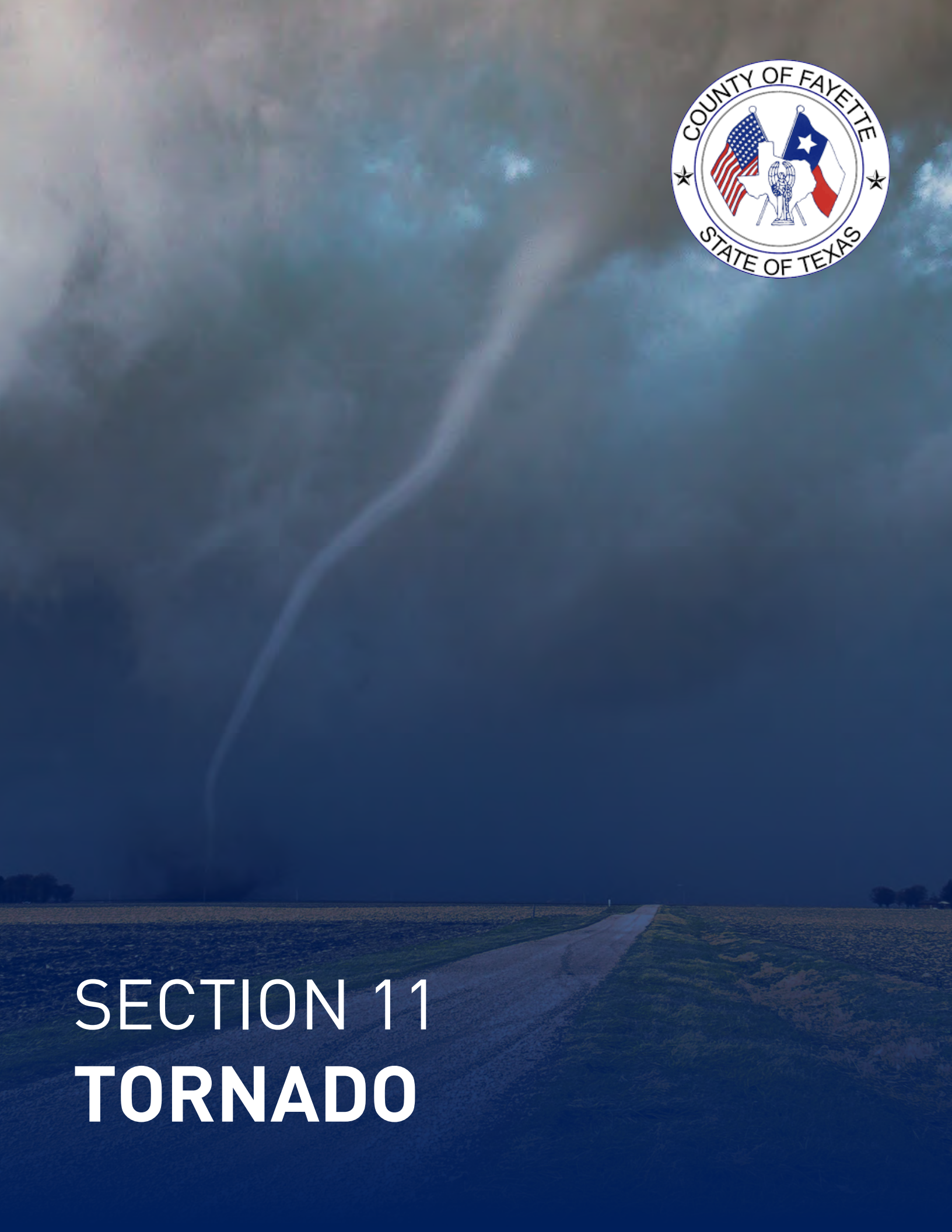
- Historical sites and properties, a total of 23 buildings and sites within Fayette County, are listed on the National Register of Historic Places and are placed at a higher risk of impact.

The economic and financial impacts of thunderstorm winds on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any thunderstorm wind event.

CLIMATE CHANGE CONSIDERATIONS

The impacts on the frequency and severity of severe thunderstorm wind events due to climate change are unclear. According to the Texas A&M 2021 Climate Report Update, changes in severe thunderstorm reports over time have been more closely linked to changes in population than changes in the hazard event. At this time there is low confidence of an ongoing trend in the overall frequency and severity of thunderstorm events, due to the lack of climate data records for severe thunderstorms. Based on climate models that are available, the environmental conditions needed for severe thunderstorms are estimated to become more likely, resulting in an overall increase in the number of days capable of producing a severe thunderstorm event.[6]

[6] Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.



SECTION 11
TORNADO

SECTION 11: TORNADO

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HAZARD DESCRIPTION

Tornadoes are among the most violent storms on the planet. A tornado is a rapidly rotating column of air extending between, and in contact with, a cloud and the surface of the earth. The most violent tornadoes are capable of tremendous destruction and have wind speeds of 250 miles per hour or more. In extreme cases, winds may approach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long.

The most powerful tornadoes are produced by "Supercell Thunderstorms." These thunderstorms are created when horizontal wind shears (winds moving in different directions at different altitudes) begin to rotate the storm. This horizontal rotation can be tilted vertically by violent updrafts, and the rotation radius can shrink, forming a vertical column of very quickly swirling air. This rotating air can eventually reach the ground, forming a tornado.

Table 11-1. Variations among Tornadoes

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

LOCATION

Tornadoes do not have any specific geographic boundary and can occur throughout the planning area uniformly. It is assumed that the entire Fayette County planning area, including participating jurisdictions and ISDs, is susceptible to a potential tornado event. The entire planning area is located in Wind Zone III where tornado winds can be as high as 200 mph, refer to Figure 11-1.

Figure 11-1. FEMA Wind Zones in the United States

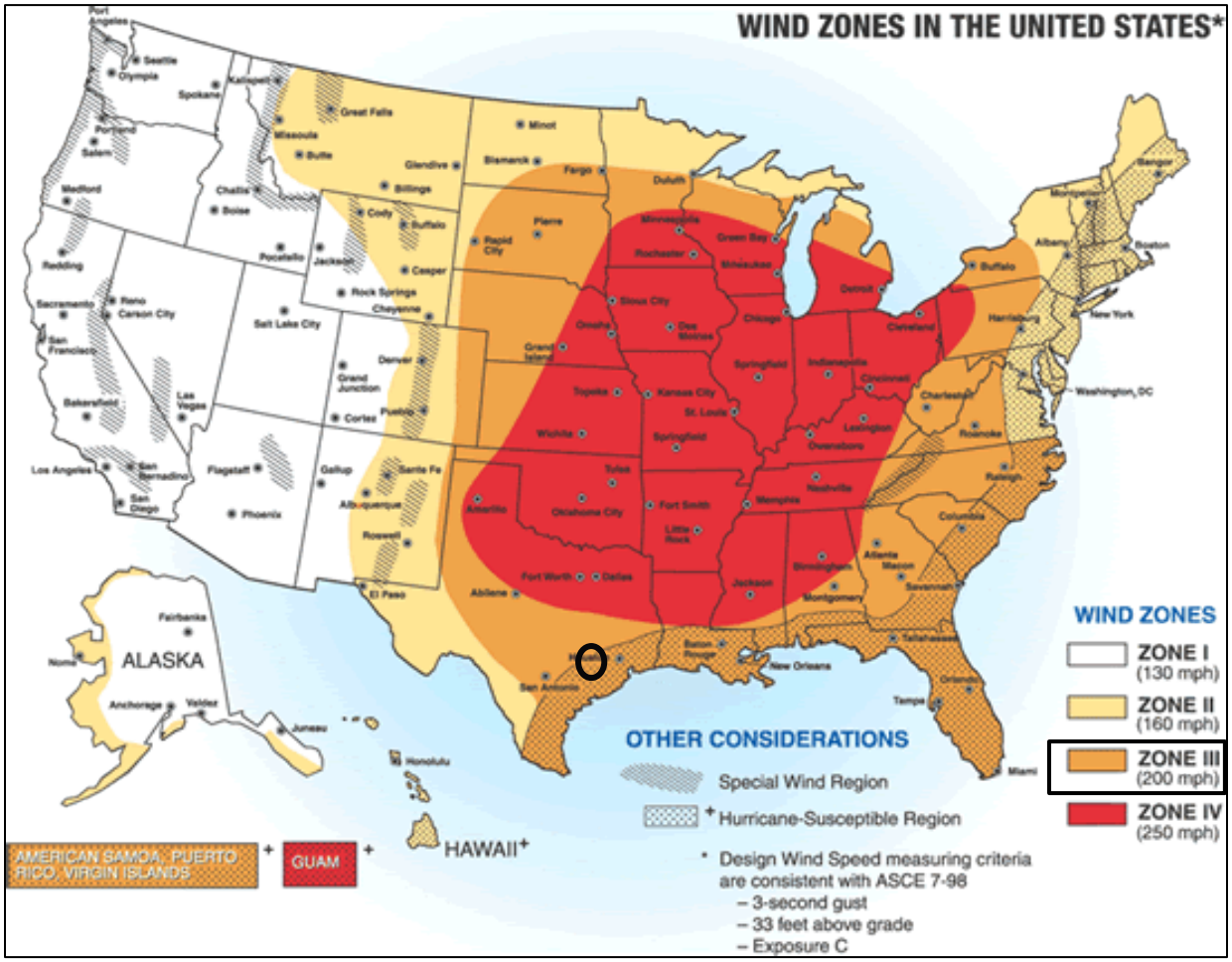
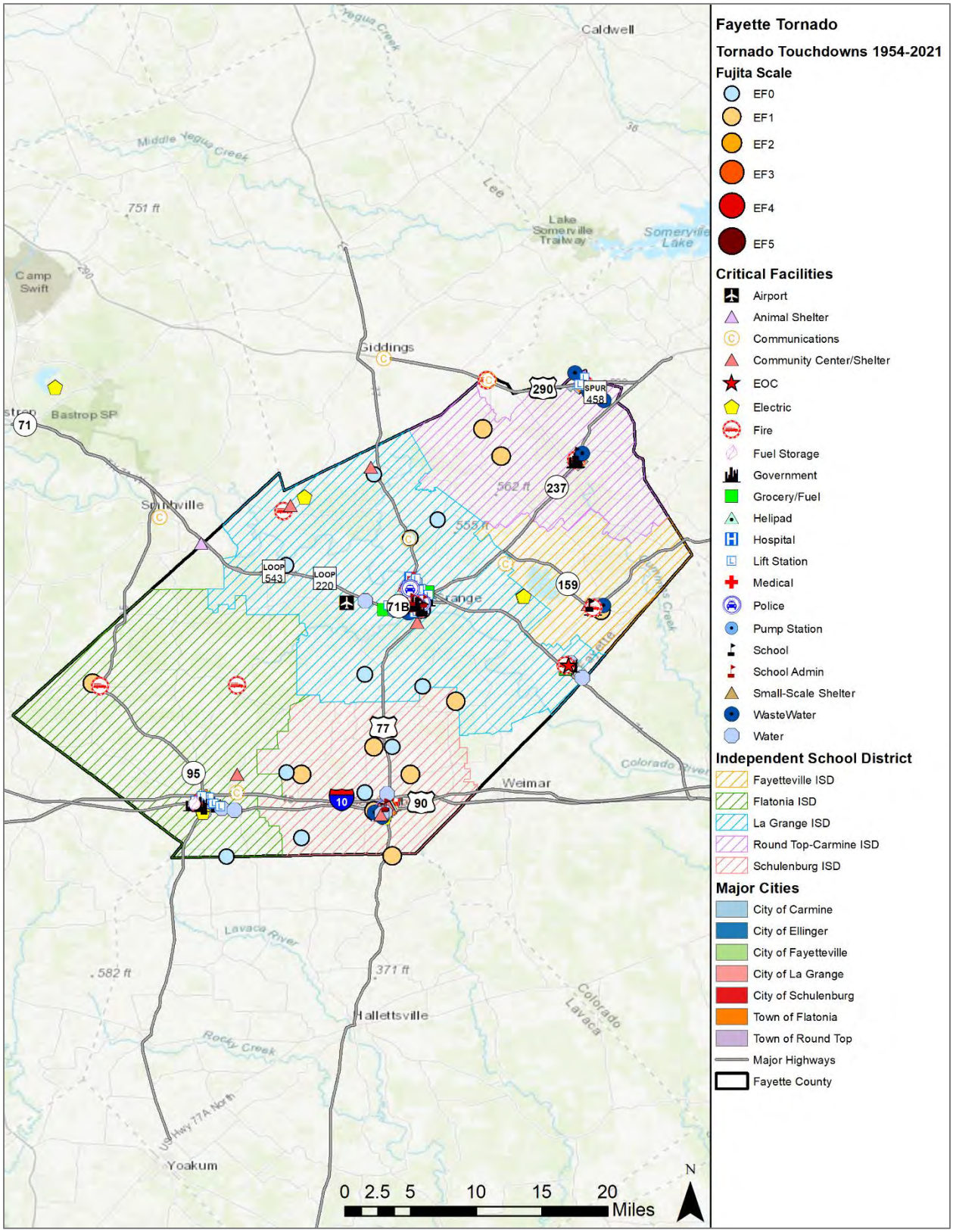


Figure 11-2 shows the locations of historic tornado events in the Fayette County planning area between 1954 and 2022. It is noted that only those events with latitude and longitude coordinates are included in the figure below.

Figure 11-2. Historical Tornado Events in Fayette County



EXTENT

The destruction caused by tornadoes ranges from light to inconceivable, depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, such as residential homes (particularly mobile homes).

Table 11-2. The Fujita Tornado Scale[1]

F-SCALE NUMBER	INTENSITY	WIND SPEED (MPH)	TYPE OF DAMAGE DONE	PERCENT OF APPRAISED STRUCTURE VALUE LOST DUE TO DAMAGE
F0	Gale Tornado	40 – 72	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	None Estimated
F1	Moderate Tornado	73 – 112	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.	0% – 20%
F2	Significant Tornado	113 – 157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	50% – 100%
F3	Severe Tornado	158 – 206	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	100%
F4	Devastating Tornado	207 – 260	Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	100%
F5	Incredible Tornado	261 – 318	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles flying through the air in excess of 330 yards; trees debarked; steel reinforced concrete badly damaged.	100%

[1] http://www.tornadoproject.com/fscale/fscale.htm

Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale (Table 11-2). Since February 2007, the Fujita Scale has been replaced by the Enhanced Fujita Scale (Table 11-3), which retains the same basic design and six strength categories as the previous scale. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures.

Table 11-3. Enhanced Fujita Scale for Tornadoes

STORM CATEGORY	DAMAGE LEVEL	3 SECOND GUST (MPH)	DESCRIPTION OF DAMAGES	PHOTO EXAMPLE
EF0	Gale	65 – 85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	
EF1	Weak	86 – 110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.	
EF2	Strong	111 – 135	Considerable damage; roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	
EF3	Severe	136 – 165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	
EF4	Devastating	166 – 200	Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	
EF5	Incredible	200+	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles flying through the air in excess of 330 yards; trees debarked; steel reinforced concrete badly damaged.	

Both the Fujita Scale and Enhanced Fujita Scale should be referenced in reviewing previous occurrences since tornado events prior to 2007 will follow the original Fujita Scale. The greatest

magnitude reported within the planning area is F2 on the Fujita Scale, a "Significant Tornado." Based on the planning area's location in Wind Zone III, all participating jurisdictions and ISDs have the potential to experience anywhere from an EF0 to an EF5 depending on the wind speed. Previous tornado events in the Fayette County planning area, including participating jurisdictions and ISDs, (converted from the Fujita Scale) have been between EF0 and EF3 (Figure 11-2). This is the strongest event the planning area can anticipate in the future based on historic events.

HISTORICAL OCCURRENCES

Only reported tornadoes were factored into the Risk Assessment. It is likely that a high number of occurrences have gone unreported over the past 69 years. Historical tornado data for the Fayette County planning area is shown within a county-wide basis per the NCEI database.

Figure 11-2, above, identifies the locations of previous occurrences in the Fayette County planning area from 1954 through 2022. A total of 35 events have been recorded by the Storm Prediction Center (NOAA) and National Centers for Environmental Information (NCEI) database for the Fayette County planning area. The most destructive event reported in the planning area was an F0 tornado (40 - 72 mph) that occurred in Fayette County on April 17, 1991, causing more than five million dollars in damage and injuring one resident.

Historical tornado data for the participating ISDs do not have events reported separately and apart from the reported county events. During the risk assessment portion of the planning process, participating ISDs did not report any separate events that impacted their districts.

Table 11-4. Historical Tornado Events, 1954-2022[2]

JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	4/30/1954	6:45 AM	F2	0	0	$276,279	$0
Fayette County	6/3/1959	5:10 PM	F1	0	0	$2,544	$0
Fayette County	10/18/1960	1:12 PM	F1	0	2	$2,484,656	$0
Fayette County	1/21/1965	11:00 PM	F2	0	0	$237,317	$0
Fayette County	9/21/1967	4:00 AM	F1	0	0	$2,204	$0
Fayette County	2/25/1971	11:00 PM	F1	0	0	$1,856	$0
Fayette County	11/22/1971	9:30 PM	F1	0	0	$181,034	$0
Fayette County	10/11/1973	8:26 AM	F2	0	1	$162,374	$0
Fayette County	6/1/1974	12:10 AM	F0	0	0	$15,111	$0
Fayette County	6/1/1974	2:00 AM	F0	0	0	$15,111	$0
Fayette County	9/17/1988	6:44 AM	F0	0	0	$61,805	$0
Fayette County	4/17/1991	6:50 PM	F0	0	1	$5,476,535	$0
City of La Grange	3/13/1995	3:19 AM	F0	0	0	$39,124	$0

[2] Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2022 dollars.

JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	6/5/1998	4:32 PM	F1	0	0	$36,340	$0
Fayette County	12/23/2002	8:45 AM	F1	0	0	$245,581	$0
City of La Grange	12/30/2002	5:35 PM	F0	0	0	$32,744	$0
Fayette County	5/3/2019	6:22 AM	EF0	0	0	$11,565	$0
Fayette County	5/3/2019	7:14 AM	EF0	0	0	$57,825	$0
Fayette County	5/3/2019	8:04 AM	EF2	0	0	$4,626,009	$0
Fayette County	5/18/2021	5:42 PM	EF1	0	0	$110,021	$0
TOTAL			**(MAX EXTENT)**	**0**	**4**	**$14,076,035**	**$0**

Table 11-5. Historical Tornado Events, 1954-2022[3]

LOCATION	NUMBER OF EVENTS	GREATEST MAGNITUDE	DEATH	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	30	F2	0	4	$14,004,167	$0
City of Carmine	0	-	-	-	-	-
City of Ellinger	0	-	-	-	-	-
City of Fayetteville	0	-	-	-	-	-
City of Flatonia	1	EF0	0	0	$0	$0
City of La Grange	3	EF0	0	0	$71,868	$0
City of Round Top	0	-	-	-	-	-
City of Schulenburg	1	EF0	0	0	$0	$0
Fayetteville ISD	0	-	-	-	-	-
Flatonia ISD	0	-	-	-	-	-
Round Top – Carmine ISD	0	-	-	-	-	-
Schulenburg ISD	0	-	-	-	-	-
Total	**35**	**(MAX EXTENT)**	**0**	**4**	**$14,076,035**	

[3] Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2022 dollars.

In summary, unincorporated Fayette County experienced the greatest number of tornado events within 30 reported events based on the NCEI, with the City of La Grange reporting the second greatest number of events (3), followed by the City of Schulenburg with 1 tornado event. The remaining participating jurisdictions did not have any reported tornado events. Based on the list of historical tornado events for the Fayette County planning area (listed above), there have been four recorded events since the 2016 Plan.

SIGNIFICANT EVENTS

May 3, 2019 – Fayette County

Throughout South-Central Texas several thunderstorms produced tornadoes, large hail, damaging wind gusts, and heavy rain that led to flash flooding. An EF0 tornado continued to move north through central Fayette County. As it approached the west side of the City of La Grange, it produced another tornado with visible tree damage just south of the La Grange airport near the intersection of Supak Lane and Jackson Road. Several large oak trees were damaged and uprooted near this area and areas along Old Lockhart Road. Damage in this area was estimated to be EF1. The tornado then approached Hwy 71 producing heavy damage on the south side of the road. At this location a large metal building was destroyed while another was heavily damaged. Business and employee vehicles were overturned, and a 90,000 lb. piece of machinery was shifted and overturned. Damage was estimated to be EF2 as it crossed this area. Employees successfully took shelter, and no injuries were reported. The tornado continued to move north and crossed Hwy 71, destroying/collapsing a metal building across the street and doing considerable damage to multiple large oak trees. The path continued north to Egypt Road where a small church was heavily damaged, and more tree damage was observed. The tornado finally dissipated north of this area near Egypt Road just south of the Colorado River. Total damage as a result of this event was $4,578,870 (2022 dollars).

December 23, 2002– Fayette County

The small tornado touched down 3 miles south of Ledbetter (unincorporated jurisdiction) near FM1291 and dissipated after striking the town. As it reached the town, it damaged the residential and commercial structures, knocking over large trees and moving a wooden church five feet off its foundation of concrete blocks. It also rolled over a vehicle. There were no reported injuries, with damage estimated to be $244,015 (2022 dollars).

June 5, 1998– Fayette County

A small and short-lived tornado struck just north of Engle (unincorporated jurisdiction), knocking down numerous trees as it moved briefly northeastward. The tornado was preceded by a series of brief downbursts in the City of Flatonia blew over numerous trees. Total damage was reported to be $35,909 (2022 dollars).

PROBABILITY OF FUTURE EVENTS

Tornadoes can occur at any time of year and at any time of day, but they are typically more common in the spring months during the late afternoon and evening hours. A smaller, high frequency period can emerge in the fall during the brief transition between the warm and cold seasons. According to historical records, the Fayette County planning area, including participating jurisdictions and ISDs, can experience a tornado touchdown approximately once every year. This frequency supports a highly likely probability of future events.

VULNERABILITY AND IMPACT

Due to the randomness of tornado events all existing and future buildings, facilities, and infrastructure in the Fayette County planning area, including participating jurisdictions and ISDs, are considered to be exposed to this hazard and could potentially be impacted. The damage caused by a tornado is typically a result of high wind velocity and wind-blown debris.

The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. Consequently, vulnerability of humans and property is difficult to evaluate since tornadoes form at different strengths, in random locations, and create relatively narrow paths of destruction. Although tornadoes strike at random, making all buildings vulnerable, three types of structures are more likely to suffer damage:

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

Tornadoes can cause a significant threat to people as they could be struck by flying debris, falling trees or branches, utility lines, and poles. Blocked roads could prevent first responders to respond to calls. Tornadoes commonly cause power outages which could cause health and safety risks to residents and visitors, as well as to patients in hospitals.

The Fayette County planning area features mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to tornado events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area which would also be more vulnerable. U.S. Census data indicates a total 1,938 (14.7 percent of total housing stock) manufactured homes located in the planning area. In addition, 60.9 percent (approximately 8,040 structures) of the housing structures in the Fayette County planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant tornado events. For additional information on building inventory growth rates please refer to Section 3 of this plan.

Table 11-6. Structures at Greater Risk to Tornado Events

JURISDICTION	MANUFACTURED HOMES[4]	SFR STRUCTURES BUILT BEFORE 1980
Fayette County	1,938	8,040
City of Carmine	16	113
City of Ellinger	8	60
City of Fayetteville	4	173
City of Flatonia	121	414
City of La Grange	150	1,690

[4] Manufactured structures and/or portable building numbers are reported by each participating ISD.

JURISDICTION	MANUFACTURED HOMES[4]	SFR STRUCTURES BUILT BEFORE 1980
City of Round Top	0	57
City of Schulenburg	65	840
Fayetteville ISD	1	4
Flatonia ISD	3	2
La Grange ISD	0	6
Round Top – Carmine ISD	0	5
Schulenburg ISD	5	8

While all citizens are at risk to the impacts of a tornado, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 9.8 percent of the Fayette County planning area population live below the poverty level (Table 11-7), with the City of Schulenburg having the highest percentage of resident living below poverty level. While warning times for these type of hazard events should be substantial enough for these individuals to seek shelter, individuals who work and recreate outside are also vulnerable to potential impacts of a tornado event (Table 11-8).

Table 11-7. Populations at Greater Risk to Tornado Events[5]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Fayette County	2,369
City of Carmine	7
City of Ellinger	0
City of Fayetteville	15
City of Flatonia	102
City of La Grange	532
City of Round Top	0
City of Schulenburg	482

[5] U.S. Census Bureau American Community Survey Five-Year Estimates, 2017-2021

Table 11-8. Outdoor Employees by Participating ISDs

ISD	EMPLOYEES WORKING OUTDOORS
Fayetteville ISD	48
Flatonia ISD	110
La Grange ISD	300
Round Top – Carmine ISD	52
Schulenburg ISD	130

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by tornado events (Table 11-9). The critical infrastructure with the greatest vulnerability to tornadoes are power and communication facilities. Failures of these facilities can result in a loss of service and cascading impacts including placing individuals dependent on electricity to live independently becoming at great risk of medical emergencies. For a comprehensive list by participating jurisdiction see Appendix C.

Table 11-9. Critical Facilities Vulnerable to Tornado Event

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles can be damaged by falling trees or flying debris. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Debris/downed trees can impede emergency response vehicle access to areas. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions. • Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental	• Structures can be damaged by falling trees damaged by a tornado. • Power outages could disrupt critical care. • Backup power sources could be damaged. • Evacuations may be necessary due to extended power outages, fires, or other associated damage to facilities. • Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations.

CRITICAL FACILITIES	POTENTIAL IMPACTS
Facilities, Residential/ Assisted Living Facilities	• Temporary break in operations may significantly inhibit post event evacuations. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.
Commercial Supplier (food, gas/fuel, etc.)	• Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible. • Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed. • Additional emergency responders and critical aid workers may not be able to reach the area for days. • Damaged or destroyed highway infrastructure may substantial
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency vehicles can be damaged by falling trees or flying debris. • Power outages could disrupt communications, delaying emergency response times. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Debris/downed trees can impede emergency response vehicle access to areas. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions. • Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.

The average annual loss estimates of property and crop due to tornado events is $14,076,035 (in 2022 dollars), having an approximate annual loss estimate of $204,001. Based on historic damages, and the best available data, the impact of a tornado event on the Fayette County planning area, including participating jurisdictions and ISDs, would be considered “Minor”, with critical facilities and services shutdown for 24 hours or less and less than 10 percent of properties destroyed or with major damage. However, due to the number of past injuries, the impact of tornado events for the planning area is considered “Major,” based on the extent of potential injuries.

Table 11-10. Estimated Average Annualized Losses by Jurisdiction

JURISDICTION	TOTAL PROPERTY & CROP LOSS	AVERAGE ANNUAL LOSS ESTIMATES
Fayette County	$14,004,167	$202,959
City of Carmine	$0	$0
City of Ellinger	$0	$0

JURISDICTION	TOTAL PROPERTY & CROP LOSS	AVERAGE ANNUAL LOSS ESTIMATES
City of Fayetteville	$0	$0
City of Flatonia	$0	$0
City of La Grange	$71,868	$1,042
City of Round Top	$0	$0
City of Schulenburg	$0	$0
Fayetteville ISD	$0	$0
Flatonia ISD	$0	$0
La Grange ISD	$0	$0
Round Top – Carmine ISD	$0	$0
Schulenburg ISD	$0	$0
TOTAL	**$14,076,035**	**$204,001**

ASSESSMENT OF IMPACTS

Tornadoes have the potential to pose a significant risk to the population and can create dangerous situations. Often providing and preserving public health and safety is difficult following tornado events. More destructive tornado conditions can be frequently associated with a variety of impacts, including:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Manufactured homes may suffer substantial damage as they would be more vulnerable than typical site-built structures, especially the City of La Grange as well as Schulenburg ISD who have the most manufactured structures within the planning area.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- Tornadoes often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages can result in an increase in structure fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Tornadoes can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders must enter the damage area shortly after the tornado passes to begin rescue operations and to organize cleanup and assessments efforts, therefore they are

exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.

- Emergency operations and services may be significantly impacted due to damaged facilities, loss of communications, and damaged emergency vehicles and equipment.
- County and City departments may be damaged or destroyed, delaying response and recovery efforts for the entire community.
- Private sector entities rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue, especially if damage is sustained to major employment sectors within the planning area. The most common employment sectors in the planning area include health care (1,294), retail (1,292) and construction (1,227).
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the tornado may be negatively impacted while roads and utilities are being restored, further slowing economic recovery.
- When the community is affected by significant property damage it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures destroyed by a tornado may not be rebuilt for years, reducing the tax base for the community, with the highest number of reported structures located within the City of La Grange and within Schulenburg ISD.
- Large or intense tornadoes may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities may be unavailable, and tourism can be unappealing for years following a large tornado, devastating directly related local businesses especially within Monument Hills State Park & Kriesche Brewery, Park Prairie Park & Oak Thicket Park, and the Attwater Chicken Prairies Wildlife Refuge.
- Historical sites and properties, a total of 23 buildings and sites within Fayette County listed on the National Register of Historic Places and are placed at a higher risk of impact.

The economic and financial impacts of a tornado event on the community will depend on the scale of the event, what is damaged, costs of repair or replacement, lost business days in impacted areas, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a tornado event. Warning sirens/alert systems have also been integrated into participating communities to promote

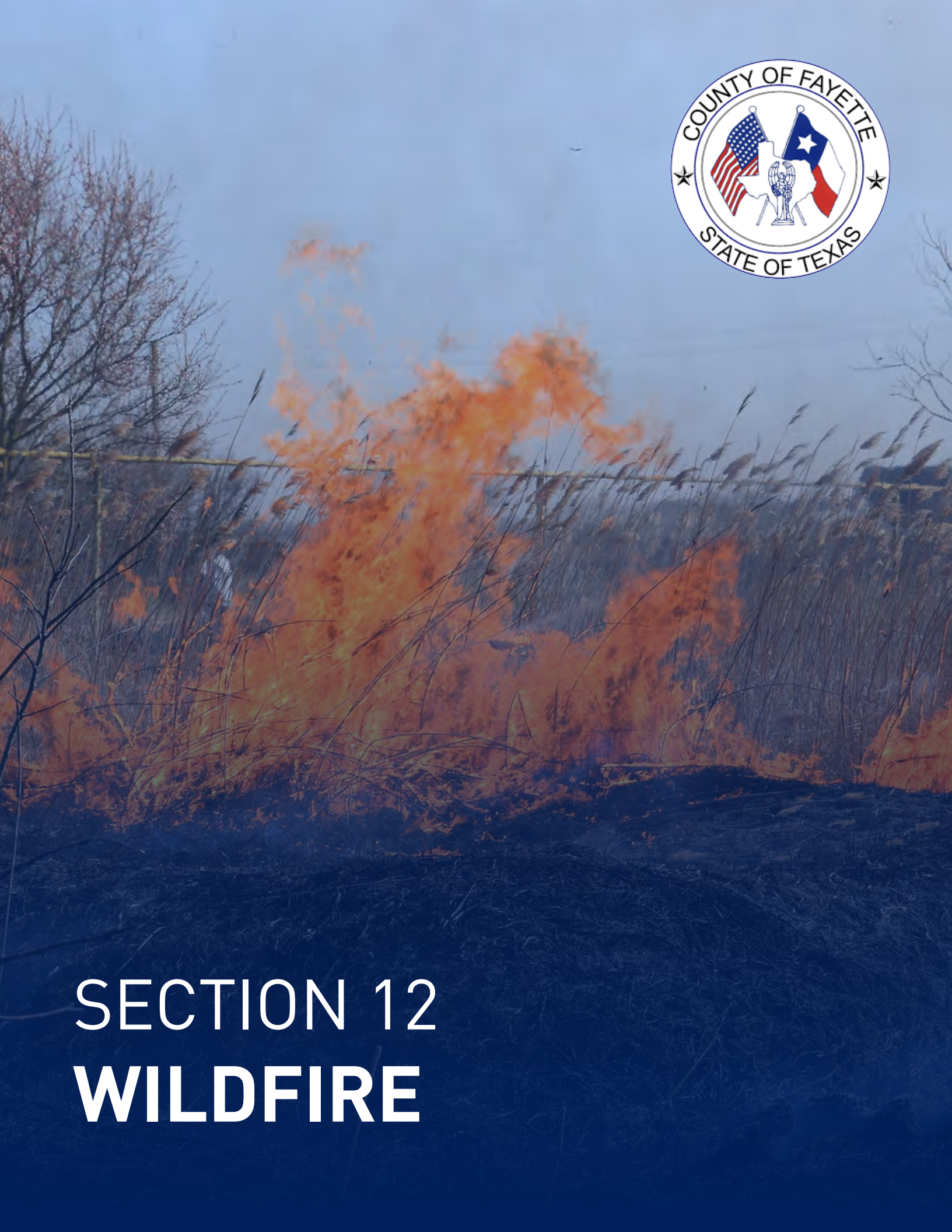
early warning and communication for the community. See Appendix F for a comprehensive list of jurisdictions and ISDs that have this system in place.

CLIMATE CHANGE CONSIDERATIONS

The impacts on the frequency and severity of tornado events due to climate change are unclear. According to the Texas A&M 2021 Climate Report Update, the most robust trend in tornado activity in Texas is a likelihood for a greater number of tornadoes in large outbreaks, although the factors contributing to this trend are not expected to continue. Tornadoes spawn from less than 10 percent of thunderstorms, usually supercell thunderstorms that are in a wind shear environment that promotes rotation.[6] Based on climate models that are available, the environmental conditions needed for severe thunderstorm events are estimated to become more likely, resulting in an overall increase in the number of days capable of producing a severe thunderstorm event and potential tornadoes to develop from these storms.[7]

[6] Treisman, Rachel. *The exact link between tornadoes and climate change is hard to draw. Here's why*. NPR. December 13, 2021. https://www.npr.org/2021/12/13/1063676832/the-exact-link-between-tornadoes-and-climate-change-is-hard-to-draw-heres-why

[7] Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.



SECTION 12
WILDFIRE

SECTION 12: WILDFIRE

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HAZARD DESCRIPTION

A wildfire event can rapidly spread out of control and occurs most often in the summer when the brush is dry and flames can move unchecked through a highly vegetative area. Wildfires can start as a slow burning fire along the forest floor, killing and damaging trees. The fires often spread more rapidly as they reach the tops of trees with wind carrying the flames from tree to tree. Usually, dense smoke is the first indication of a wildfire.

A wildfire event often begins unnoticed and spreads quickly, lighting brush, trees, and homes on fire. For example, a wildfire may be started by a campfire that was not doused properly, a tossed cigarette, burning debris, or arson.

Texas has seen a significant increase in the number of wildfires in the past 30 years, which included wildland, interface, or intermix fires. Wildland fires are fueled almost exclusively by natural vegetation, while interface or intermix fires are urban/wildland fires in which vegetation and the built environment provide the fuel.

LOCATION

A wildfire event can be a potentially damaging consequence of drought conditions, lightning, or wind event, if the conditions allow. Wildfires can vary greatly in terms of size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in open grasslands. The threat to people and property from a wildfire event is greater in the fringe areas where developed areas meet open grass lands, such as the Wildland Urban Interface (WUI) (Figures 12-1 through 12-13). It is estimated that 85.7 percent of the total population in the Fayette County planning area live within the WUI. However, the entire planning area is at some risk for wildfires.

Figure 12-1. Wildland Urban Interface Map – Fayette County

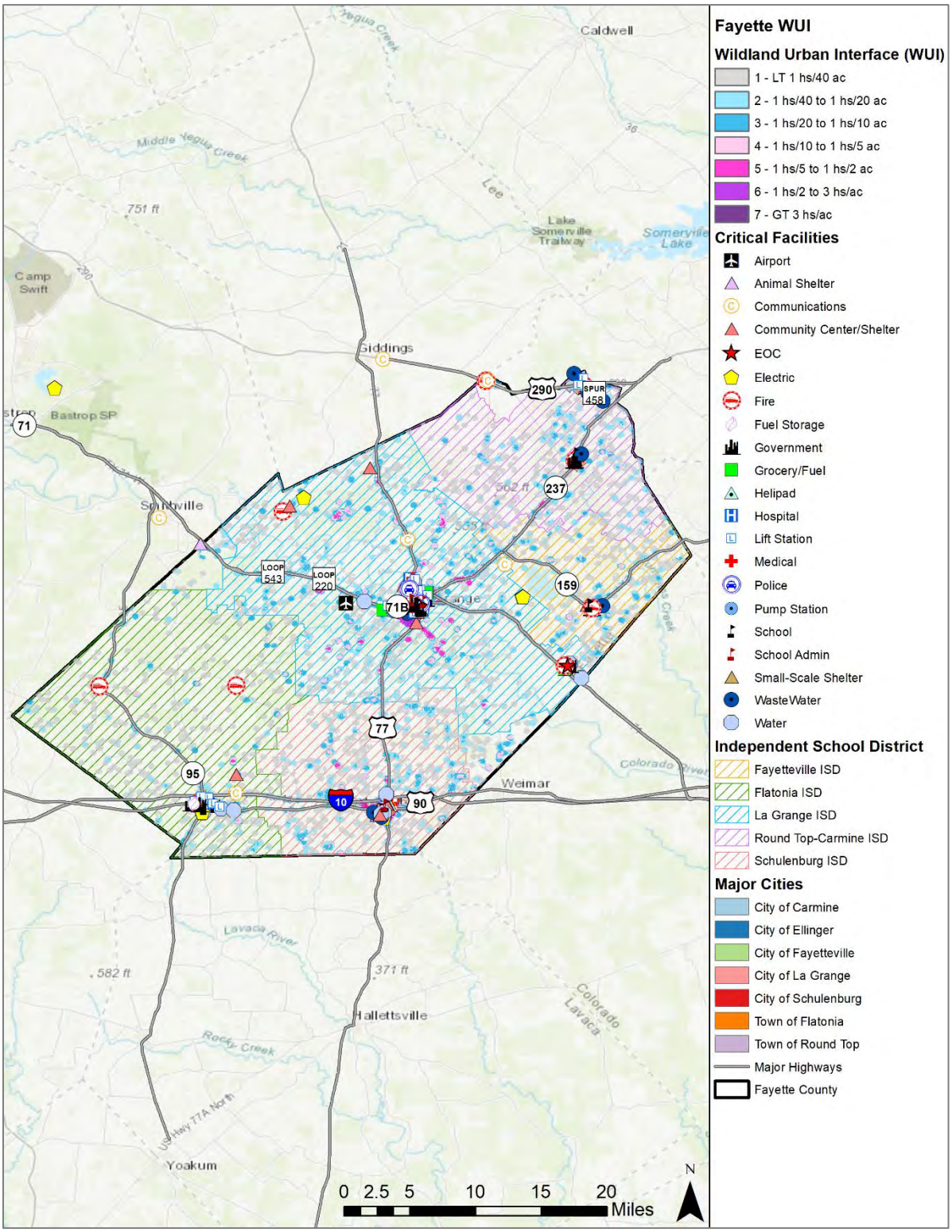
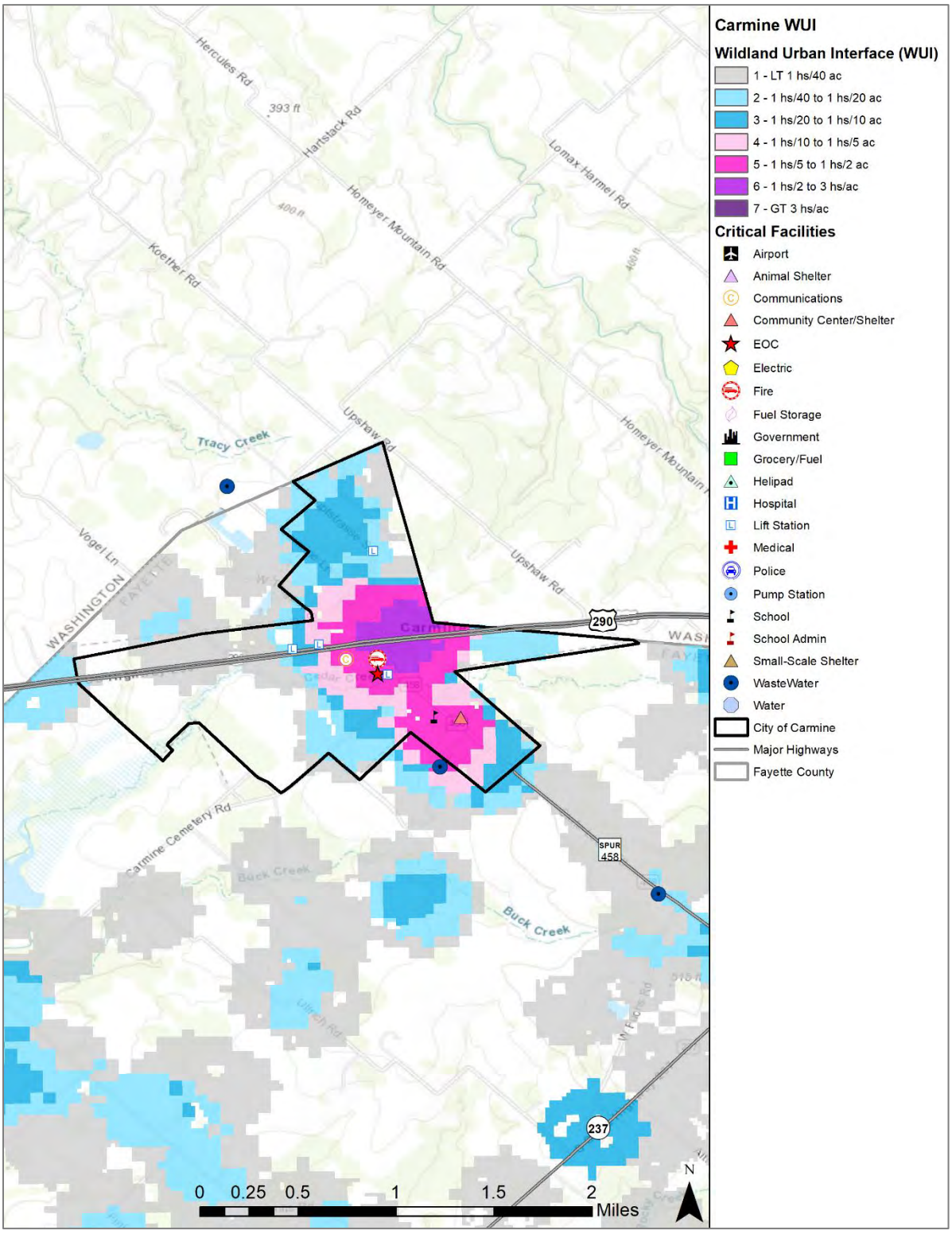
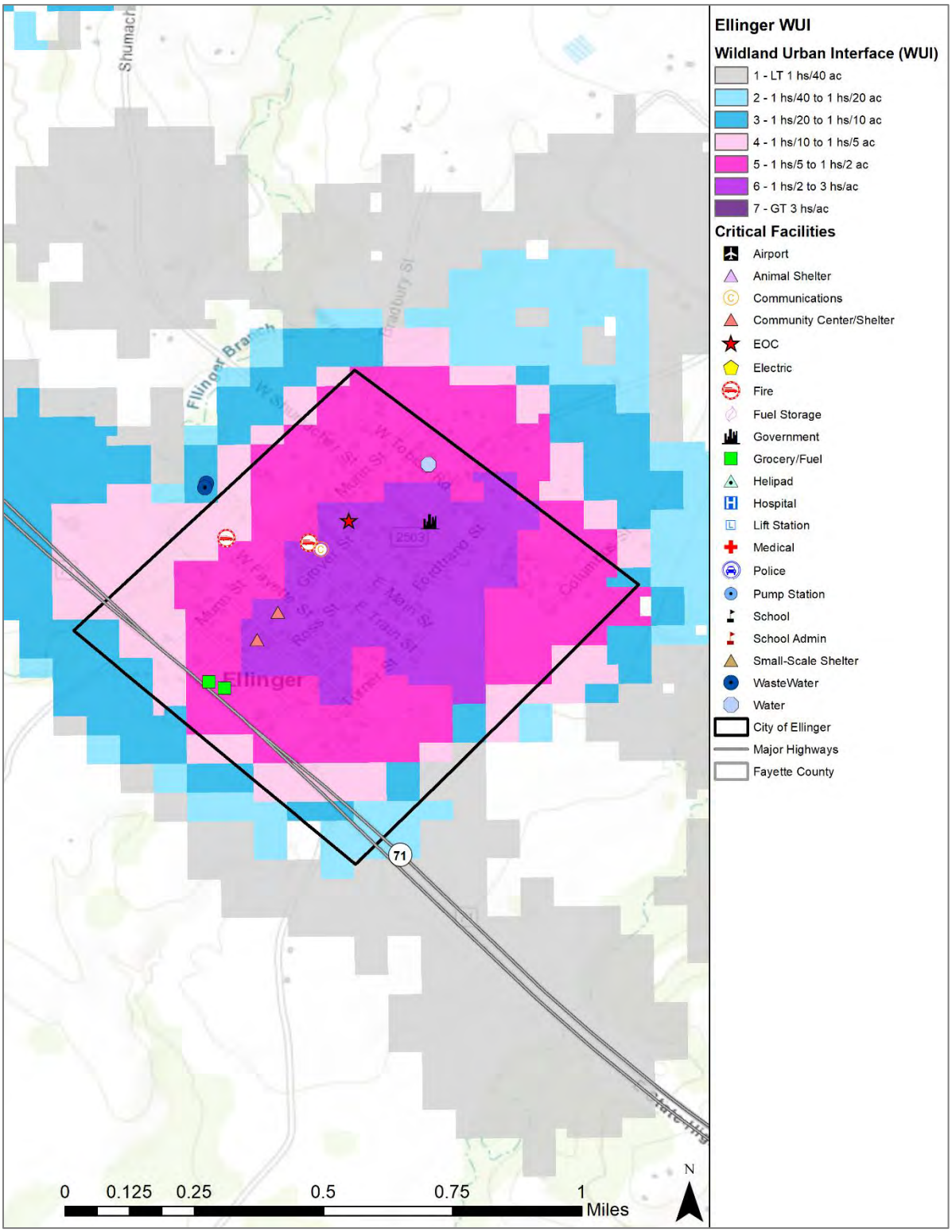


Figure 12-2. Wildland Urban Interface Map – City of Carmine



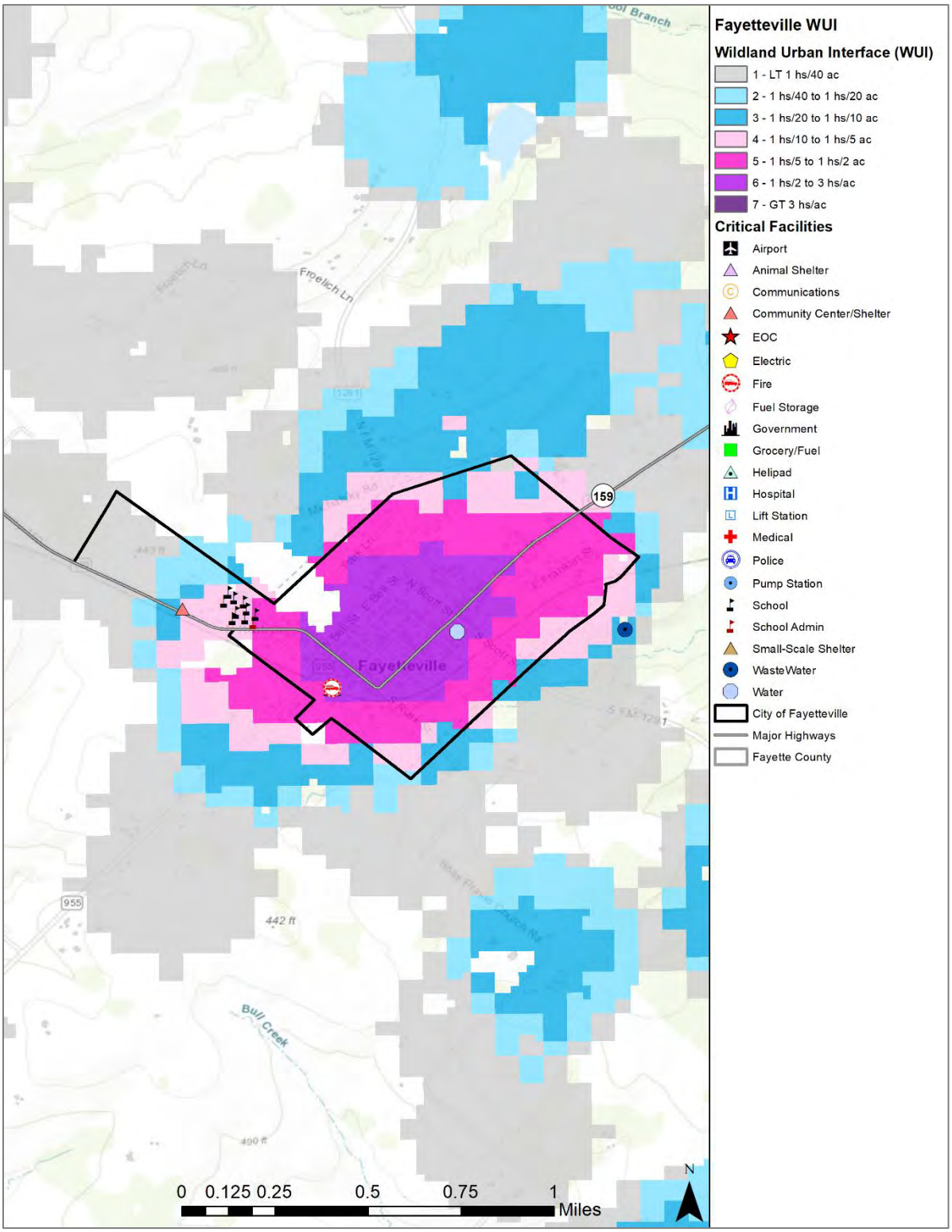
It is estimated that 100% percent of the total population in the City of Carmine live within the WUI.

Figure 12-3. Wildland Urban Interface Map – City of Ellinger



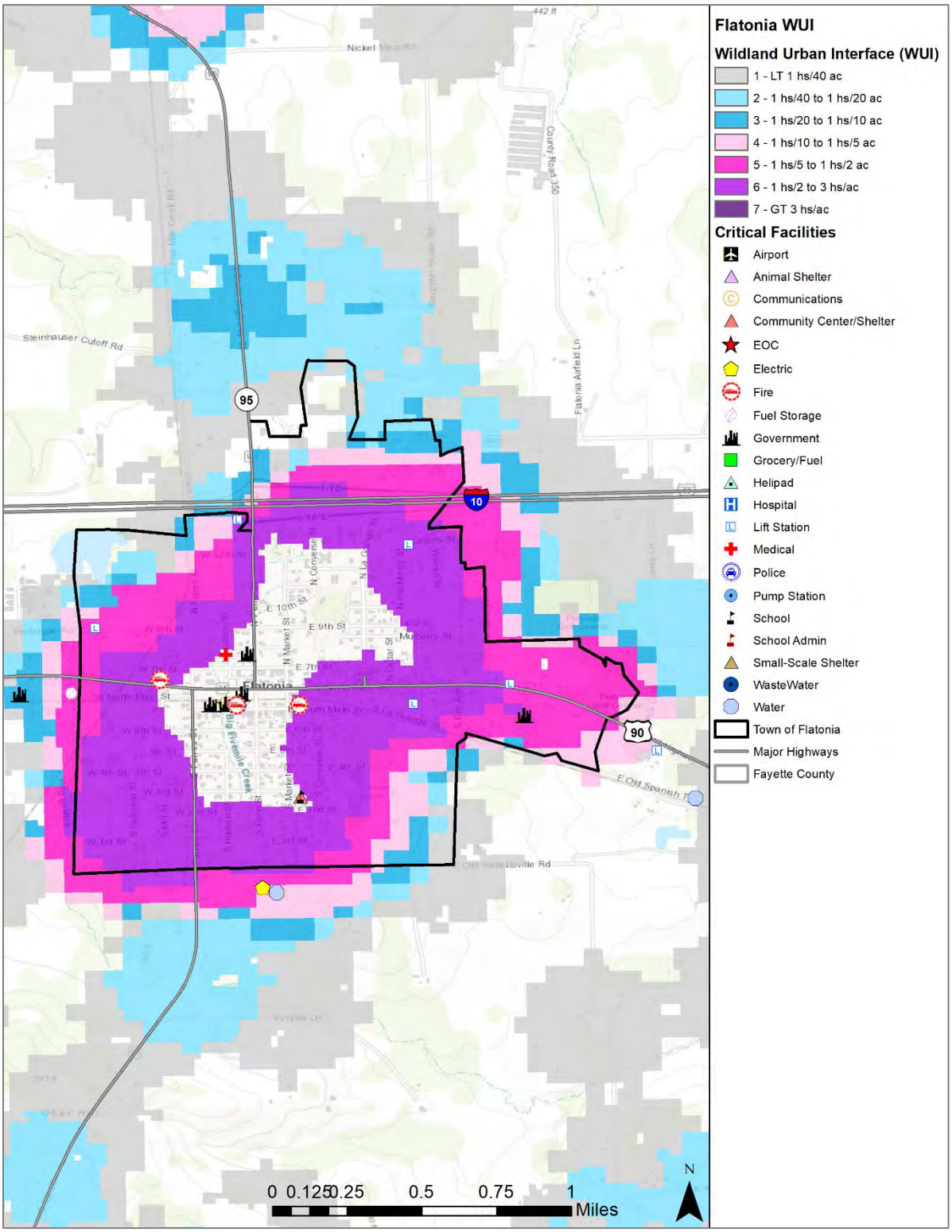
It is estimated that 100% percent of the total population in the City of Ellinger live within the WUI.

Figure 12-4. Wildland Urban Interface Map – City of Fayetteville



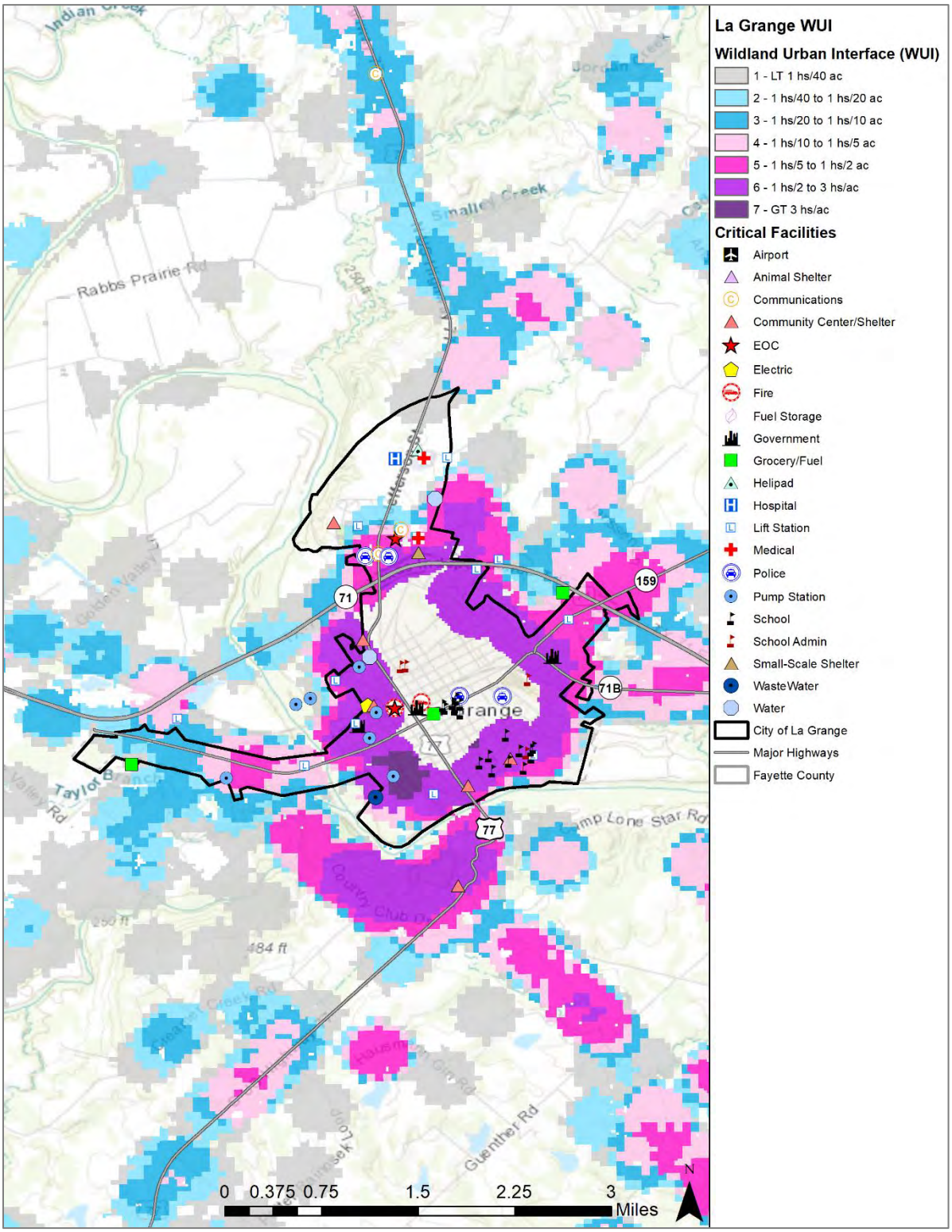
It is estimated that 99.2% percent of the total population in the City of Fayetteville live within the WUI. However, the entire city is at some risk for wildfires.

Figure 12-5. Wildland Urban Interface Map – City of Flatonia



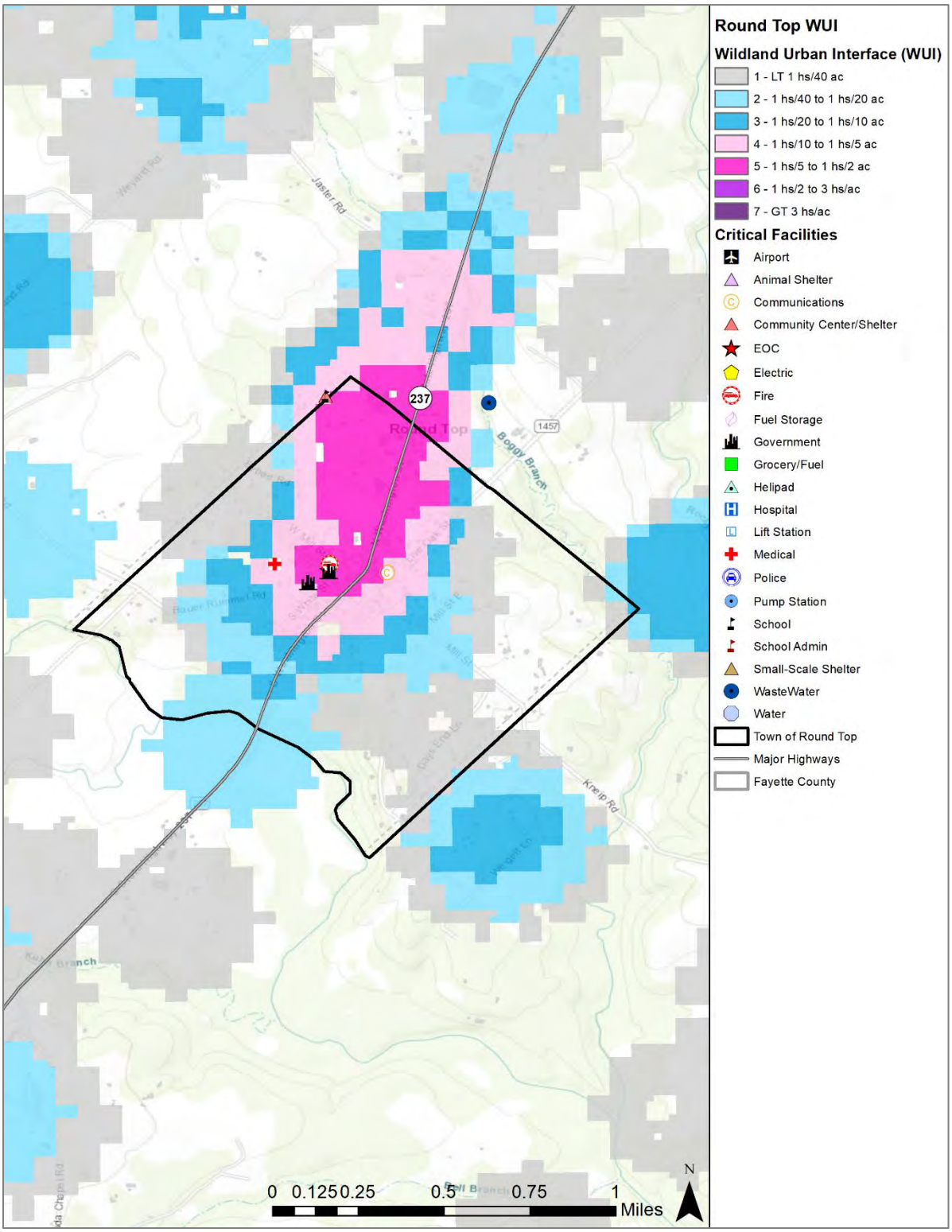
It is estimated that 69.3% percent of the total population in the City of Flatonia live within the WUI. However, the entire city is at some risk for wildfires.

Figure 12-6. Wildland Urban Interface Map – City of La Grange



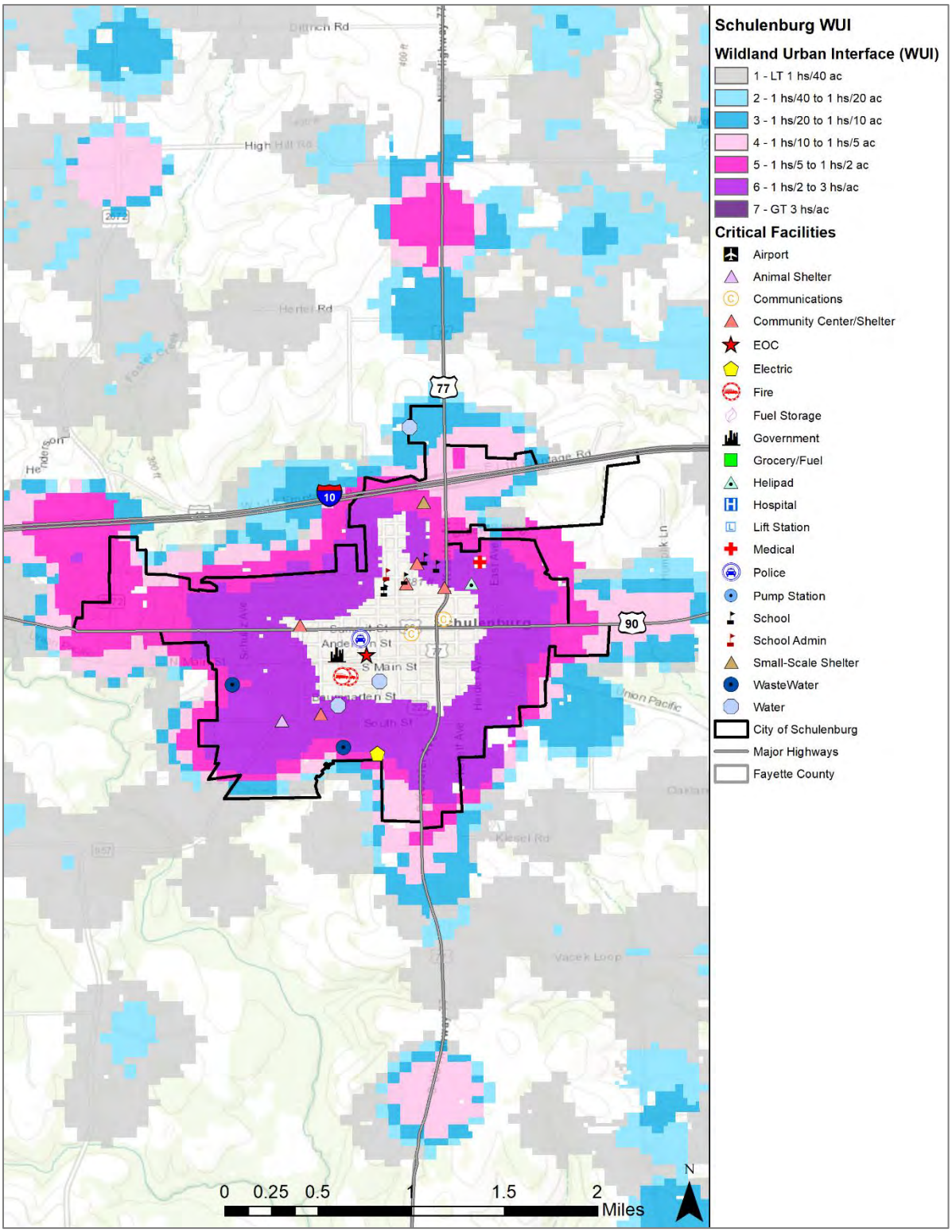
It is estimated that 65.6% percent of the total population in the City of La Grange live within the WUI. However, the entire city is at some risk for wildfires.

Figure 12-7. Wildland Urban Interface Map – City of Round Top



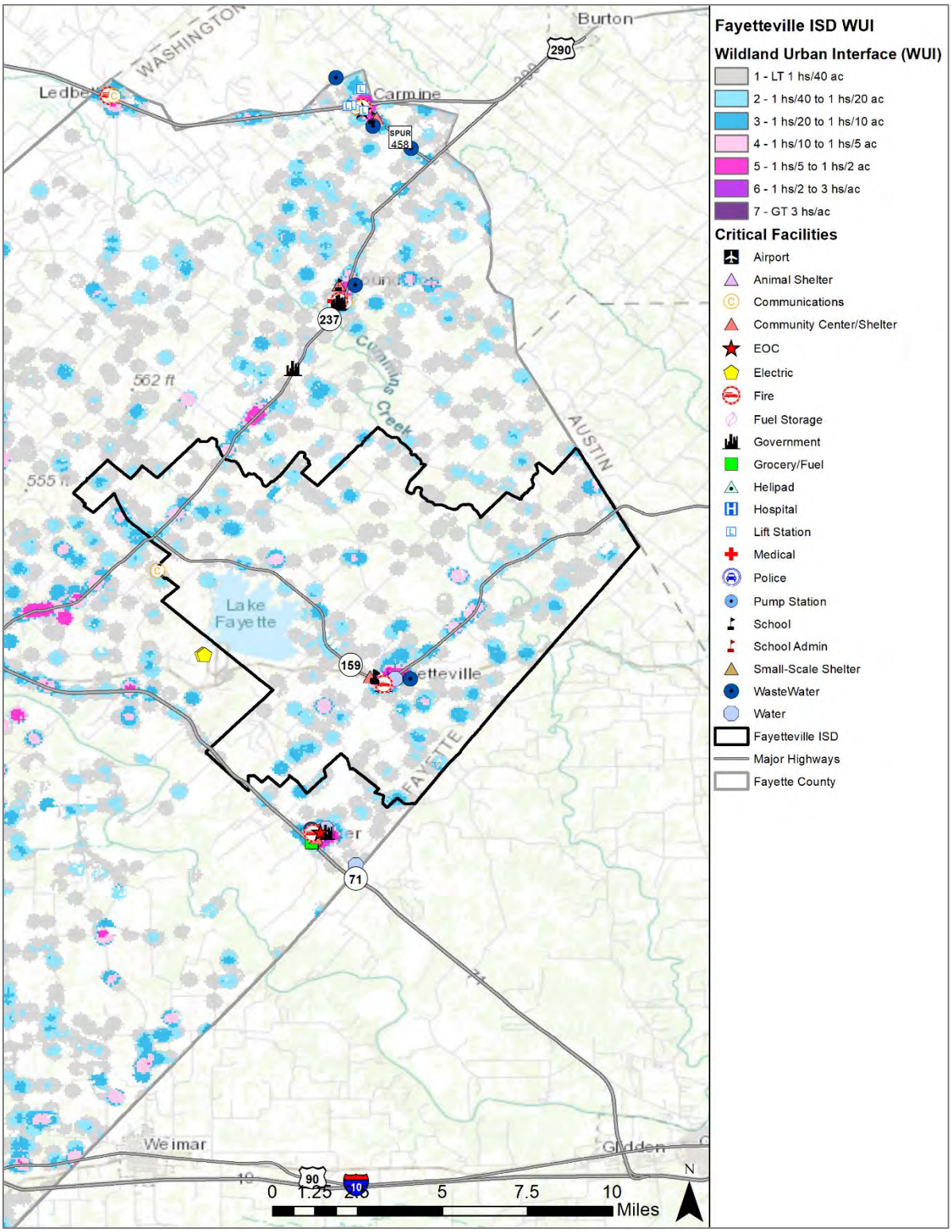
It is estimated that 95.1% percent of the total population in the City of Round Top live within the WUI. However, the entire city is at some risk for wildfires.

Figure 12-8 Wildland Urban Interface Map – City of Schulenburg



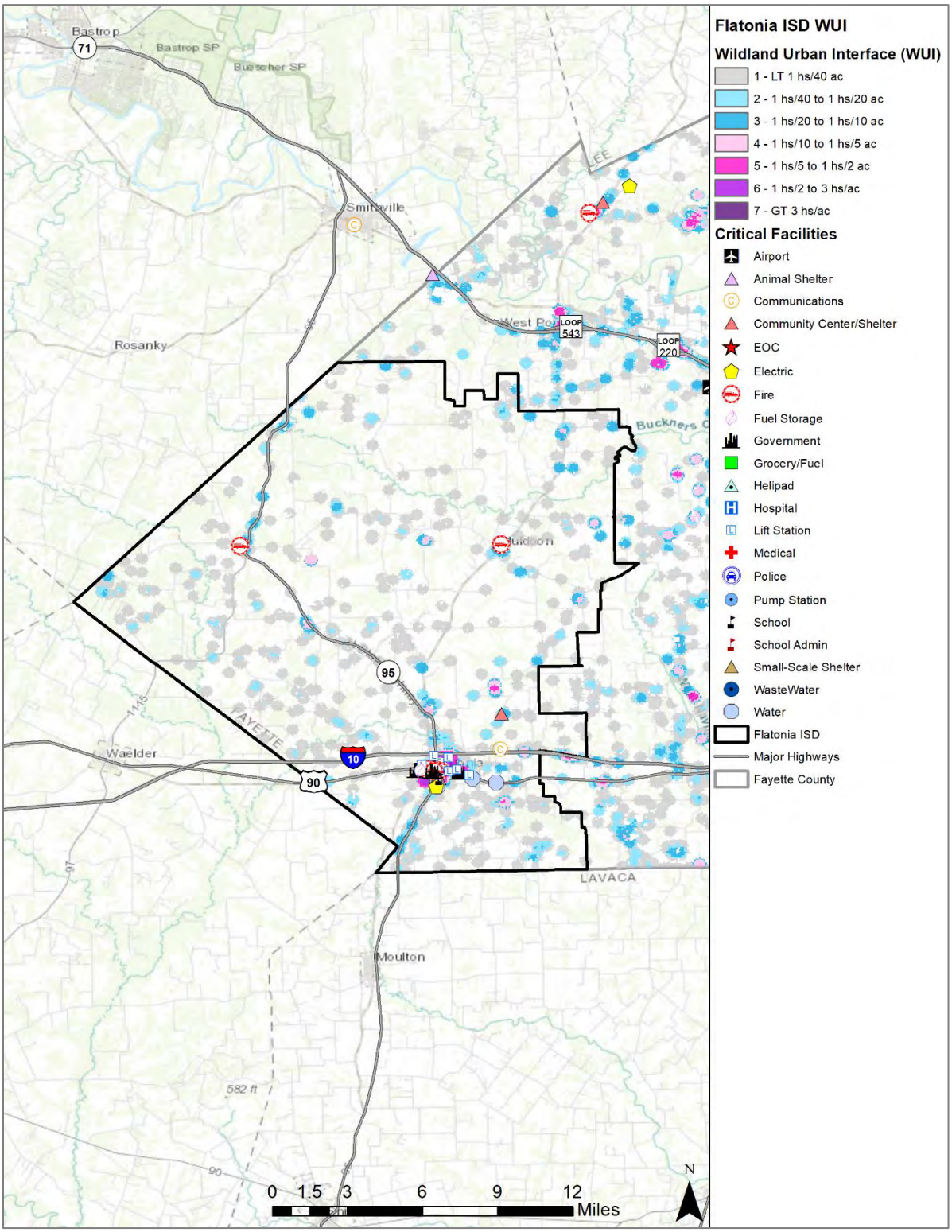
It is estimated that 64.7% percent of the total population in the City of Schulenburg live within the WUI. However, the entire city is at some risk for wildfires.

Figure 12-9. Wildland Urban Interface Map – Fayetteville ISD



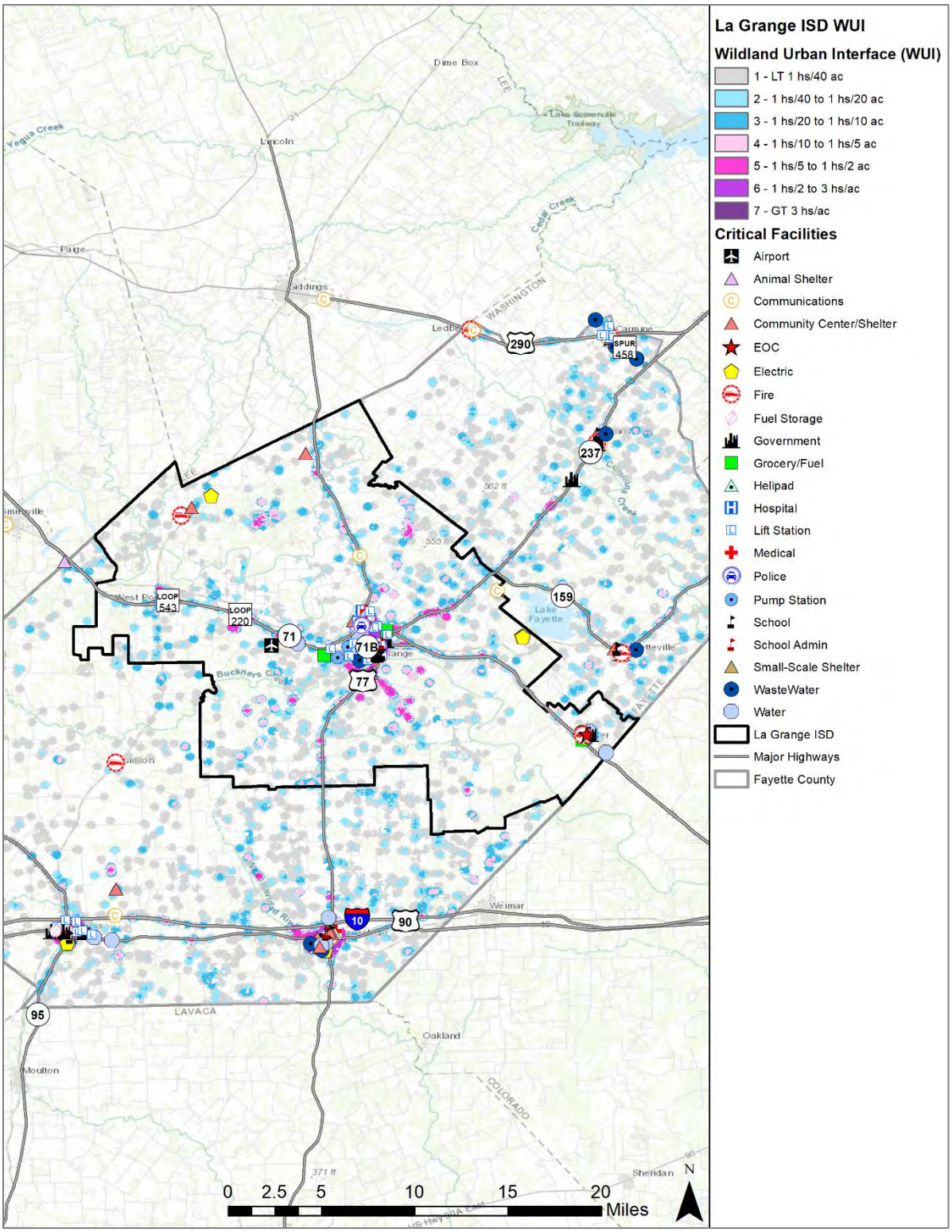
Ten of the Fayetteville ISD facilities are located within the WUI. However, the entire ISD is at some risk for wildfires.

Figure 12-10. Wildland Urban Interface Map – Flatonia ISD



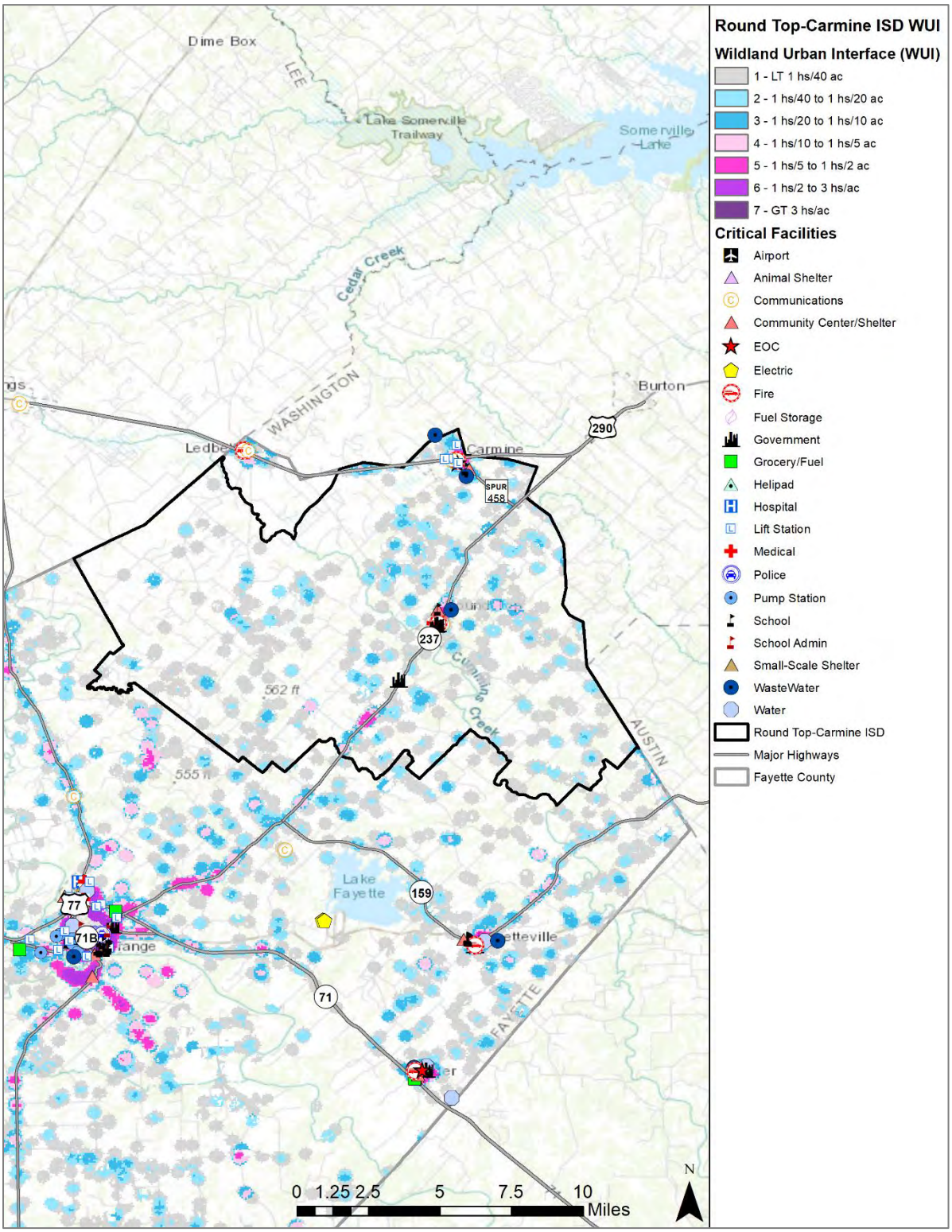
None of the Flatonia ISD facilities are located within the WUI. However, the entire ISD is at some risk for wildfires.

Figure 12-11. Wildland Urban Interface Map – La Grange ISD



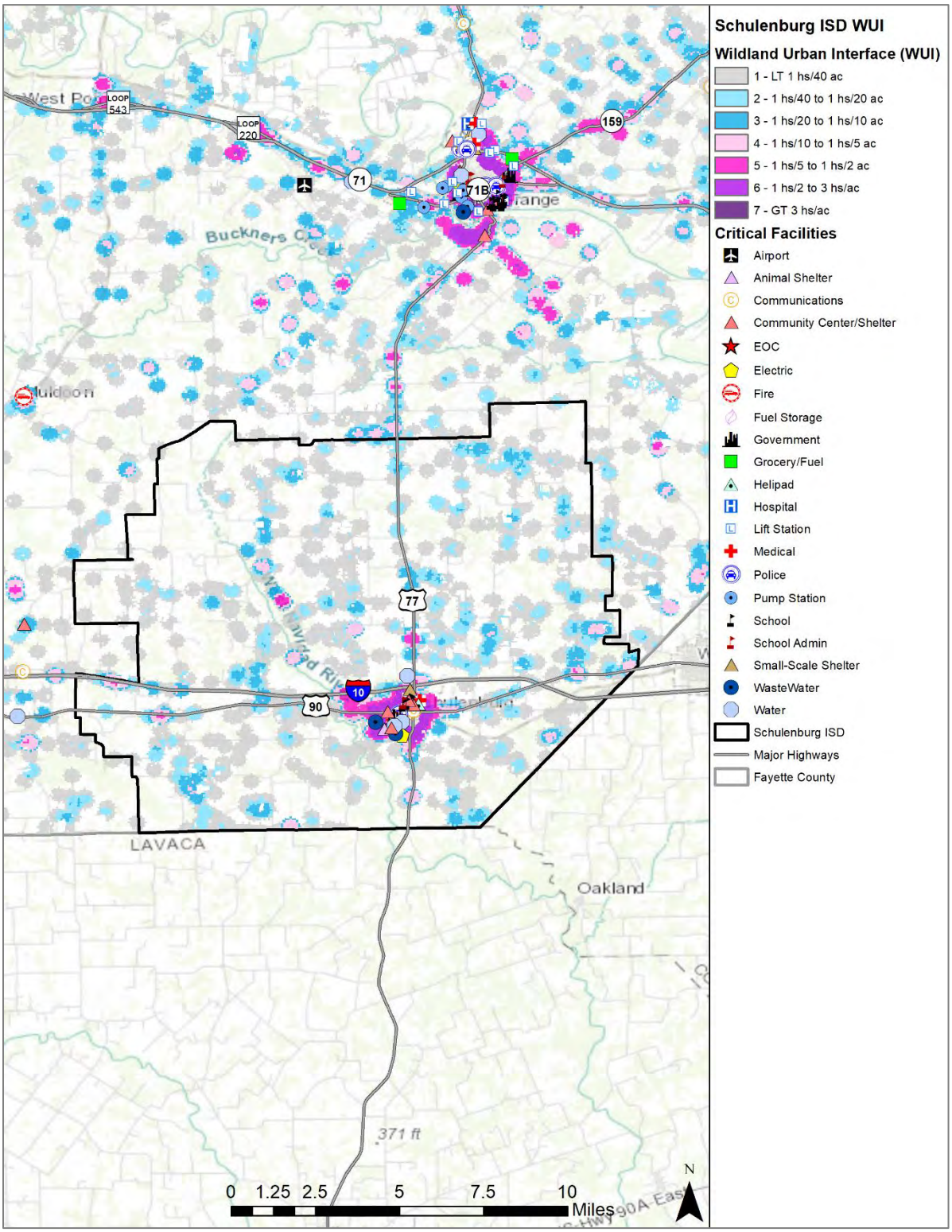
Eleven of the La Grange ISD facilities are located within the WUI. However, the entire ISD is at some risk for wildfires.

Figure 12-12. Wildland Urban Interface Map – Round Top – Carmine ISD



Two of the Round Top - Carmine ISD facilities are located within the WUI. However, the entire ISD is at some risk for wildfires.

Figure 12-13. Wildland Urban Interface Map – Schulenburg ISD



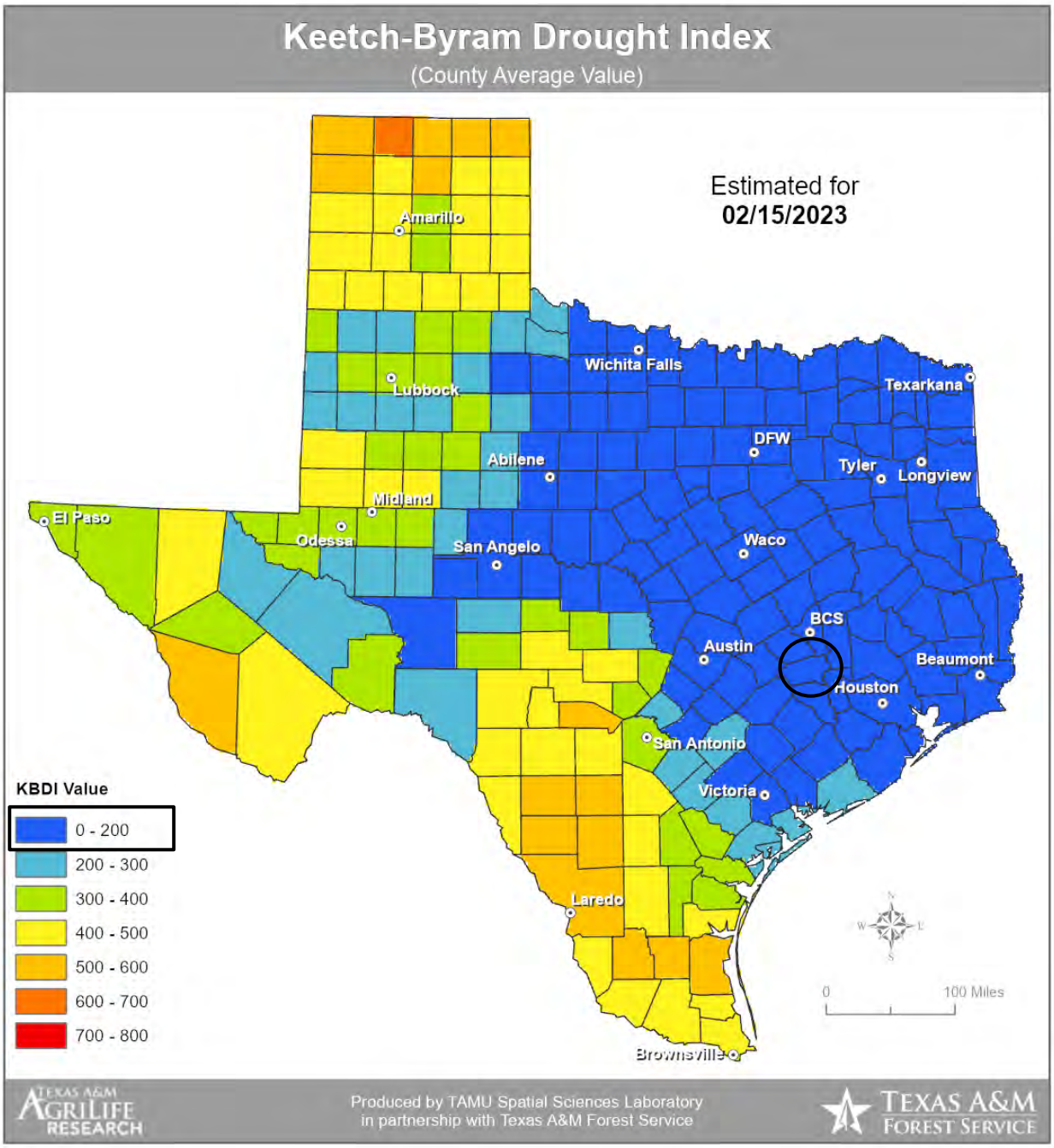
Two of the Schulenburg ISD facilities are located within the WUI. However, the entire ISD is at some risk for wildfires.

EXTENT

Risk for a wildfire event is measured in terms of magnitude and intensity using the Keetch Byram Drought Index (KBDI), a mathematical system for relating current and recent weather conditions to potential or expected fire behavior. The KBDI determines forest fire potential based on a daily water balance, derived by balancing a drought factor with precipitation and soil moisture (assumed to have a maximum storage capacity of eight inches), and is expressed in hundredths of an inch of soil moisture depletion.

Each color in Figure 12-14 represents the drought index at that location. The drought index ranges from 0 to 800. A drought index of 0 represents no moisture depletion, and a drought index of 800 represents absolutely dry conditions.

Figure 12-14. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2023[1]



Fire behavior can be categorized at four distinct levels on the KBDI:

- **0 -200:** Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.

[1] Fayette County planning area is located within the black circle.

- **200 -400:** Fires more readily burn and will carry across an area with no gaps. Heavier fuels will not readily ignite and burn. Expect smoldering and the resulting smoke to carry into and possibly through the night.
- **400 -600:** Fires intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
- **600 -800:** Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

The KBDI is a good measure of the readiness of fuels for a wildfire event. It should be referenced as the area experiences changes in precipitation and soil moisture, while caution should be exercised in dryer, hotter conditions.

The range of intensity for the Fayette County planning area, including participating jurisdictions and ISDs, in a wildfire event is within 158 to 776. The average extent to be mitigated for the planning area is a KBDI of 355. At this level fires intensity begins to significantly increase. Fire will readily burn in all directions exposing mineral soils in some locations. Based on historical occurrences and readily available fuel, the planning area can anticipate a KBDI range from 158 to 776. At the high end of this range fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

The Texas Forest Service's Fire Intensity Scale identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on weighted average of four percentile weather categories. The Fayette County planning area has a potential for limited to moderate wildfire intensities. Figure 12-15 through 12-27 identifies the wildfire intensity for the planning area, including participating jurisdictions and ISDs.

Figure 12-15. Fire Intensity Scale Map – Fayette County

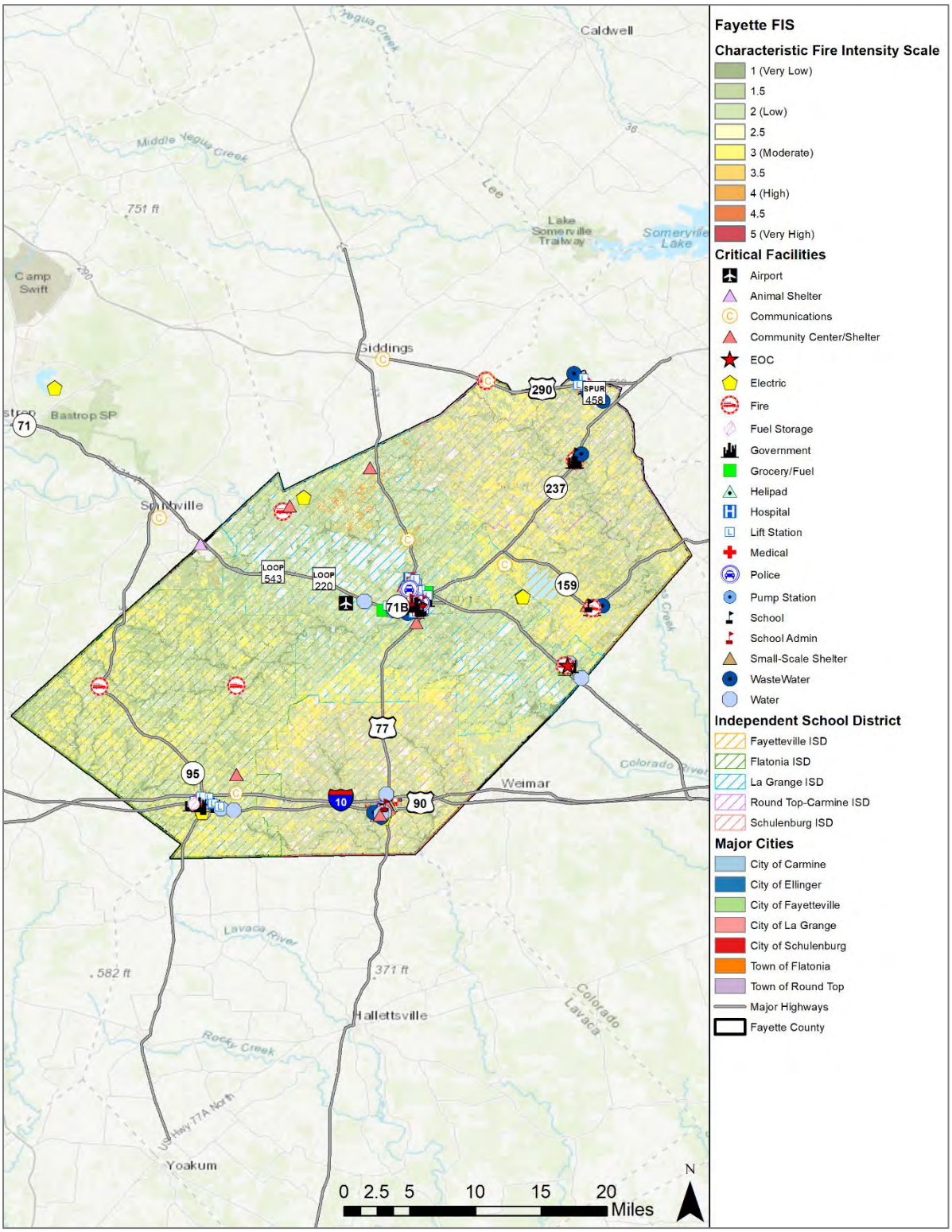


Figure 12-16. Fire Intensity Scale Map – City of Carmine

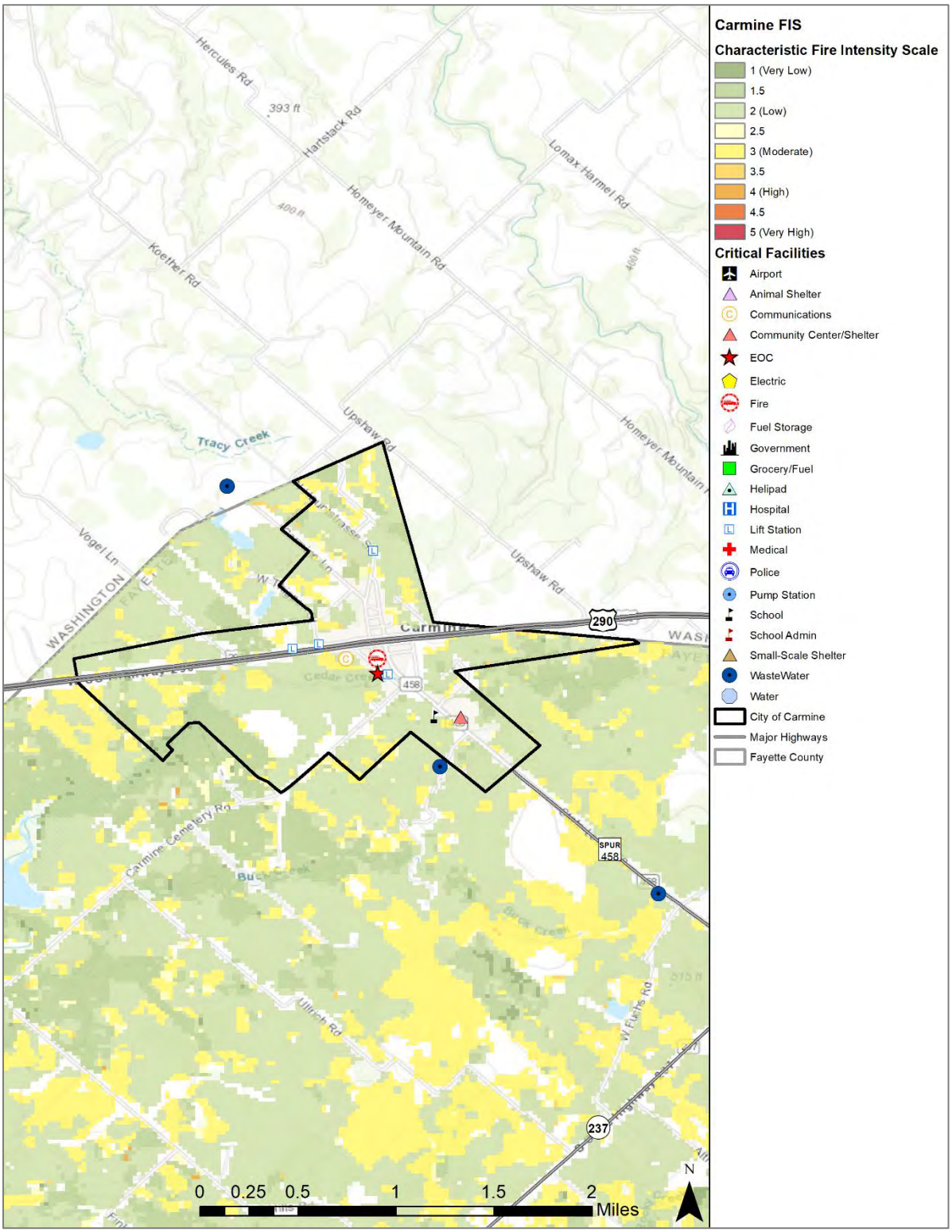


Figure 12-17. Fire Intensity Scale Map – City of Ellinger

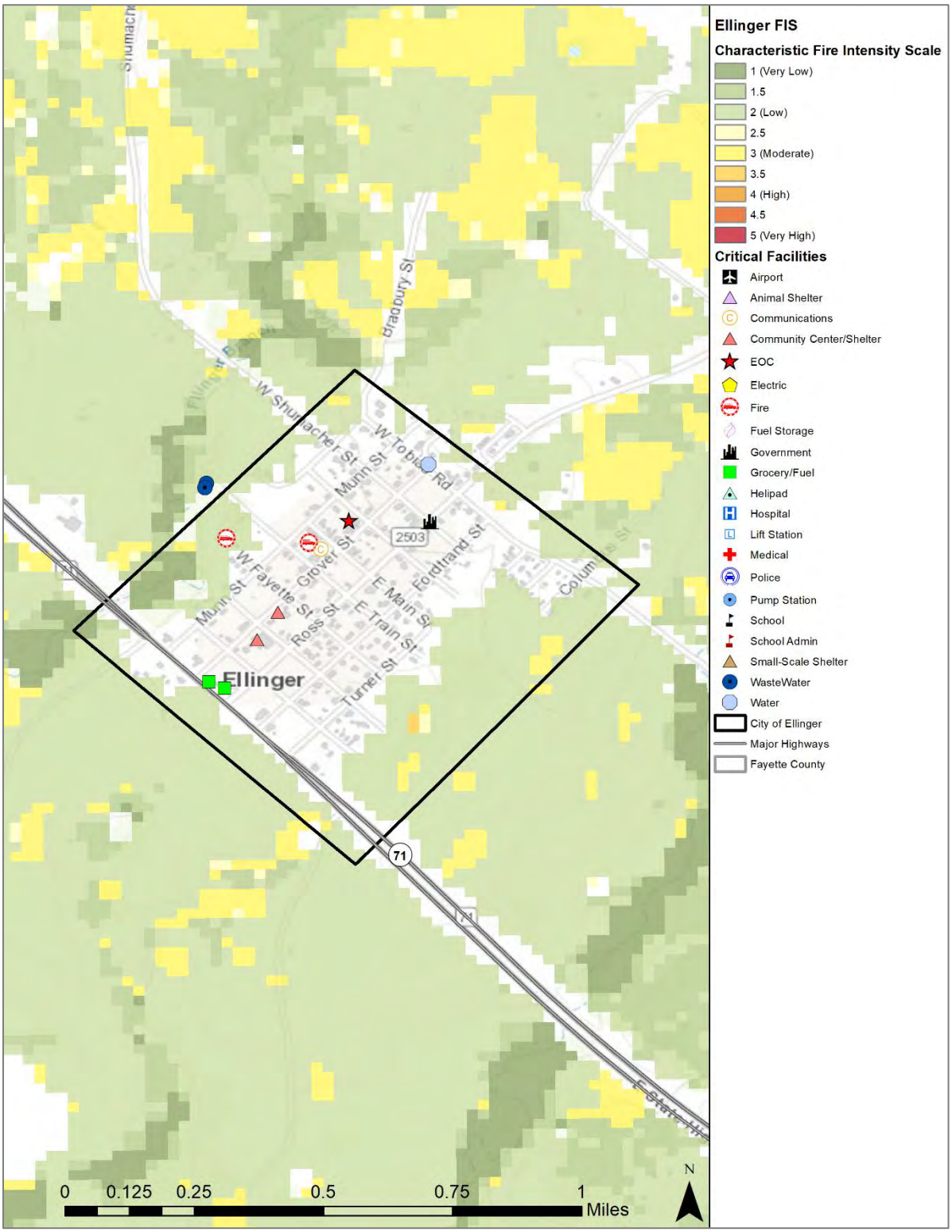


Figure 12-18. Fire Intensity Scale Map – City of Fayetteville

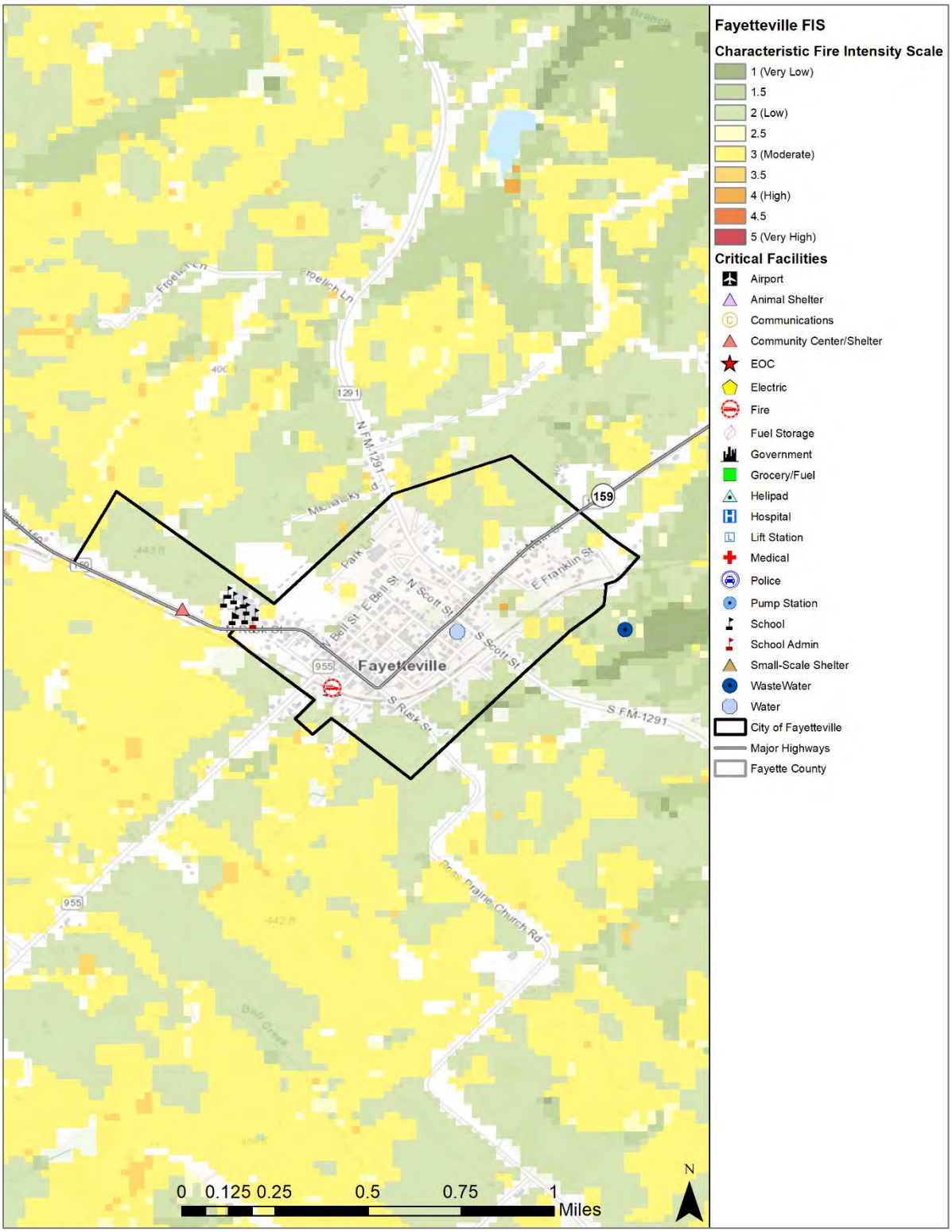


Figure 12-19. Fire Intensity Scale Map – City of Flatonia

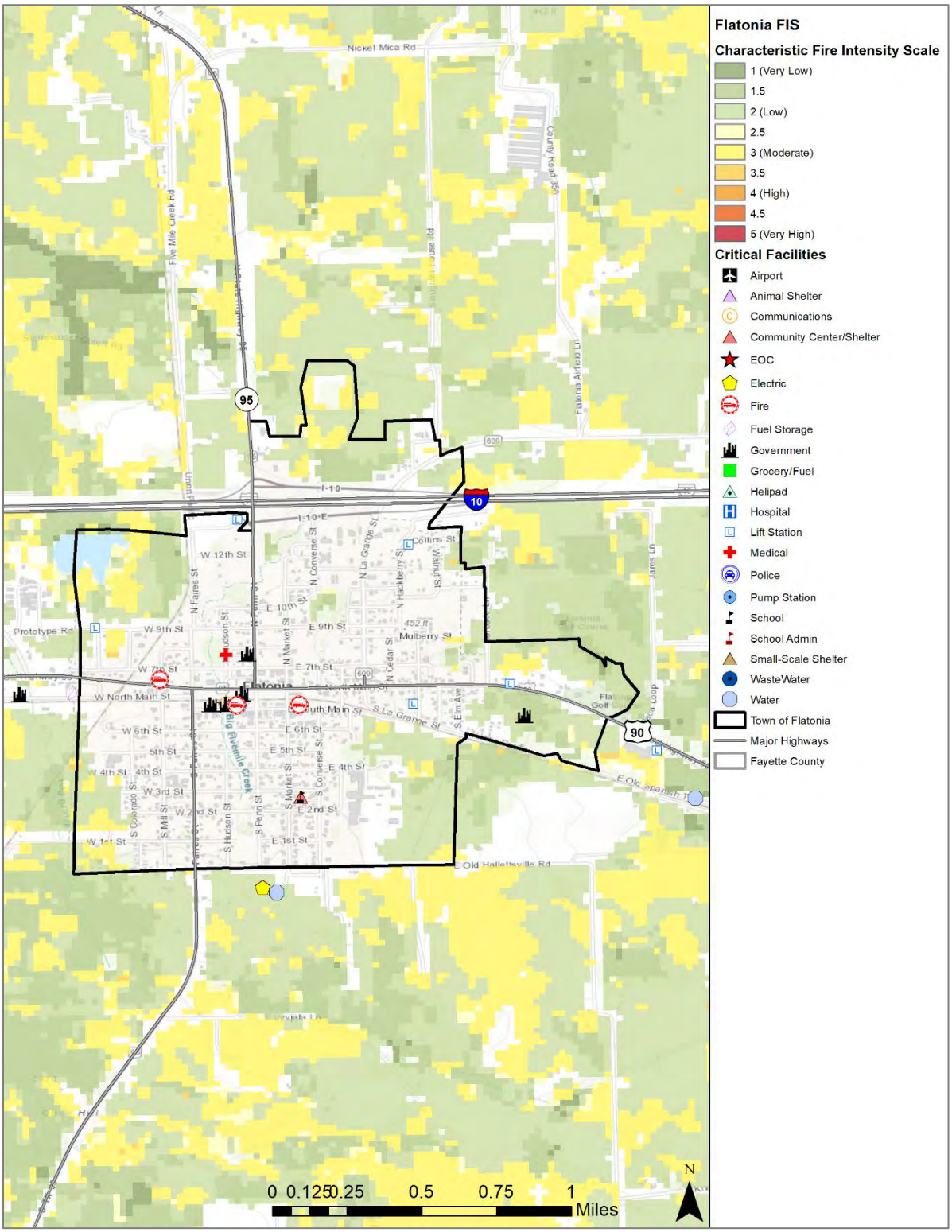


Figure 12-20. Fire Intensity Scale Map – City of La Grange

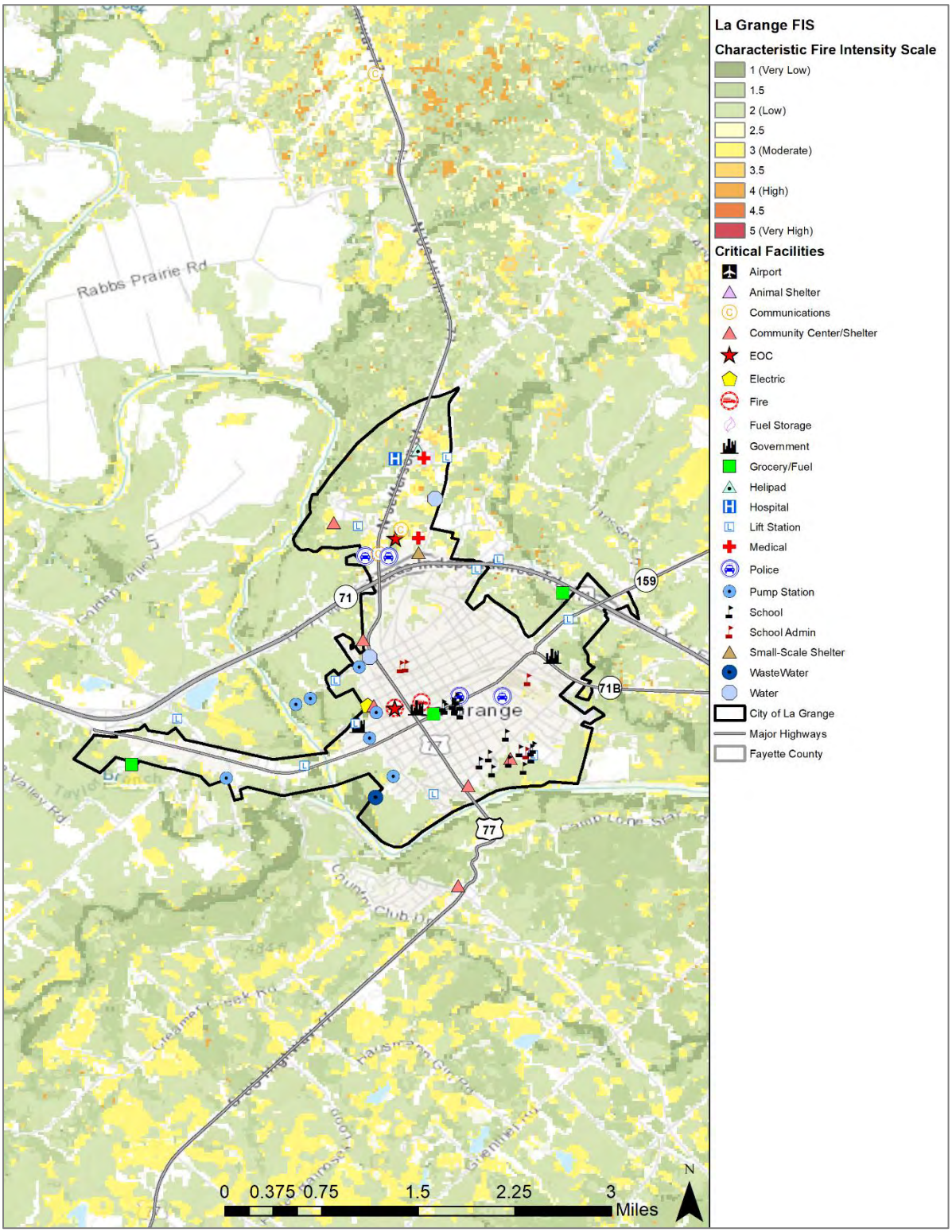


Figure 12-21. Fire Intensity Scale Map – City of Round Top

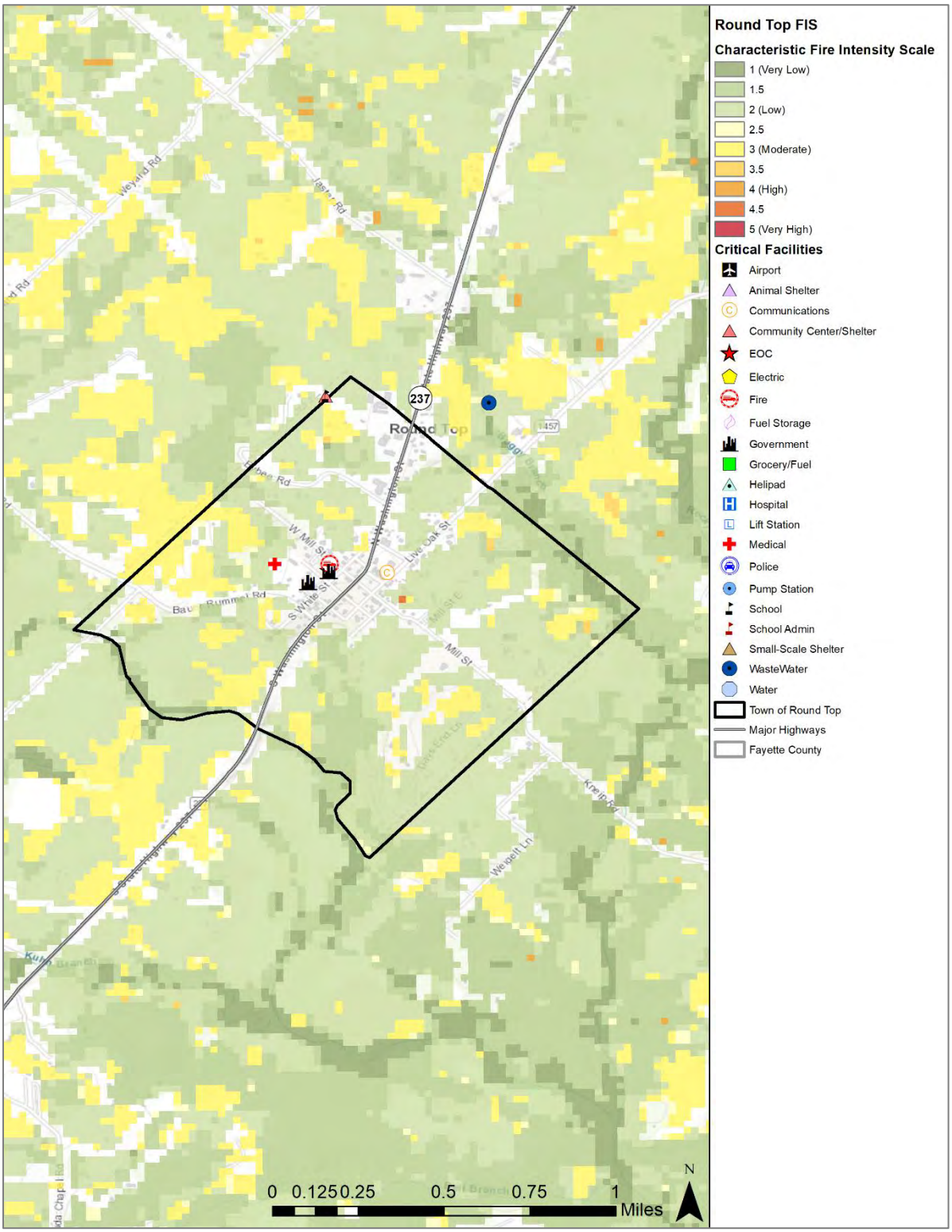


Figure 12-22. Fire Intensity Scale Map – City of Schulenburg

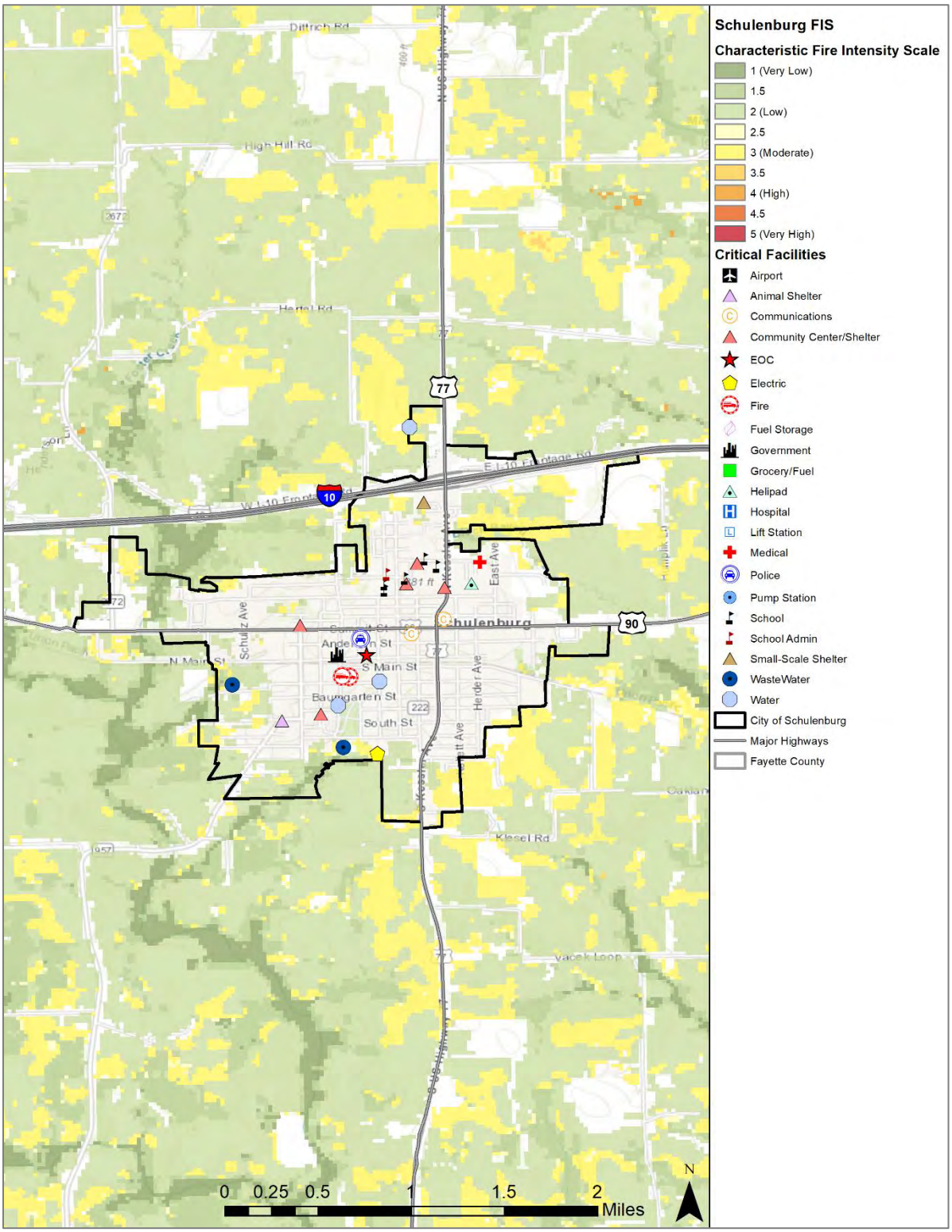


Figure 12-23. Fire Intensity Scale Map – Fayetteville ISD

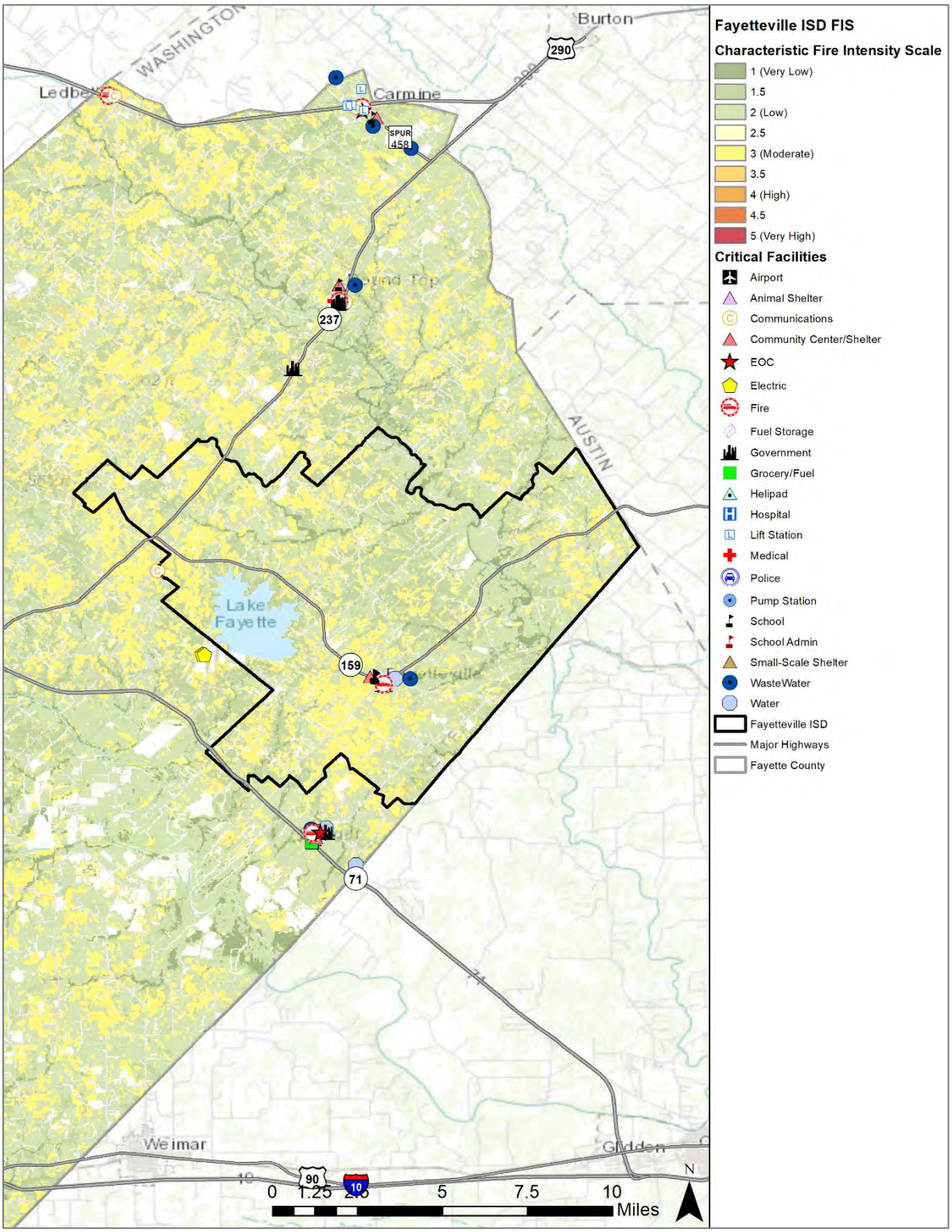


Figure 12-24. Fire Intensity Scale Map – Flatonia ISD

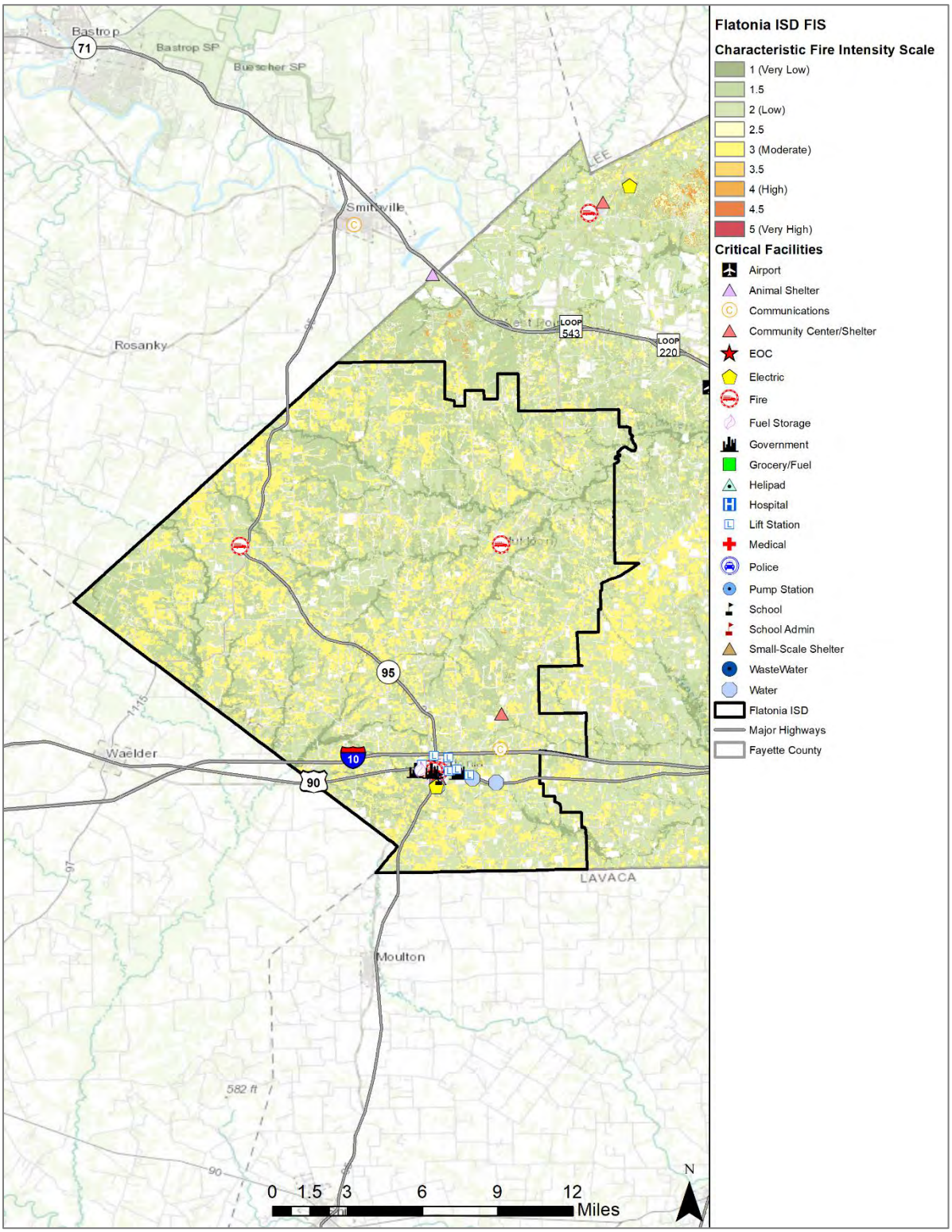


Figure 12-25. Fire Intensity Scale Map – La Grange ISD

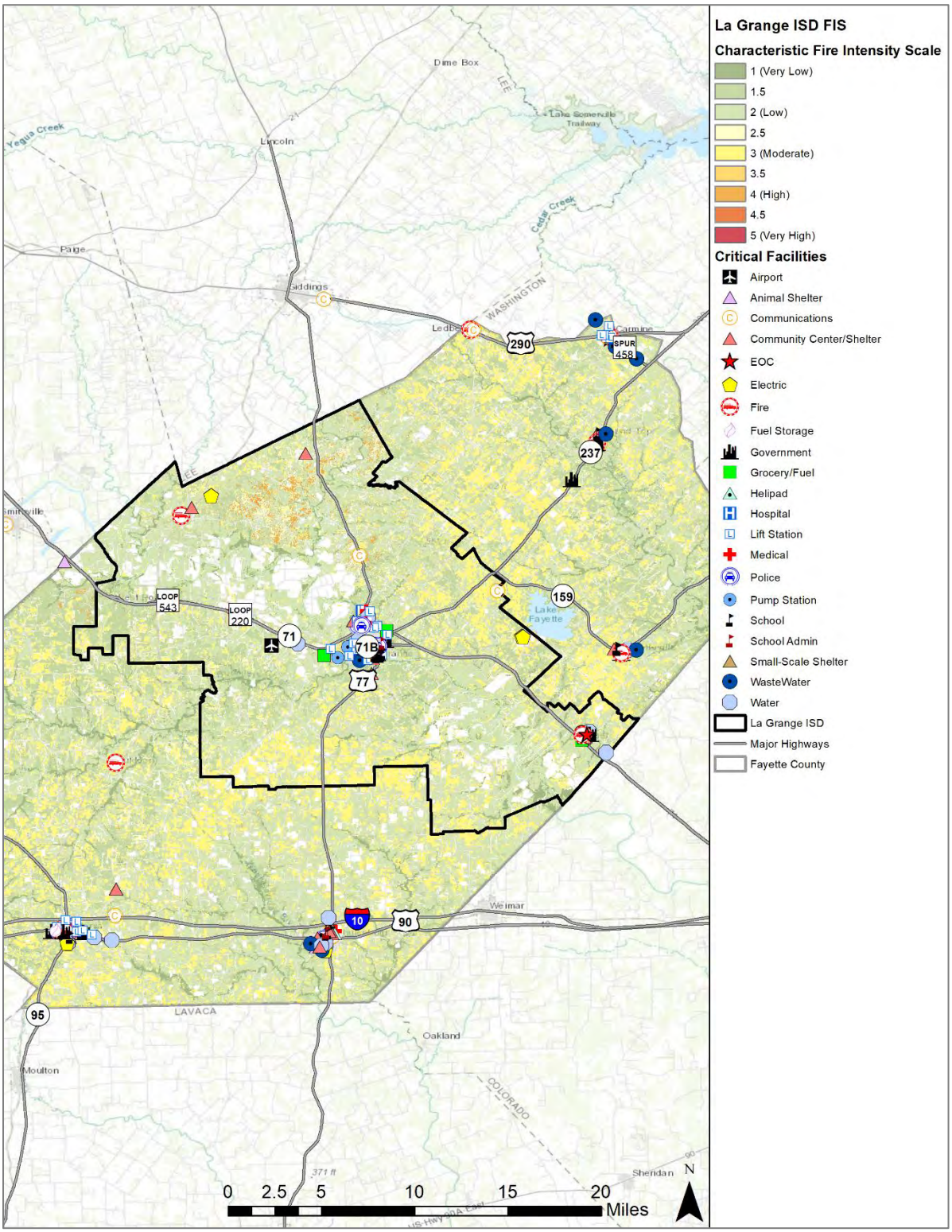


Figure 12-26. Fire Intensity Scale Map – Round Top – Carmine ISD

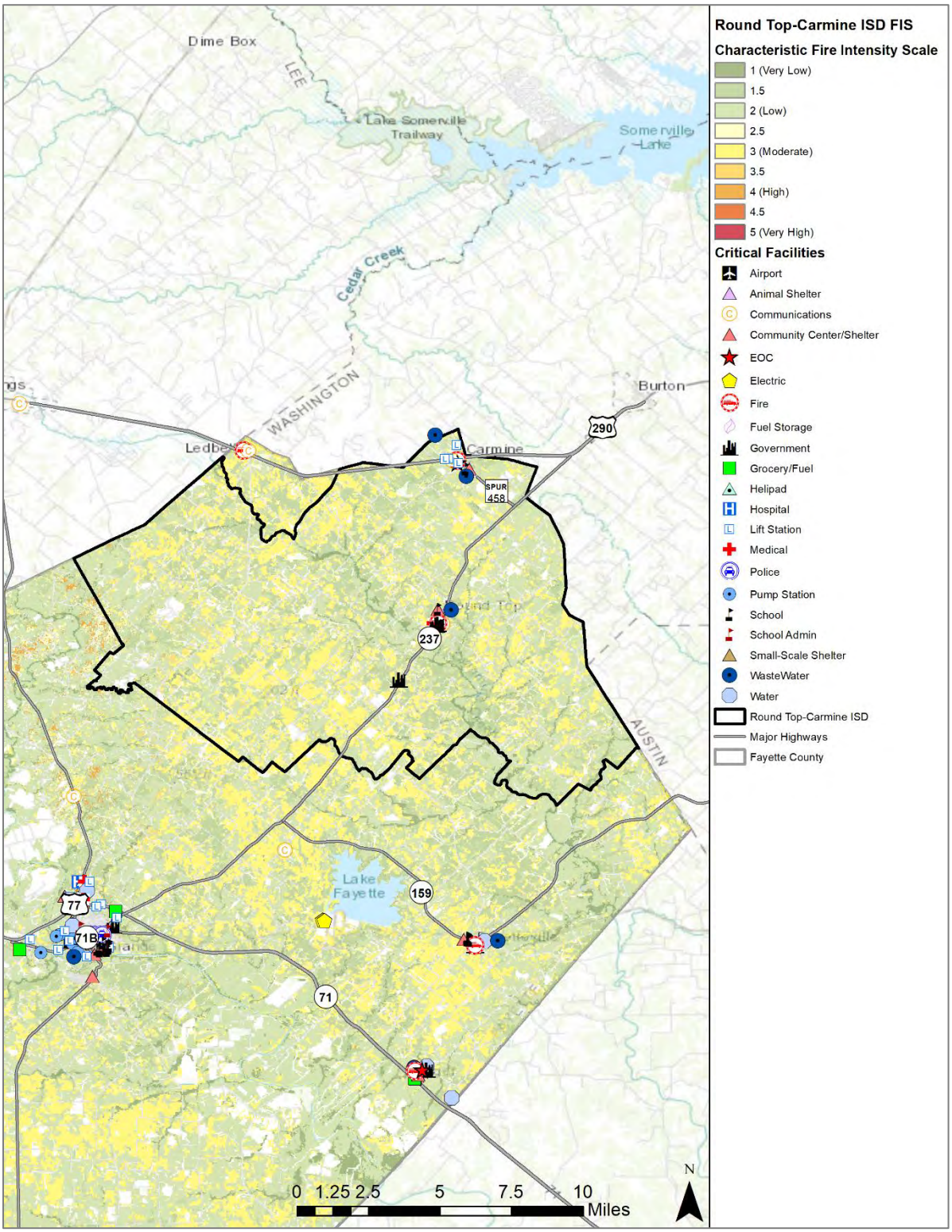
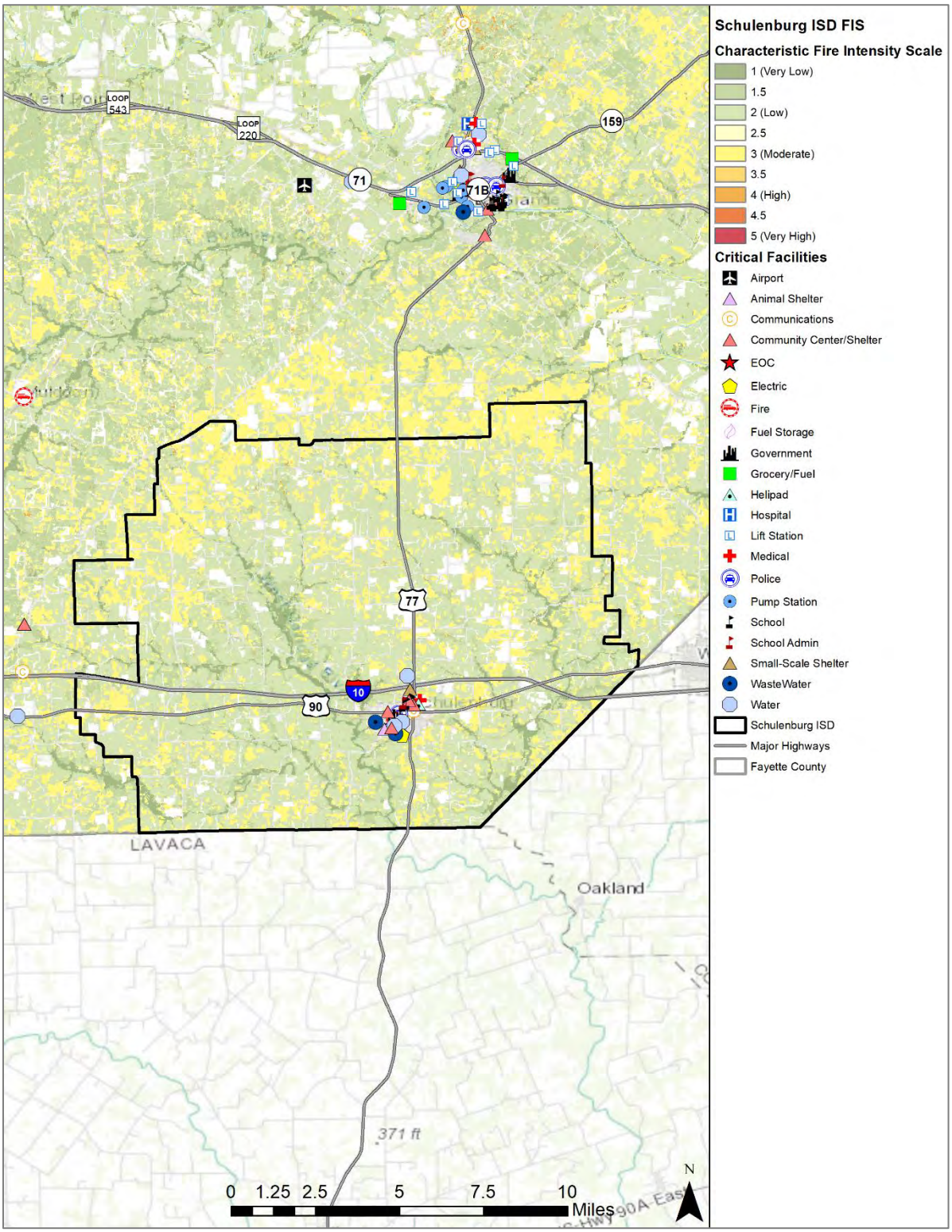


Figure 12-27. Fire Intensity Scale Map – Schulenburg ISD



HISTORICAL OCCURRENCES

The Texas Forest Service reported 359 wildfire events between 2005 and 2021. The National Centers for Environmental Information (NCEI) did not include any wildfire events from 1996 through 2022. The Texas Forest Service (TFS) started collecting wildfire reported by volunteer fire departments in 2005. Due to a lack of recorded data for wildfire events prior to 2005 and after 2021, frequency calculations are based on a 17-year reporting period, using only data from recorded years. The map below shows approximate locations of wildfires, which can be grass or brushfires of any size (Figure 12-28). Table 12-1 and 12-2 identifies the number of wildfires and total acreage burned each year within the county boundaries.

Figure 12-28. Location and Historic Wildfire Events for Fayette County

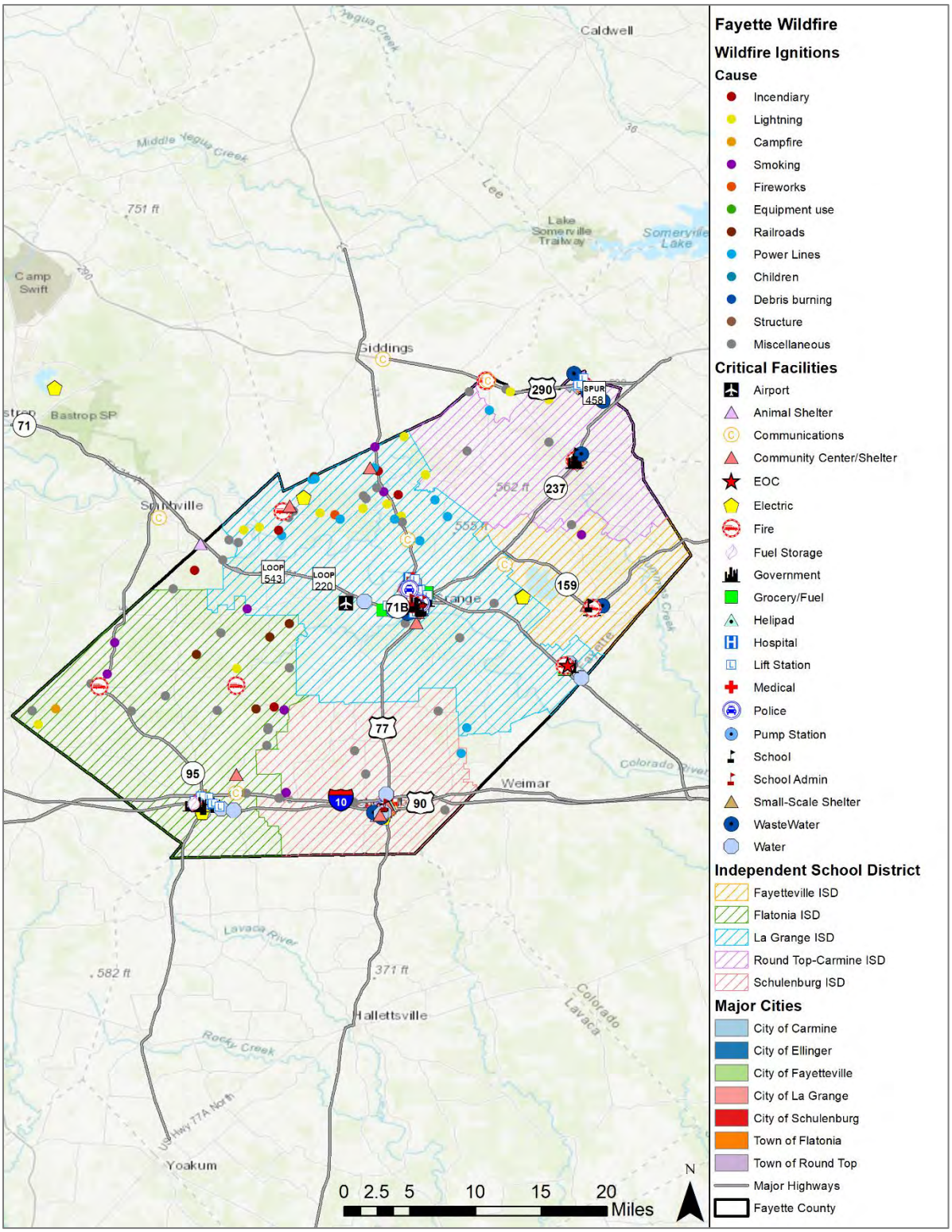


Table 12-1. Historical Wildfire Events Summary, 2005 - 2021

JURISDICTION	NUMBER OF EVENTS	ACRES BURNED
Fayette County	322	5,132
City of Carmine	1	5
City of Ellinger	0	0
City of Fayetteville	0	0
City of Flatonia	0	0
City of La Grange	6	11
City of Round Top	2	2
City of Schulenburg	28	54

Table 12-2. Historical Wildfire Events by Year

JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Fayette County	20	27	20	37	41	5	39	36	31	10	7	6	21	11	4	3	4
City of Carmine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Ellinger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Fayetteville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Flatonia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of La Grange	1	0	0	0	0	0	1	0	1	0	1	1	1	0	0	0	0
City of Round Top	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
City of Schulenburg	0	1	14	5	0	0	0	8	0	0	0	0	0	0	0	0	0
																	Total: 359

Table 12-3. Acreage of Suppressed Wildfire by Year

JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Fayette County	454	221	61	407	216	93	3,136	105	163	35	32	9	103	19	7	38	33
City of Carmine	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
City of Ellinger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Fayetteville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Flatonia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of La Grange	10	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
City of Round Top	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
City of Schulenburg	0	0	30	7	0	0	0	17	0	0	0	0	0	0	0	0	0
																	Total: 5,204

Historical wildfire data for all participating ISDs are provided in the County event total per the NCEI database as they do not have events reported separate and apart from the reported county-wide event totals. In addition, the Texas Forest Service reports on a county and city basis. There have been no reported losses or injuries at any of the four participating school districts as a result of wildfire.

Based on the list of historical wildfire events for the Fayette County planning area (listed above), 44 events have occurred since the 2016 Plan.

SIGNIFICANT EVENTS

March 10, 2018 – Fayette County

A volunteer firefighter was badly burned fighting a large grass fire on Tobias Road near Cordes Road in the City of Ellinger on March 10th. As a result of his injuries, the firefighter passed away approximately 2 weeks later. There was no reported property or crop damages as a result of the wildfire.

September 9, 2011 – Fayette County

The Lutherhill wildfire started on September 5th behind a cold front that brought strong northerly winds. The fire burned until September 9th and consumed 2700 acres, destroying approximately 14 residential structures as a result. Total property damage was approximately $1,301,041 (2022 dollars). No reported crop damage or injuries/fatalities were reported as a result of this event.

PROBABILITY OF FUTURE EVENTS

Wildfires can occur at any time of the year. As the county moves into wildland, the potential area of occurrence of wildfire increases. With 359 events in a 17-year period, an event within the Fayette County planning area, including participating jurisdictions and ISDs, is highly likely, meaning an event is probable within the next year. According to NOAA, research shows that changes in climate create warmer, drier conditions, leading to longer and more active fire seasons, indicating an increase in the frequency and severity of events in the planning area going forward. See additional information on climate change at the end of this section.

VULNERABILITY AND IMPACT

Periods of drought, dry conditions, high temperatures, and low humidity are factors that contribute to the occurrence of a wildfire event. Areas along railroads and people whose homes are in woodland settings have an increased risk of being affected by wildfire.

The more heavily populated areas of the planning area, like the City of La Grange, are not likely to experience large, sweeping fires. Unoccupied buildings and open spaces that have not been maintained have the greatest vulnerability to wildfire. The overall level of concern for wildfires is located mostly along the perimeter of the study area where wildland and urban areas interface. Figure 12-1 through 12-13 illustrates the areas that are the most vulnerable to wildfire throughout the Fayette County planning area, including all participating jurisdictions and ISDs. Areas along undeveloped stretches of highway like Interstate 10 between the Cities of Schulenburg and Flatonia, Highway 77 north of the City of La Grange, or Highway 71 between the Cities of La Grange and Ellinger have an increased vulnerability where empty lots and unoccupied areas are located.

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by wildfire events. The following critical facilities would be vulnerable to wildfire events in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

Table 12-4. Critical Facilities Vulnerable to Wildfire Events

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, EMS, Hospitals) (6 EOCs; 15 Fire Stations; 4 EMS Stations; 2 Police Stations)	• Emergency services may be disrupted during a wildfire if facilities are impacted, roadways are inaccessible, or personnel are unable to report for duty. • First responders are at greater risk of injury when in close proximity to the hazard while extinguishing flames, protecting property, or evacuating residents in the area. • Critical city departments may not be able to function and provide necessary services depending on the location of the fire and the structures or personnel impacted. • Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility, slowing or preventing access for emergency response vehicles. • Fire suppression costs can be substantial, exhausting the financial resources of the community. • First responders can experience heart disease, respiratory problems, and other long-term related illnesses from prolonged exposure to smoke, chemicals, and heat. • Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Power outages could disrupt communications, delaying emergency response times.

CRITICAL FACILITIES	POTENTIAL IMPACTS
	• Structures can be damaged or destroyed in the path of the wildfire. • Power outages could disrupt critical care. • Backup power sources could be damaged or destroyed. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities.
Airport, Academic Institutions, Community Residential Facilities, Day Care Facilities, Evacuation Centers & Shelters, Governmental Facilities (1 Airport; 1 Helipad; 16 Shelters; 8 Governmental Facilities; 25 School Facilities)	• Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible. • Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed. • Additional emergency responders and critical aid workers may not be able to reach the area for days. • Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations.
Commercial Suppliers (food, gas, etc.) (4 Fuel/Grocery Facilities; 1 Fuel Storage)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed. • Economic disruption due to power outages and fires negatively impact services as well as area businesses reliant on commercial suppliers.
Utility Services and Infrastructure (electric, water, wastewater, communications) (10 Communications Facilities; 3 Electrical Utility Facilities; 19 Lift Stations; 6 Pump Stations; 16 Water/Wastewater Facilities)	• Wastewater and drinking water facilities and infrastructure may be damaged or destroyed resulting in service disruption or outage for multiple days or weeks. • Disruptions and outages impact public welfare as safe drinking water is critical. • A break in essential and effective wastewater collection and treatment is a health concern, potentially spreading disease. • Exposure to untreated wastewater is harmful to people and the environment. • Any service disruptions can negatively impact or delay emergency management operations. • Power losses

Within the Fayette County planning area, a total of 359 fire events were reported from 2005 through 2021. All of these events were suspected wildfires. Historic loss and annualized estimates due to wildfires are presented in Table 12-5 below. The average frequency is approximately 21 events every year.

Table 12-5. Potential Annualized Acreage Losses[2]

JURISDICTION	TOTAL ACRES BURNED	AVERAGE ANNUAL ACRE LOSSES
Fayette County	5,132	301.9
City of Carmine	5	0.3
City of Ellinger	0	0
City of Fayetteville	0	0
City of Flatonia	0	0
City of La Grange	11	0.6
City of Round Top	2	0.1
City of Schulenburg	54	3.2
TOTAL	**5,204**	**306.1**

Figures 12-29 through 12-41 show the threat of wildfire to the Fayette County planning area.

[2] Events divided by 16 years of data.

Figure 12-29. Wildfire Ignition Density – Fayette County

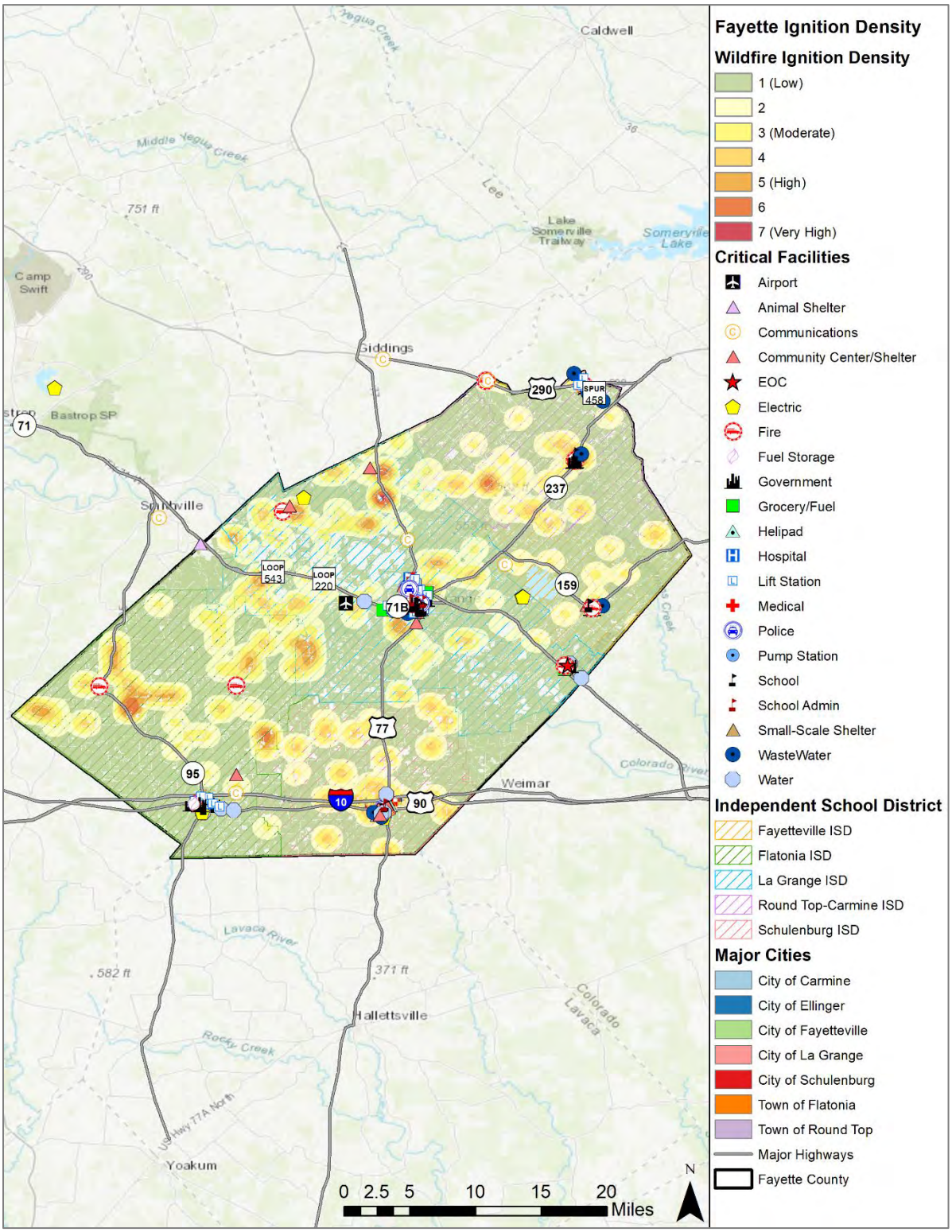


Figure 12-30. Wildfire Ignition Density – City of Carmine

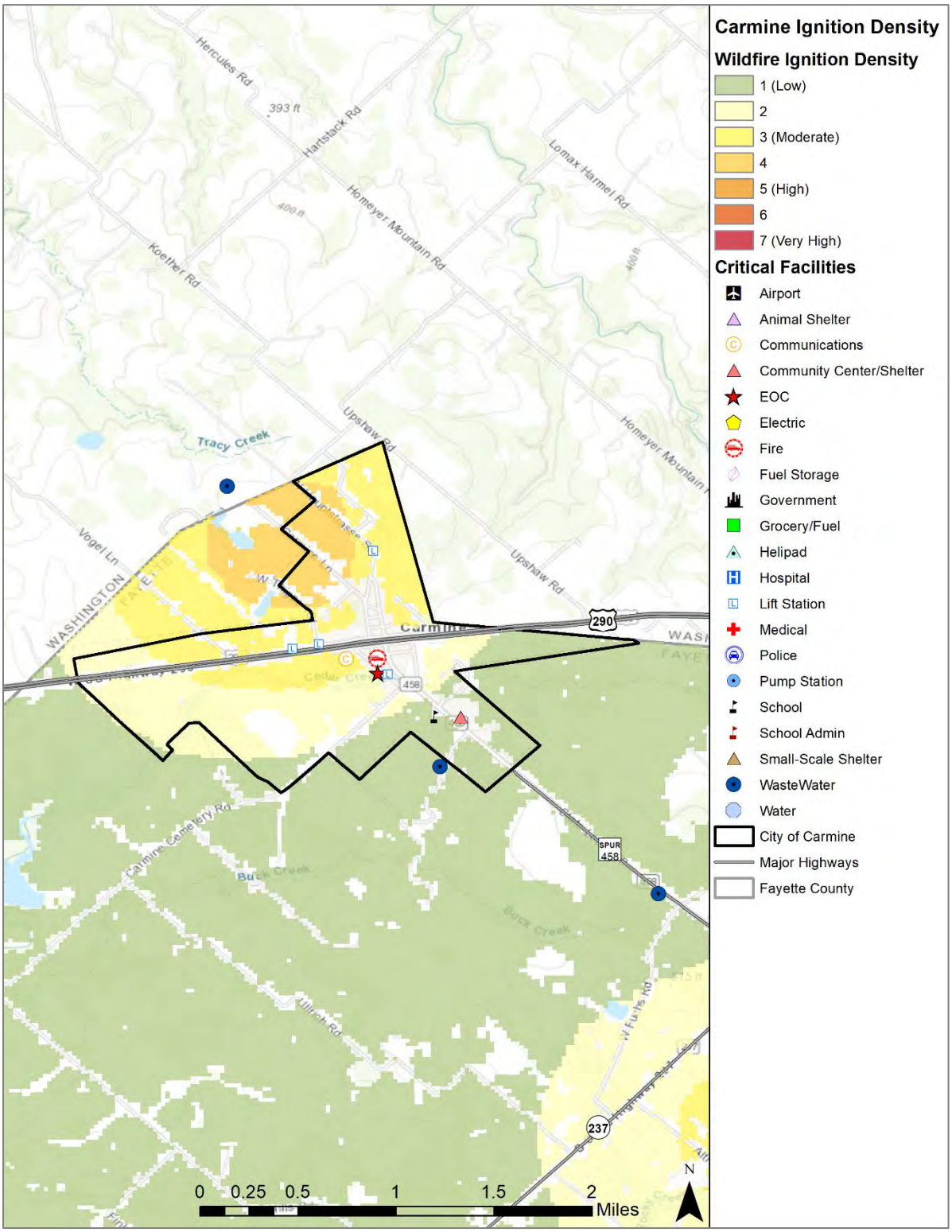


Figure 12-31. Wildfire Ignition Density – City of Ellinger

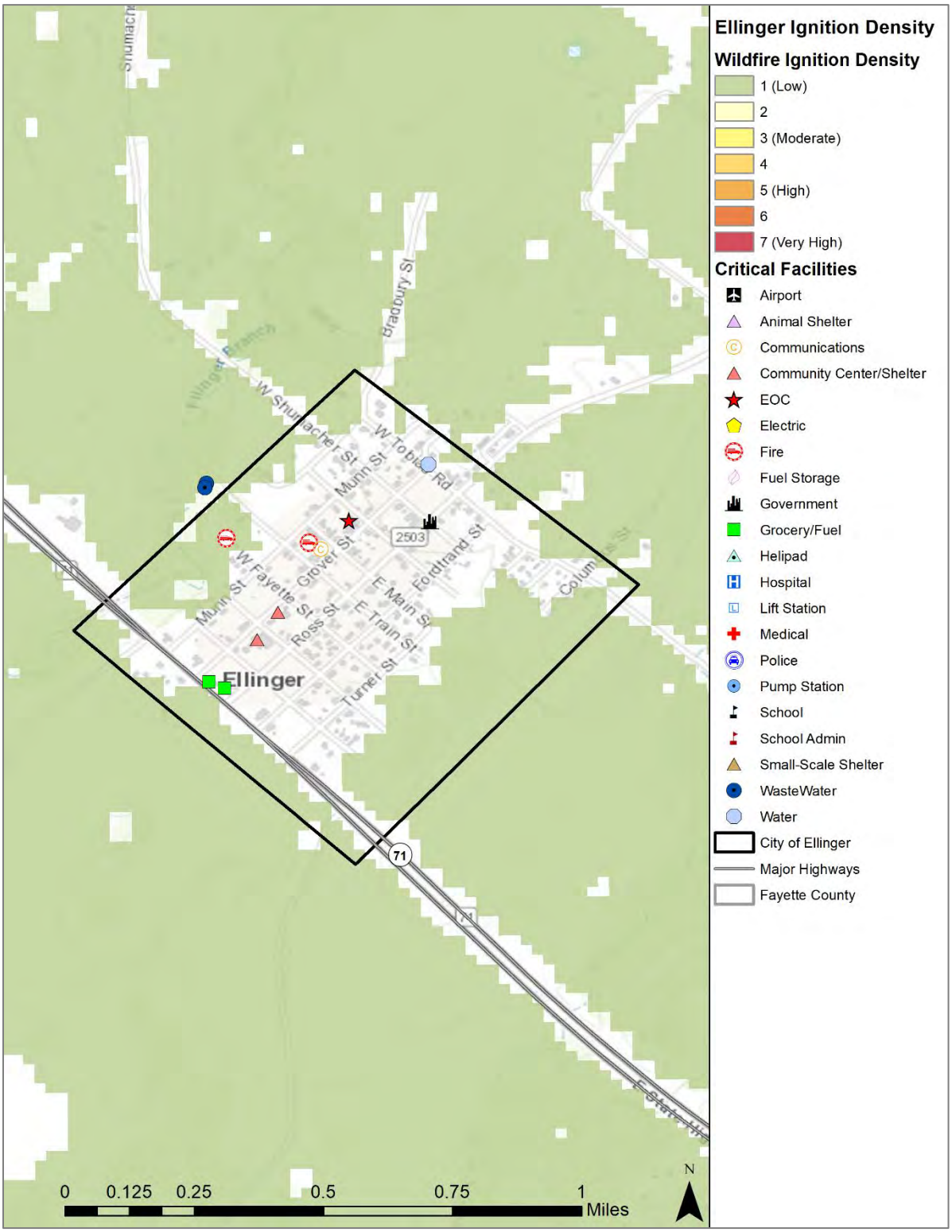


Figure 12-32. Wildfire Ignition Density – City of Fayetteville

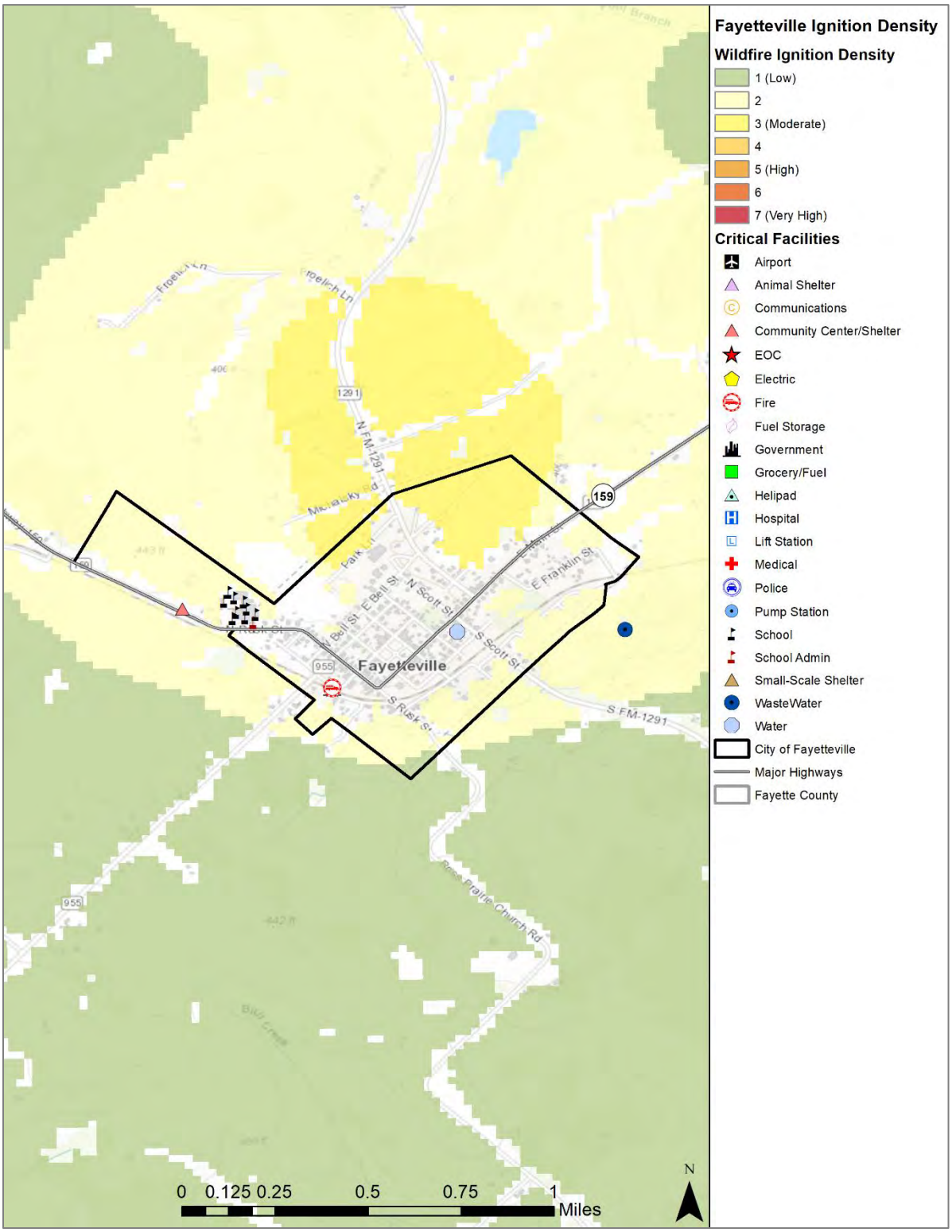


Figure 12-33. Wildfire Ignition Density – City of Flatonia

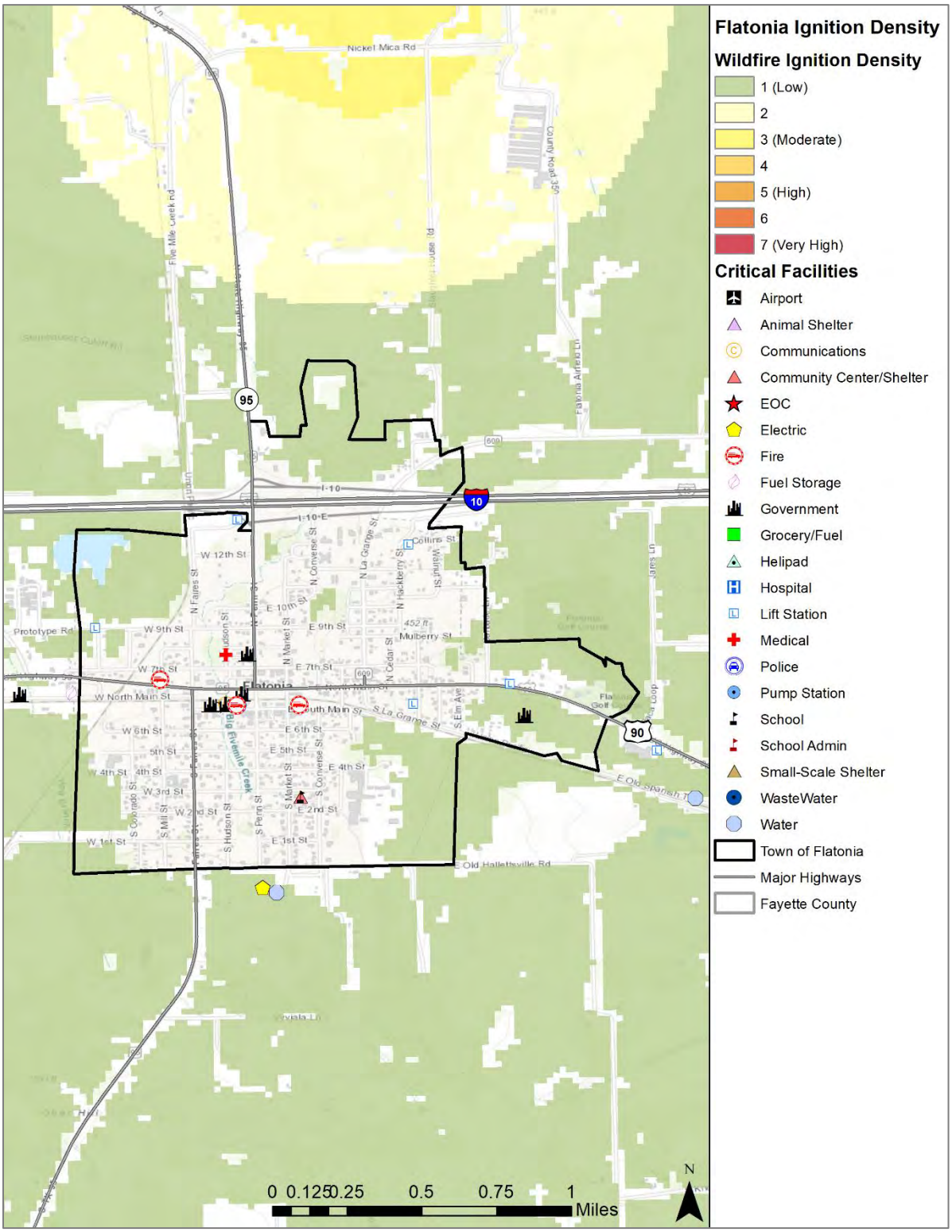


Figure 12-34. Wildfire Ignition Density – City of La Grange

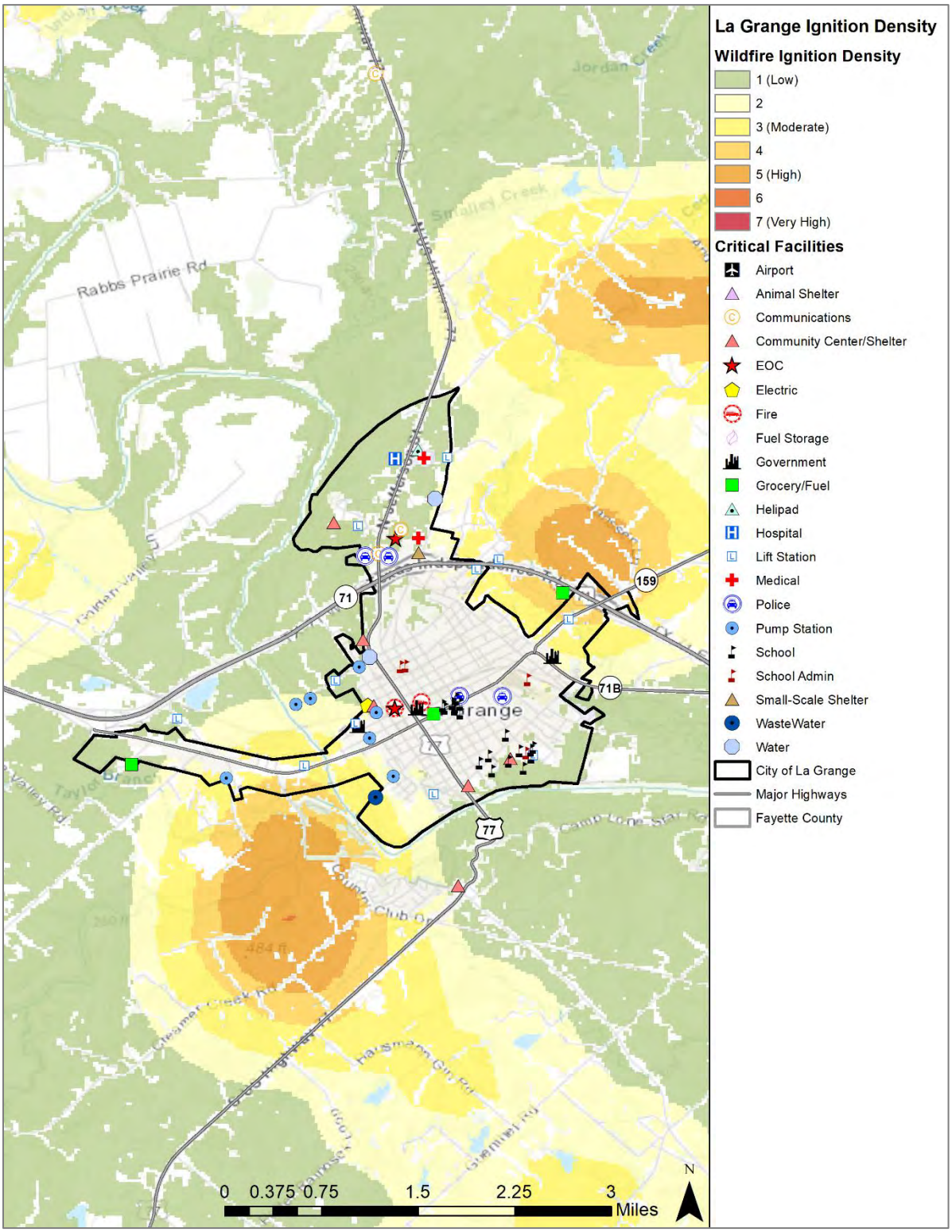


Figure 12-35. Wildfire Ignition Density – City of Round Top

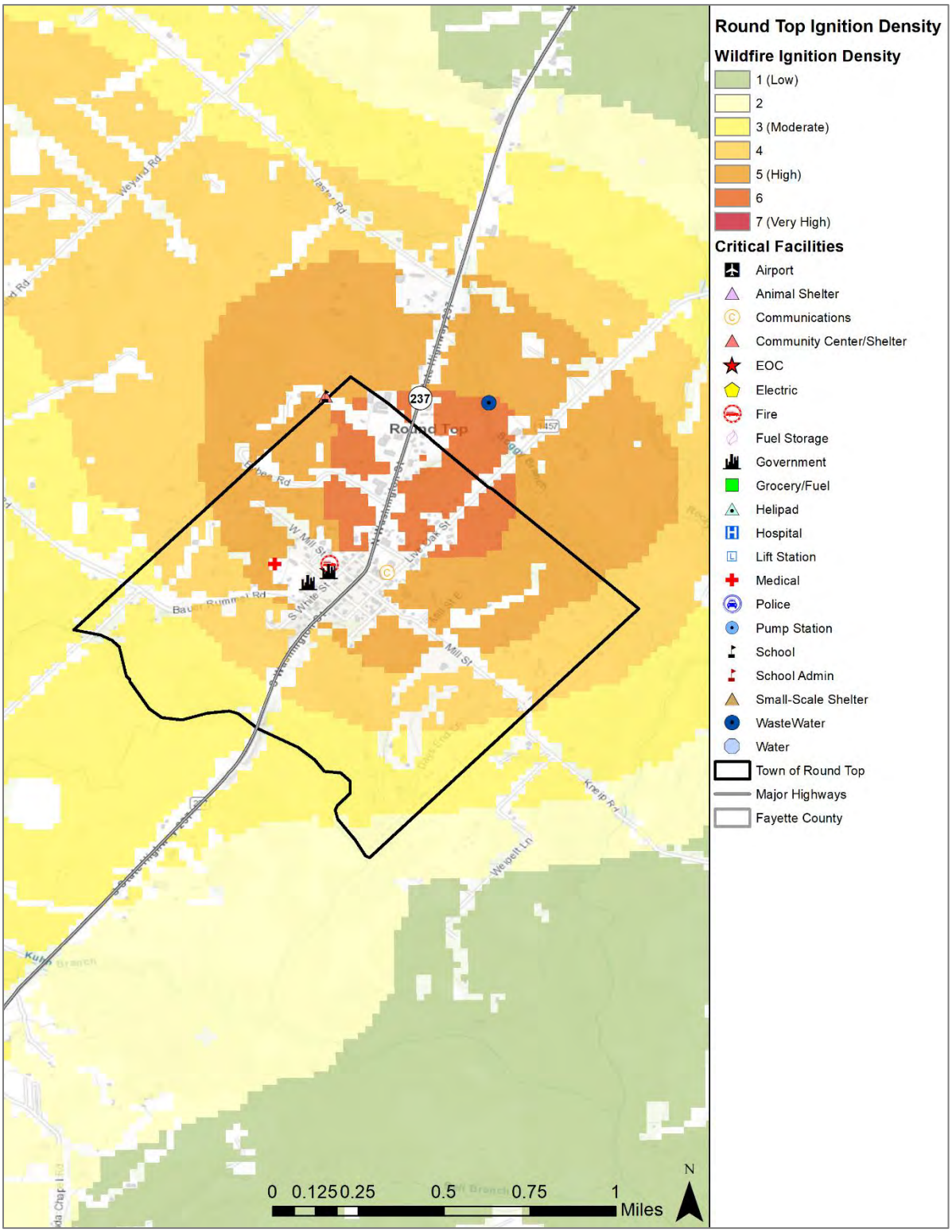


Figure 12-36. Wildfire Ignition Density – City of Schulenburg

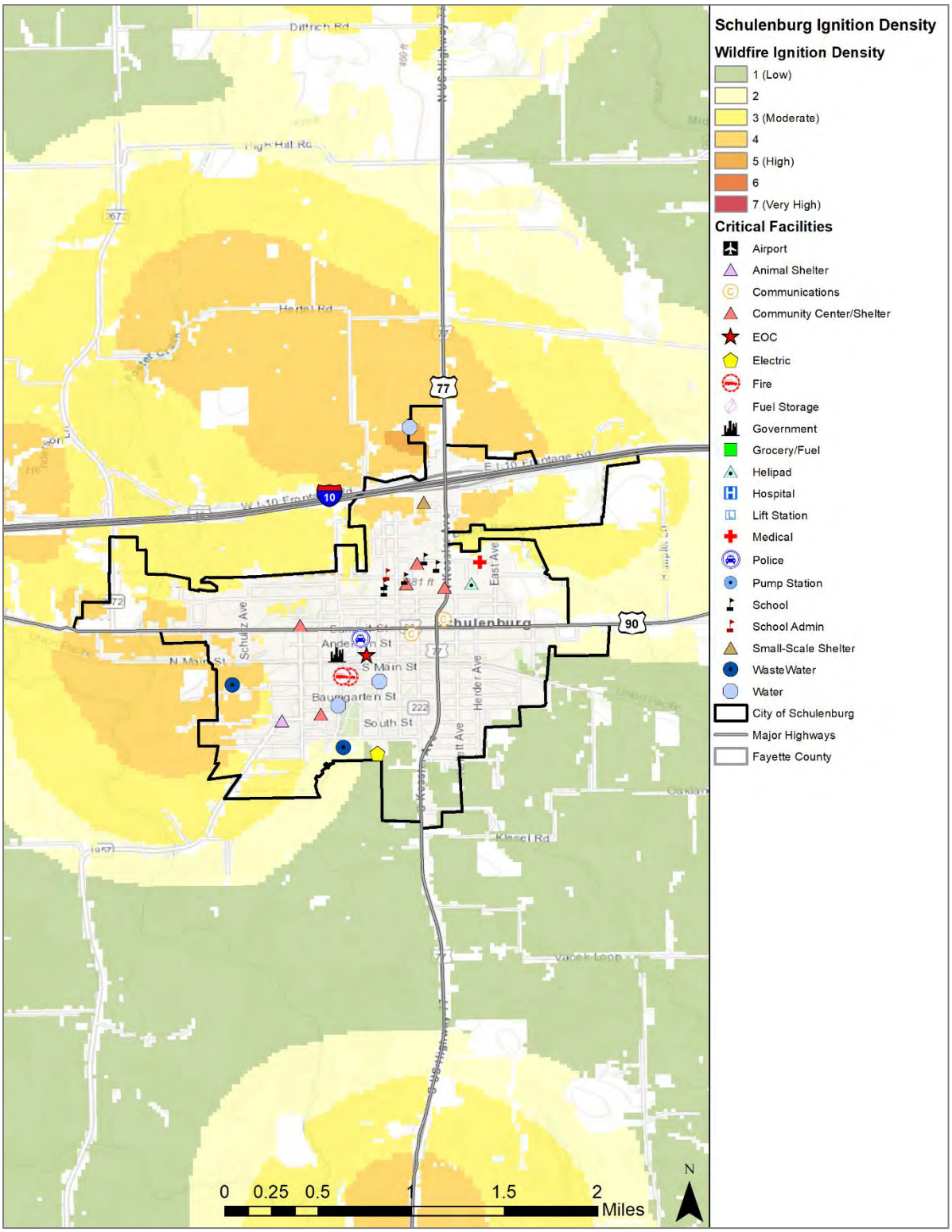


Figure 12-37. Wildfire Ignition Density – Fayetteville ISD

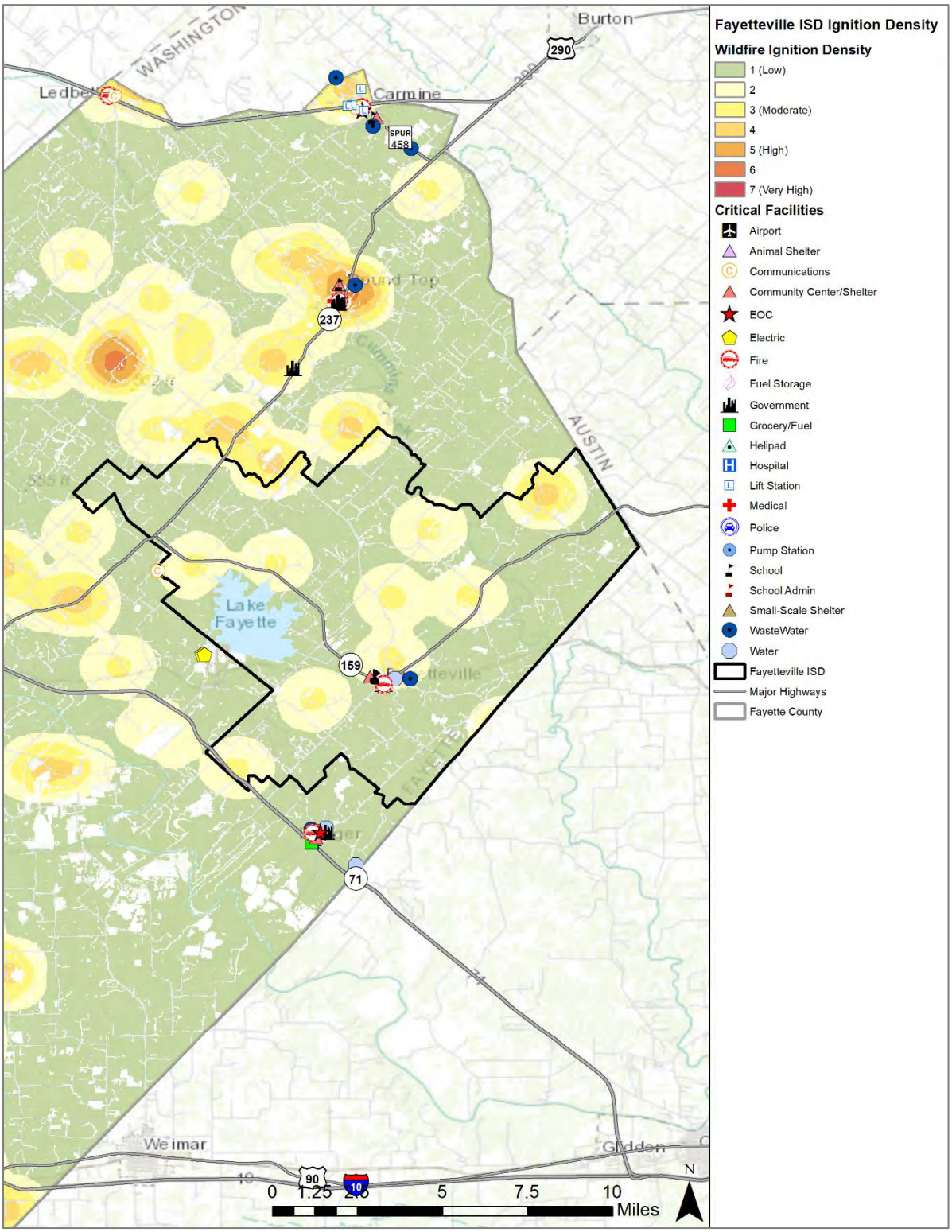


Figure 12-38. Wildfire Ignition Density – Flatonia ISD

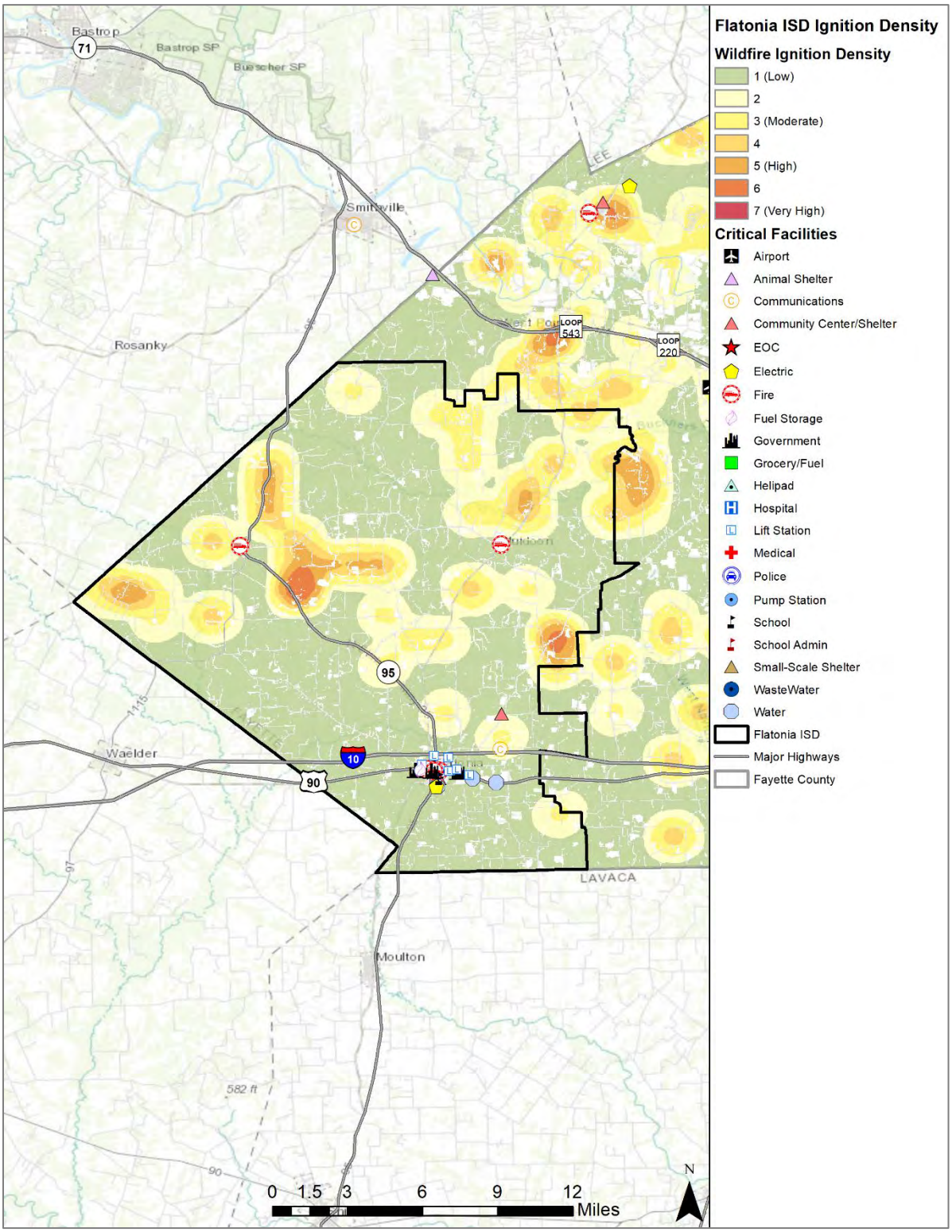


Figure 12-39. Wildfire Ignition Density – La Grange ISD

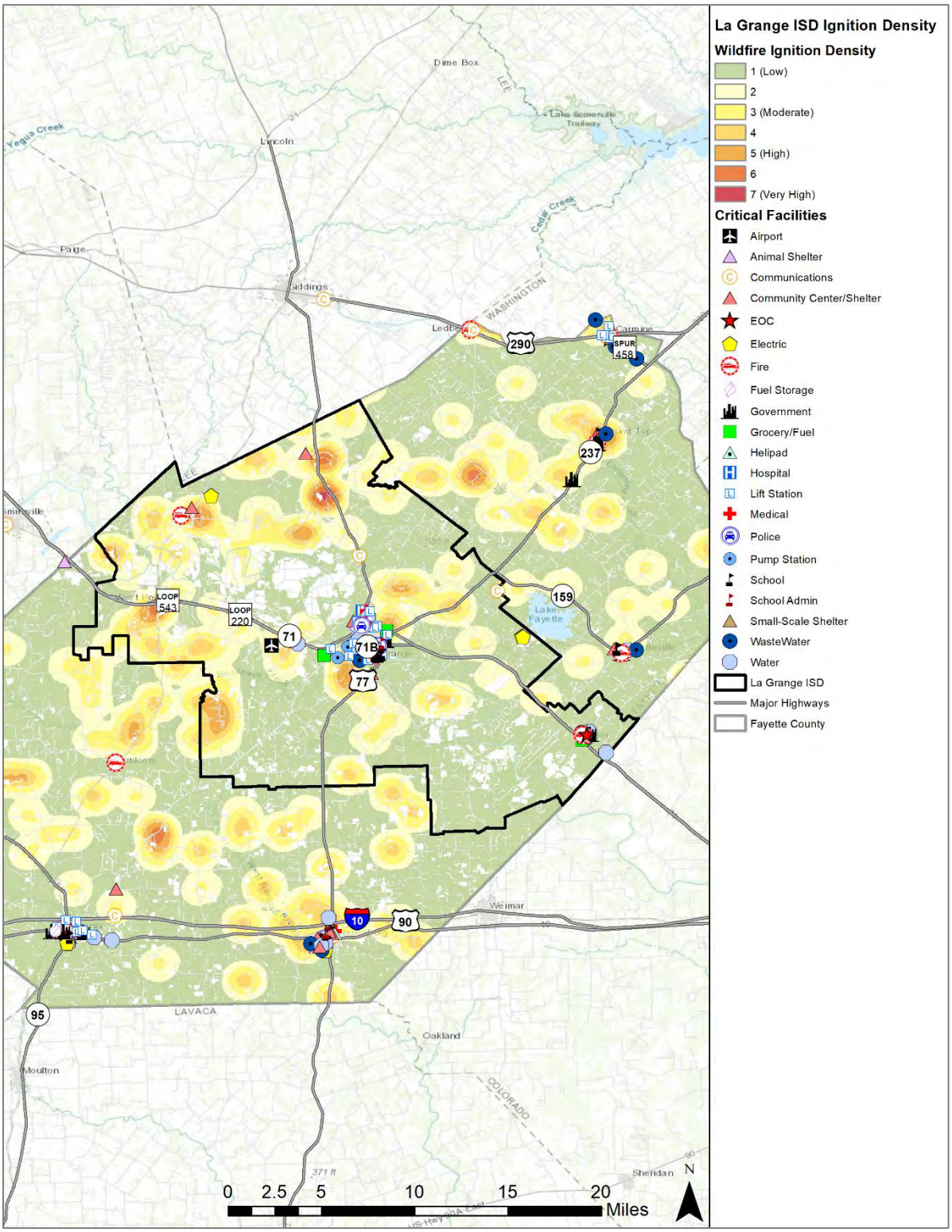


Figure 12-40. Wildfire Ignition Density – Round Top – Carmine ISD

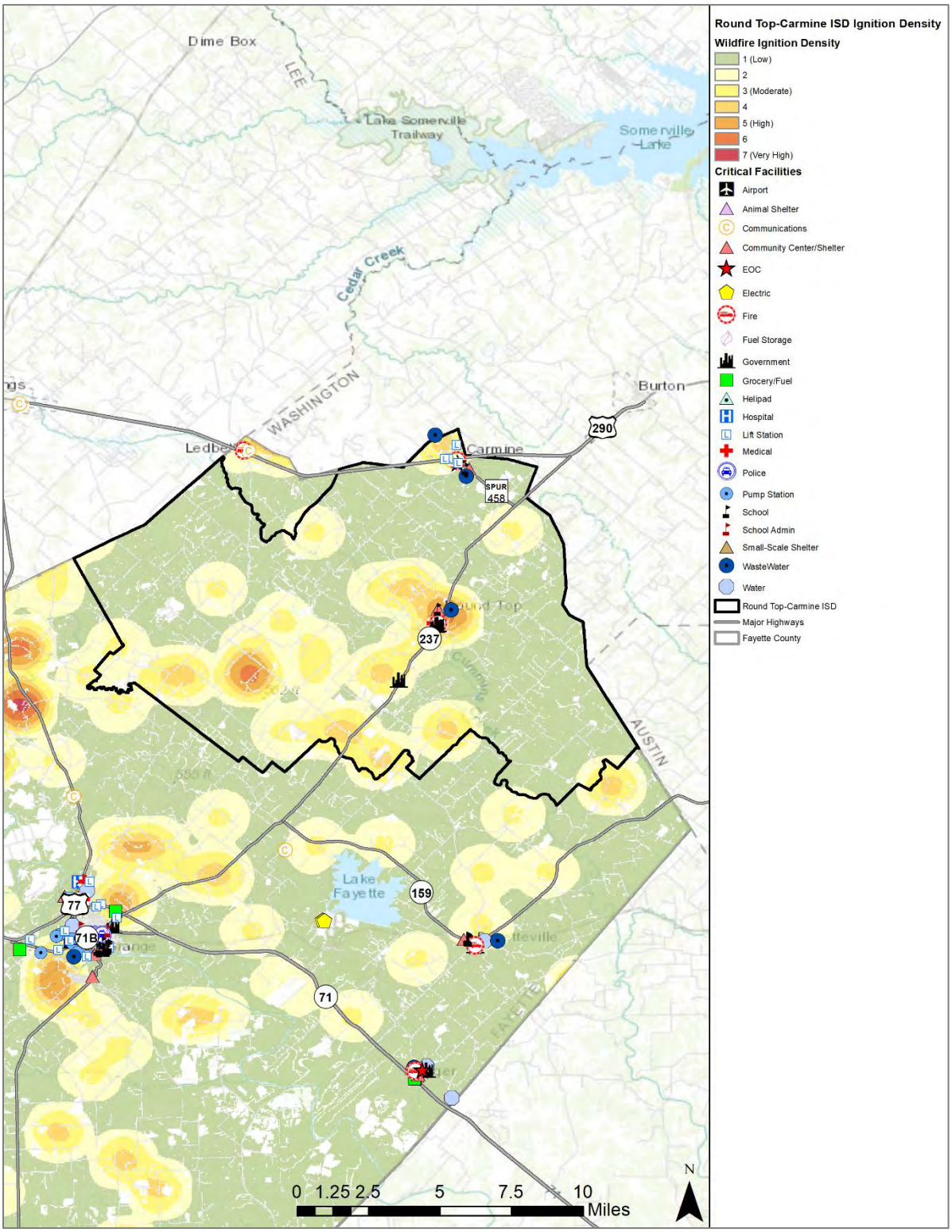
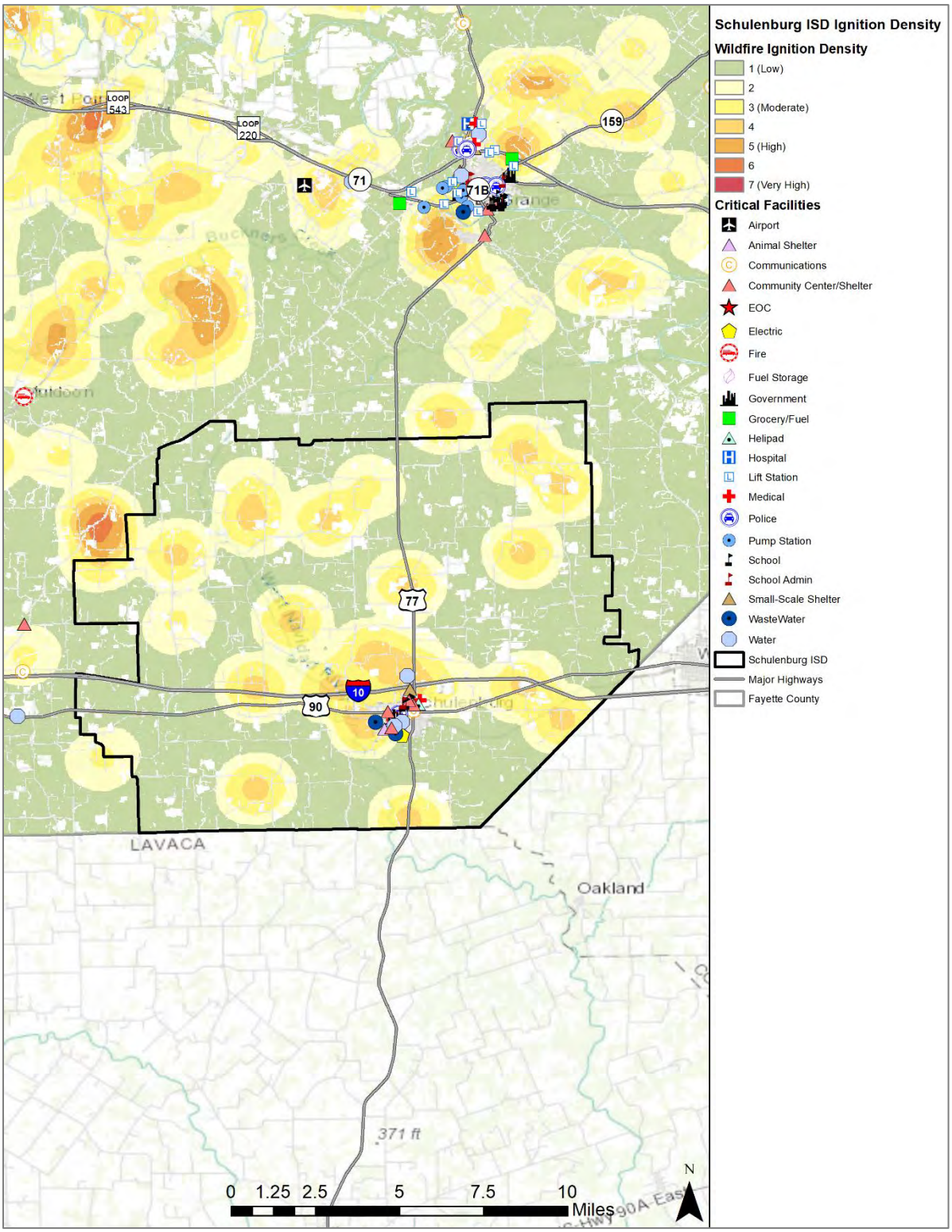


Figure 12-41. Wildfire Ignition Density – Schulenburg ISD



Diminished air quality is an environmental impact that can result from a wildfire event and pose a potential health risk. The smoke plumes from wildfires can contain potentially inhalable carcinogenic matter. Fine particles of invisible soot and ash that are too small for the respiratory system to filter can cause immediate and possibly long-term health effects. The elderly or those individuals with compromised respiratory systems may be more vulnerable to the effects of diminished air quality after a wildfire event.

Climatic conditions such as severe freezes and drought can significantly increase the intensity of wildfires since these conditions kill vegetation, creating a prime fuel source for wildfires. The intensity and rate at which wildfires spread are directly related to wind speed, temperature, and relative humidity.

The severity of impact from major wildfire events can be substantial. Such events can cause multiple deaths, shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. Severity of impact is gauged by acreage burned, homes and structures lost, and the number of resulting injuries and fatalities.

For the Fayette County planning area, including participating jurisdictions and ISDs, the impact from a wildfire event can be considered “Limited," meaning injuries and/or illnesses are likely treatable with first aid, shutdown of facilities and services for one week or less and less than 10 percent of property is destroyed or with major damage. Severity of impact is gauged by acreage burned, homes and structures lost, injuries and fatalities.

Table 12-6. Impact for Fayette County

JURISDICTION	IMPACT	DESCRIPTION
Fayette County	Limited	Fayette County has an estimated 19,614 people or 85.7% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. County residents may suffer injuries treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
City of Carmine	Limited	Within the City of Carmine, it is estimated 237 people or 100% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. County residents may suffer injuries treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.

JURISDICTION	IMPACT	DESCRIPTION
City of Ellinger	Limited	Within the City of Ellinger, it is estimated 237 people or 100% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. County residents may suffer injuries treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
City of Fayetteville	Limited	Within the City of Fayetteville, it is estimated 243 people or 99.2% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. County residents may suffer injuries treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
City of Flatonia	Limited	Within the City of Flatonia, it is estimated 1,025 people or 69.3% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. County residents may suffer injuries treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
City of La Grange	Limited	Within the City of La Grange, it is estimated 3,182 people or 65.6% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. County residents may suffer injuries treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
City of Round Top	Limited	Within the City of Round Top, it is estimated 78 people or 95.1% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 1 house per 2 acres. County residents may suffer injuries treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.

JURISDICTION	IMPACT	DESCRIPTION
City of Schulenburg	Limited	Within the City of Schulenburg, it is estimated 1,749 people or 64.7% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. County residents may suffer injuries treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
Fayetteville ISD	Minor	Fayetteville ISD has ten facilities located within the WUI and has a moderate risk to wildfire. Students and faculty could be injured or suffer illnesses, but not permanent disability. Critical facilities could be shut down for a week, and 10 percent or more of total property could be damaged.
Flatonia ISD	Minor	Flatonia ISD facilities are located outside of the WUI and have a limited risk for wildfires. Injuries or illnesses would be treatable with first aid, critical facilities could be shut down for 24-hours or less and less than 10 percent of facilities could be destroyed.
La Grange ISD	Minor	La Grange ISD has eleven facilities located within the WUI and has a moderate risk to wildfire. Students and faculty could be injured or suffer illnesses, but not permanent disability. Critical facilities could be shut down for a week, and 10 percent or more of total property could be damaged.
Round Top – Carmine ISD	Minor	Round Top - Carmine ISD has two facilities located within the WUI and has a low to moderate risk to wildfire. Students and faculty could be injured or suffer illnesses, but not permanent disability. Critical facilities could be shut down for a week, and 10 percent or more of total property could be damaged.
Schulenburg ISD	Minor	Schulenburg ISD has two facilities located within the WUI and has a low to moderate risk to wildfire. Students and faculty could be injured or suffer illnesses, but not permanent disability. Critical facilities could be shut down for a week, and 10 percent or more of total property could be damaged.

SECTION 12: WILDFIRE

ASSESSMENT OF IMPACTS

A Wildfire event poses a potentially significant risk to public health and safety, particularly if the wildfire is initially unnoticed and spreads quickly. The impacts associated with a wildfire are not limited to the direct damages. Significant wildfire events can be frequently associated with a variety of impacts, including:

- The Fayette County planning area contains public parks and open space areas. Community assets including places like Lake Fayette Oak Thicket Park are vulnerable to the impacts of wildfire events. Recreation and tourism can be unappealing for years following a large wildfire, devastating directly related businesses.
- Recreation activities throughout the County and City's parks may be unavailable and tourism can be unappealing for years following a large wildfire event, devastating directly related local businesses and negatively impacting economic recovery.
- Persons in the area at the time of the fire are at risk for injury or death from burns and/or smoke inhalation.
- First responders are at greater risk of physical injury when in close proximity to the hazard while extinguishing flames, protecting property, or evacuating residents in the area.
- First responders can experience heart disease, respiratory problems, and other long-term related illnesses from prolonged exposure to smoke, chemicals, and heat.
- Emergency services may be disrupted during a wildfire if facilities are impacted, roadways are inaccessible, or personnel are unable to report for duty.
- Critical County and City departments may not be able to function and provide necessary services depending on the location of the fire and the structures or personnel impacted.
- Non-critical businesses may be directly damaged, suffer loss of utility services, or be otherwise inaccessible, delaying normal operations and slowing the recovery process.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility.
- Older homes are generally exempt from modern building code requirements, which may require fire suppression equipment in the structure. 60.9 percent of homes in the planning area were built before 1980. Within Fayette County, 23 buildings and sites are on the National Register of Historic Places, many of which pre-date modern building codes.
- Vegetation in parks may be destroyed in a wildfire, impacting air quality and public health.
- Some high-density neighborhoods feature small lots with structures close together, increasing the potential for fire to spread rapidly.
- Air pollution from smoke may exacerbate respiratory problems of vulnerable residents.
- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- Wildlife may be displaced or destroyed.
- Historical or cultural resources may be damaged or destroyed.
- Tourism can be significantly disrupted, further delaying economic recovery for the area.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Fire suppression costs can be substantial, exhausting the financial resources of the community.

- Residential structures lost in a wildfire may not be rebuilt for years, reducing the tax base for the community.
- Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground delivery lines, and soil erosion or debris deposits into waterways after the fire.

The economic and financial impacts of a wildfire event on local government will depend on the scale of the event, what is damaged, costs of repair or replacement, lost business days in impacted areas, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a wildfire event.

CLIMATE CHANGE CONSIDERATIONS

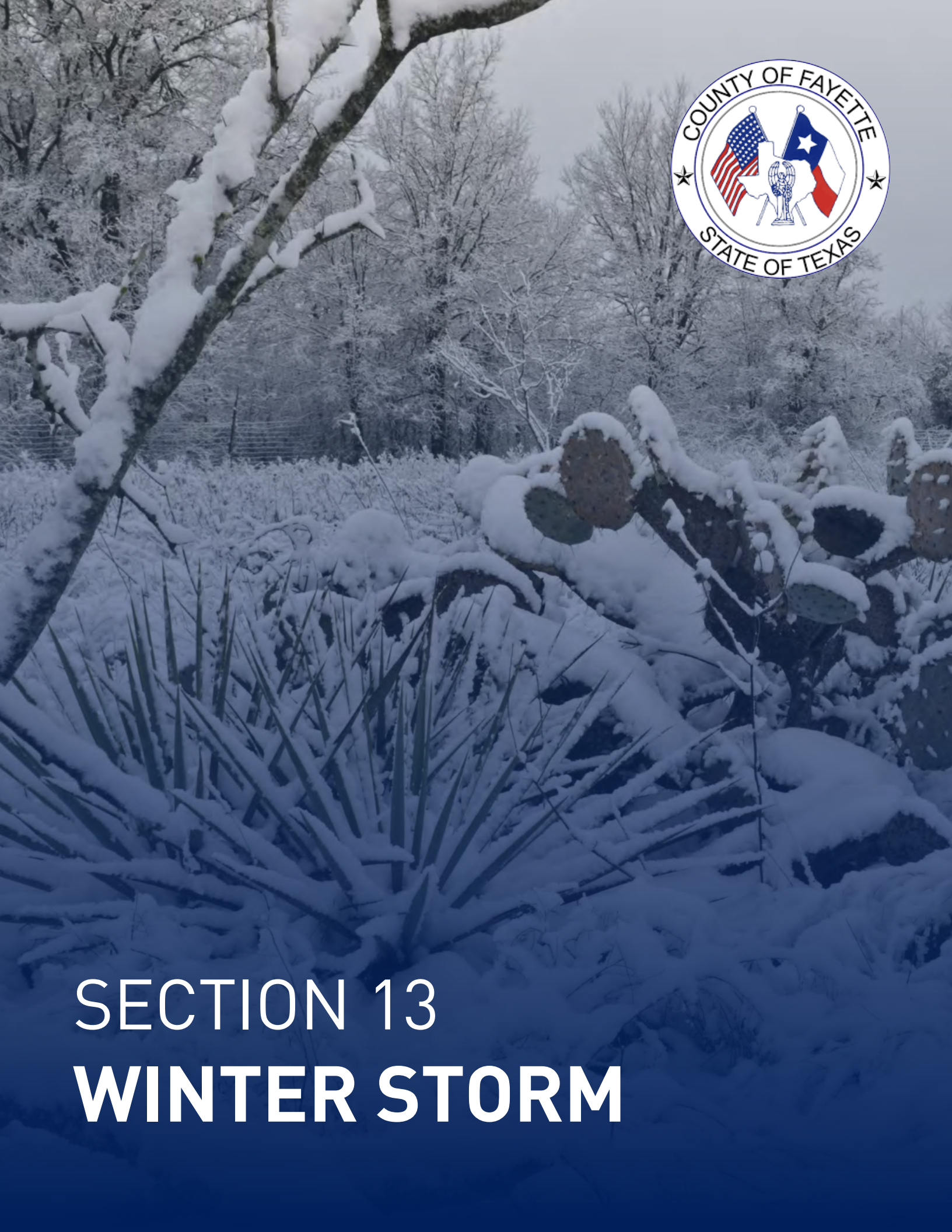
Wildfires require the alignment of a number of factors, including temperature, humidity, and the lack of moisture in fuels, such as trees, shrubs, grasses, and forest debris. All these factors have strong direct or indirect ties to climate variability and climate change. Research shows that changes in climate create warmer, drier conditions, leading to longer and more active fire seasons. Increases in temperatures and the thirst of the atmosphere due to human--caused climate change have increased aridity of forest fuels during the fire season.[3]

Vapor pressure deficit, an indicator of the ability of moisture to evaporate, is projected to increase as temperatures rise and carbon dioxide fertilization reduces transpiration, leading to both lower humidity and increased surface dryness. Overall, increased dryness should extend the wildfire season in places where the fire season is presently constrained by low levels of aridity, such as eastern Texas.[4]

Extreme heat and extended periods of drought contribute to wildfire risk in the planning area. Extreme temperatures and periods of drought destroy vegetation in the area, contributing to available fuels that spread wildfires. Additional climate change impacts from drought and extreme heat are discussed in Sections 6 and 7 of this Plan. The projected increases in favorable wildfire conditions, including drought and extreme heat, indicate an increase in favorable wildfire conditions. Additional information and studies are needed to determine the degree and rate of any increased wildfire risk.

[3] NOAA Wildfire Climate Connection, August 2022: wildfire-climate-connection.

[4] Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.



SECTION 13
WINTER STORM

SECTION 13: WINTER STORM

Hazard Description 1
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Extent 3
Historical Occurrences 5
Significant Events 6
Probability of Future Events 7
Vulnerability and Impact 7
Assessment of Impacts 10
Climate Change Considerations 11

HAZARD DESCRIPTION

A severe winter storm event is identified as a storm with snow, ice, or freezing rain. This type of storm can cause significant problems for area residents. Winter storms are associated with freezing or frozen precipitation such as freezing rain, sleet, snow, and the combined effects of winter precipitation and strong winds. Wind chill is a function of temperature and wind. Low wind chill is a product of high winds and freezing temperatures.

Winter storms that threaten the Fayette County planning area, including participating jurisdictions and ISDs, usually begin as powerful cold fronts that push south from central Canada. Although the county is at risk to ice hazards, extremely cold temperatures, and snow, the effects and frequencies of winter storm events are generally mild and short-lived.

As indicated in Figure 13-1, the Fayette County planning area, including participating jurisdictions and ISDs, is located in USDA Hardiness Zone 8b, with annual minimum temperatures between 15°F and 20°F. During times of ice and snow accumulation, response times will increase until public works road crews are able to make major roads passable. Table 13-1 describes the types of winter weather possible to occur in the Fayette County planning area, including participating jurisdictions and ISDs.

Figure 13-1. Annual Minimum Temperature[1]

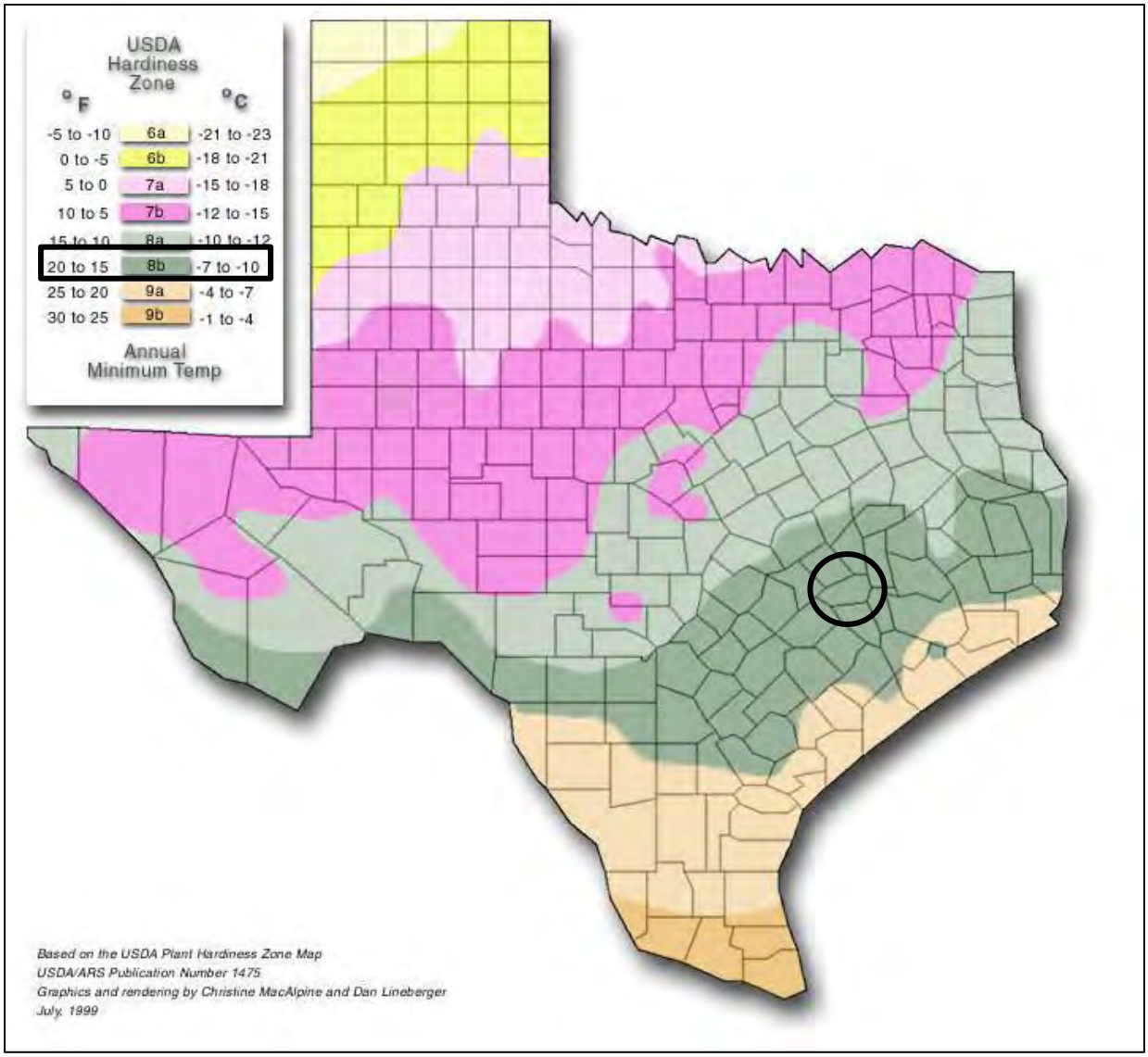


Table 13-1. Types of Winter Weather

TYPE OF WINTER WEATHER	DESCRIPTION
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 usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.

[1] USDA

TYPE OF WINTER WEATHER	DESCRIPTION
Blizzard	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most perilous winter storm with visibility dangerously restricted.
Frost/Freeze	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.

LOCATION

Winter storm events are not confined to specific geographic boundaries. Therefore, all existing and future buildings, facilities, and populations in the Fayette County planning area, including all participating jurisdictions and ISDs, are considered to be exposed to a winter storm hazard and could potentially be impacted.

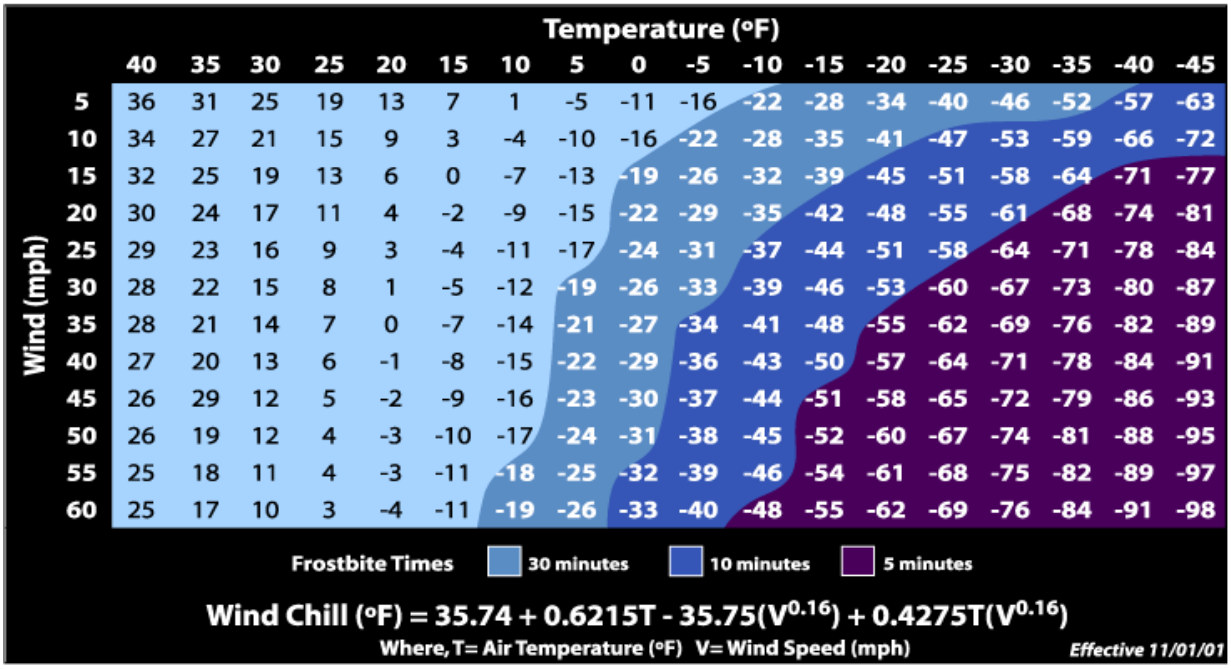
EXTENT

The extent or magnitude of a severe winter storm is measured in intensity based on the temperature and level of accumulations as shown in Table 13-2. Table 13-2 should be read in conjunction with the wind-chill factor described in Figure 13-2 to determine the intensity of a winter storm. The chart is not applicable when temperatures are over 50°F or winds are calm. This is an index developed by the National Weather Service.

Table 13-2. Magnitude of Severe Winter Storms

INTENSITY	TEMPERATURE RANGE (Fahrenheit)	EXTENT DESCRIPTION
Mild	40° – 50°	Winds less than 10 mph and freezing rain or light snow falling for short durations with little or no accumulations
Moderate	30° – 40°	Winds 10 – 15 mph and sleet and/or snow up to 4 inches
Significant	25° – 30°	Intense snow showers accompanied with 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

Figure 13-2. Wind Chill Chart



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 blustery 30°F day would feel just as cold as a calm day with 0°F temperatures. The Fayette County planning area has 16 previous occurrences recorded from 1996 through December 2022. The planning area has never experienced a blizzard but it has been subject to ice storm, sleet, and winter storms.

The average number of cold days is similar for the entire planning area. Therefore, the intensity or extent of a winter storm event to be mitigated for the area ranges from mild to moderate according to the definitions at Table 13-2. The Fayette County planning area can expect anywhere between 0.1 to 4.0 inches of ice and snow during a winter storm event, and temperatures between 15°F and 20°F with winds ranging from 0 to 35 mph.

The National Weather Service Austin/San Antonio Weather Forecast Office issues a winter storm watch, advisory or warning in advance of an event in order to give people enough time to prepare for an event. Fayette County could be under any of these warning types in advance of a winter storm event. Table 13-3 describes when each warning type would be issued.

Table 13-3. Winter Storm Watch, Advisory, Warning Descriptions

TYPE OF WINTER WEATHER	DESCRIPTION
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 usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.
Blizzard	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most perilous winter storm with visibility dangerously restricted.
Frost/Freeze	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.

HISTORICAL OCCURRENCES

According to historical records and the best available data there have been 16 recorded winter storm events in Fayette County planning area. Historical winter storm information, as provided by the NCEI, identifies winter storm activity across a multi-county forecast area for each event. The appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event, when appropriate. Historical winter storm data for the planning area is provided on a County-wide basis per the NCEI database. Table 13-4 shows historical incident information for the planning area.

Historical winter storm data for each participating ISD are provided within the County event total per the NCEI as the database does not have events reported separately for the participating ISDs.

Schulenburg ISD reported damage to their elementary campus as a result of Winter Storm Uri in February of 2021, but no damage estimated or reported injuries have been provided by the school district. All other participating jurisdictions did not report damage as a result of a winter storm event within their district.

Table 13-4. Historical Winter Storm Events, 1996-2022[2]

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Fayette County	2/1/1996	0	0	$0	$0
Fayette County	1/11/1997	0	0	$0	$0
Fayette County	12/13/2000	0	0	$0	$0
Fayette County	2/25/2003	0	0	$0	$0
Fayette County	1/15/2007	0	0	$0	$0
Fayette County	12/9/2008	0	0	$0	$0
Fayette County	2/3/2011	0	0	$0	$0
Fayette County	12/7/2013	0	0	$0	$0
Fayette County	2/6/2014	0	0	$0	$0
Fayette County	3/4/2014	0	0	$0	$0
Fayette County	1/23/2014	0	0	$0	$0
Fayette County	12/7/2017	0	0	$0	$0
Fayette County	1/16/2018	0	0	$0	$0
Fayette County	2/13/2021	0	0	$0	$0
Fayette County	1/20/2022	0	0	$0	$0
Fayette County	2/3/2022	0	0	$0	$0
TOTALS		**0**	**0**	**$0**	

Table 13-5. Historical Winter Storm Events Summary, 1996-2022

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGES	CROP DAMAGES
Fayette County	16	0	0	$0	$0

Based on the list of historical winter storm events for the Fayette County planning area (listed above), five of the events have occurred since the 2016 Plan.

SIGNIFICANT EVENTS

February 13, 2021 – Winter Storm Uri – Fayette County (DR-4586)

Winter Storm Uri was one of the most impactful winter events in the state's history. The winter storm event lasted a week and brought snow, sleet, and freezing rain to the Southeast region. The presence of the storm began on February 10, 2021, when a cold front brought a surge of cold air to the Area. On February 13, the winter storm hit the region and areas north and west of Harris County, including Fayette County, were placed under a Winter Storm Warning. TxDOT reported

[2] Values are in 2022 dollars. Database was search for events between 1996 and 2022. No events were reported for the Fayette County planning area in the database after February 3, 2022.

ice on bridges and overpasses in and around the City of La Grange with total snow accumulation approximately 5.5 inches.

Fatalities across the state were attributed to hypothermia, vehicle accidents, carbon monoxide poisoning, and chronic medical conditions complicated by a lack of electricity over serval days. Statewide, more than 69 percent of households lost power at some point during the event, with average disruptions lasting 42 hours, 21 of which were consecutive. Water service was also disrupted with 49 percent of households losing running water with an average disruption of 52 hours.[3]

PROBABILITY OF FUTURE EVENTS

According to historical records, the Fayette County planning area is expected to experience approximately one to two winter storm events each year. The probability of a future winter storm event affecting the Fayette County planning area, including participating jurisdictions and ISDs, is considered “Highly Likely”, with a winter storm likely to occur within the next year. The end of this section addresses climate change and its impacts on future winter storms in the planning area.

VULNERABILITY AND IMPACT

During periods of extreme cold and freezing temperatures, water pipes can freeze and crack, and ice can build up on power lines, causing them to break under the weight or causing tree limbs to fall on the lines. These events can disrupt electric service for long periods.

An economic impact may occur due to increased consumption of heating fuel, which can lead to energy shortages and higher prices. House fires and resulting deaths tend to occur more frequently from increased and improper use of alternate heating sources. Fires during winter storms also present a greater danger because water supplies may freeze and impede firefighting efforts.

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by winter storm events. The following critical facilities would be vulnerable to winter storm events in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

[3] Donald, Jess. “Winter Storm Uri. The Economic Impact of the Storm”. October 2021. FiscalNotes. Texas Comptroller of Public Accounts. https://comptroller.texas.gov/economy/fiscal-notes/2021/oct/winter-storm-impact.php

Table 13-6. Critical Facilities Vulnerable to Winter Storm Events

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	• Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications. • Exposure to extreme cold can cause illnesses in first responders if exposed for a period of time. • Roads may become impassable due to snow and/or ice impacting response times by emergency services. • Extended power outages due to increased usage may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Power outages due to increased usage could disrupt critical care. • Backup power sources could be damaged. • Increased number of patients due to exposure to cold temperatures could lead to a strain on staff. • Water pipes can freeze and burst leading to flooding within facilities. • Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed. • Economic disruption due to power outages negatively impact airport services as well as area businesses reliant on airport operations. • Exposure risks to outdoor workers.
Commercial Supplier (food, gas/fuel, etc.)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications. • Roads may become impassable due to snow and/or ice impacting response times by emergency services. • Power outages due to increased usage could disrupt critical care. • Backup power sources could be damaged. • Water pipes can freeze and burst leading to flooding within facilities.

People and animals are subject to health risks from extended exposure to cold air. Elderly people are at greater risk of death from hypothermia during these events, especially in the neighborhoods with older housing stock. According to the U.S. Center for Disease Control, every year hypothermia kills about 600 Americans, half of whom are 65 years of age or older. Another segment of the population at risk are those whose jobs consist of strenuous labor outdoors (Table 13-7). In addition, populations living below the poverty level may not be able to afford to run heat on a regular basis or extend period of time.

Table 13-7. Outdoor Employees by Participating ISDs

ISD	EMPLOYEES WORKING OUTDOORS
Fayetteville ISD	48
Flatonia ISD	110
La Grange ISD	300
Round Top – Carmine ISD	52
Schulenburg ISD	130

Population over 65 and under the age of 5 in the Fayette County planning area is estimated at 30.2 percent of the total population or an estimated total of 7,376[4] potentially vulnerable residents in the planning area based on age. An estimated 9.8 percent of the Fayette County planning area population live below the poverty level.

Older homes tend to be more vulnerable to the impacts of winter storm events. Over half of all housing units (60.9 percent) in the planning area were built before 1980 (Table 13-8).

Table 13-8. Populations at Greater Risk of Winter Storm Events

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Fayette County	6,190	1,186	2,369
City of Carmine	73	4	7
City of Ellinger	57	12	0
City of Fayetteville	122	6	15
City of Flatonia	298	78	102
City of La Grange	816	263	532
City of Round Top	41	0	0
City of Schulenburg	519	240	482
Fayetteville ISD	N/A	18	N/A
Flatonia ISD	N/A	42	N/A
La Grange ISD	N/A	80	N/A
Round Top – Carmine ISD	N/A	8	N/A
Schulenburg ISD	N/A	21	N/A

[4] US Census Bureau, American Community Survey Five-Year Estimates 2017-2021

Table 13-9. Structures at Greater Risk of Winter Storm Events

JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980
Fayette County	8,040
City of Carmine	113
City of Ellinger	60
City of Fayetteville	173
City of Flatonia	414
City of La Grange	1,690
City of Round Top	57
City of Schulenburg	840
Fayetteville ISD	4
Flatonia ISD	2
La Grange ISD	6
Round Top – Carmine ISD	5
Schulenburg ISD	8

Historic loss for the Fayette County planning area is negligible. The potential severity of impact for the planning area, including participating jurisdictions and ISDs, is “Limited,” meaning injuries are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10 percent of property destroyed or with major damage.

Table 13-10. Winter Storm Event Damage Totals, 1996-2022

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Fayette County	$0	$0

ASSESSMENT OF IMPACTS

The greatest risk from a winter storm hazard is to public health and safety. The impact of climate change could produce longer, more intense winter storm events, exacerbating the current winter storm impacts. Worsening winter storm conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly (25.3 percent of total population) and children under 5 (4.9 percent of total population), can face serious or life-threatening health problems from exposure to extreme cold including hypothermia and frostbite.

- Loss of electric power or other heat source can result in increased potential for fire injuries or hazardous gas inhalation because residents burn candles for light or use fires or generators to stay warm.
- Response personnel, including utility workers, public works personnel, debris removal staff, tow truck operators, and other first responders, are subject to injury or illness resulting from exposure to extreme cold temperatures.
- Response personnel would be required to travel in potentially hazardous conditions, elevating the life safety risk due to accidents and potential contact with downed power lines.
- Operations or service delivery may experience impacts from electricity blackouts due to winter storms.
- Power outages are possible throughout the planning area due to downed trees and power lines and/or rolling blackouts.
- Critical facilities without emergency backup power may not be operational during power outages.
- Emergency response and service operations may be impacted by limitations on access and mobility if roadways are closed, unsafe, or obstructed.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by ice and snow events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A winter storm event could lead to tree, shrub, and plant damage or death.
- Severe cold and ice could significantly damage vegetation in county parks.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to impacts of winter storm events. 60.9 percent of homes in the County were built before 1980. Within Fayette County, 23 buildings and sites are on the National Register of Historic Places, many of which pre-date modern building codes.
- Schools may be forced to shut early due to treacherous driving conditions.
- Exposed water pipes may be damaged by severe or late season winter storms at both residential and commercial structures, causing significant damages.

The economic and financial impacts of winter weather on the community will depend on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by businesses and citizens will also contribute to the overall economic and financial conditions in the aftermath of a winter storm event.

CLIMATE CHANGE CONSIDERATIONS

Climate change is expected to reduce the number of extreme cold events statewide but increase in the variability of events.[5] Extreme cold events will continue to be possible but overall winters are becoming milder, and the frequency of extreme winter weather events are decreasing due to

[5] Fourth National Climate Assessment. Chapter 23 Southern Great Plans. U.S. Global Change Program. 2018.

the warming of the Arctic and less extreme cold air coming from that region.[6] A trend that is expected to continue with winter extremes estimated to be milder by 2036 compared to extremes in the historic record.[7]

[6] Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

[7] Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

SECTION 14
EXPANSIVE SOILS

SECTION 14: EXPANSIVE SOILS

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HAZARD DESCRIPTION

Expansive soils are soils and soft rocks with a relatively high percentage of clay minerals that are subject to changes in volume as they swell and shrink with changing moisture conditions. Expansive soils contain minerals such as smectite clays that are capable of absorbing water. When these clays absorb water, they increase in volume and expand. The change in soil volume and resulting expansion can exert enough force on a building or other structure to cause damage.

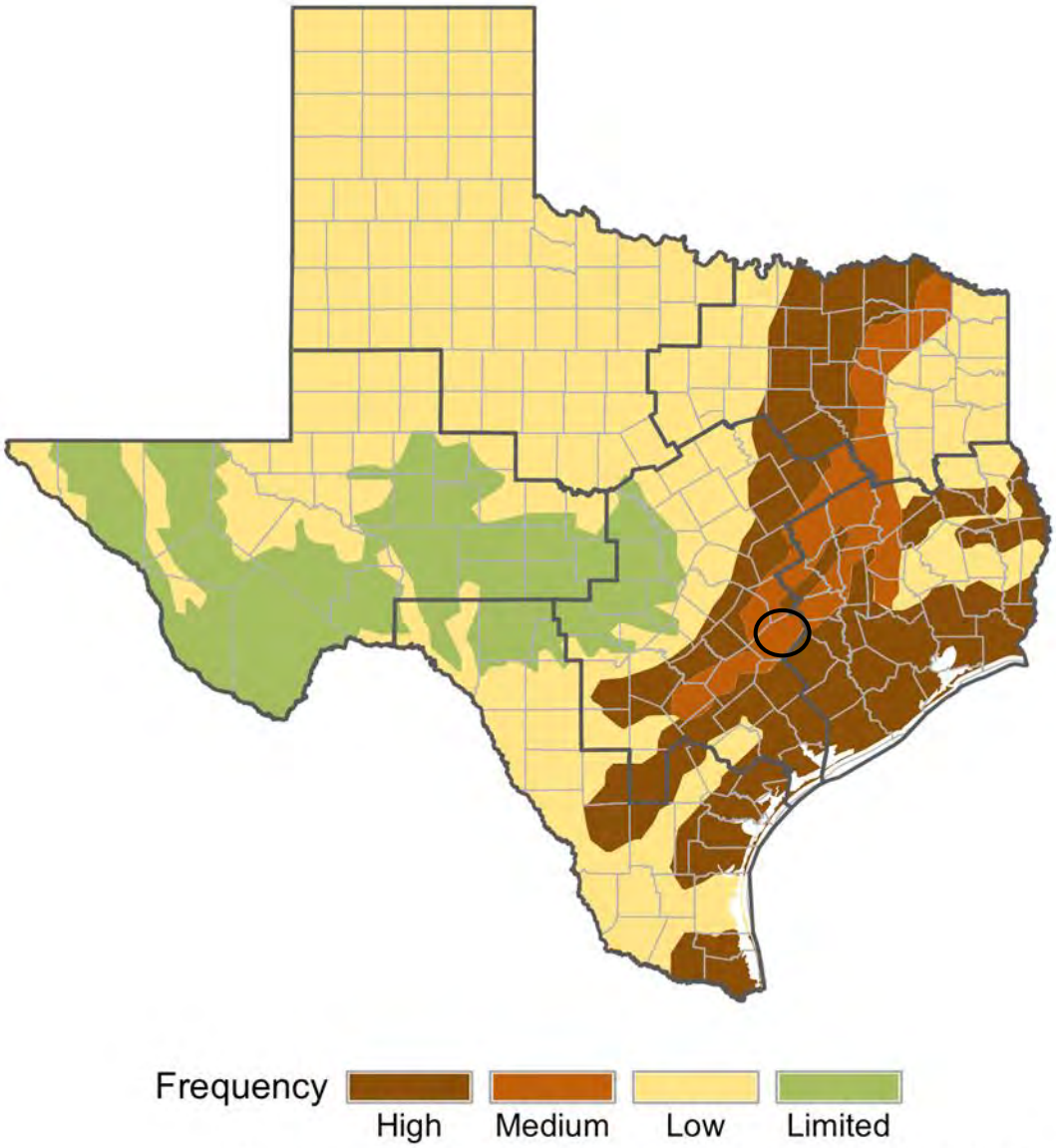
Expansive soils will also lose volume and shrink when they dry. Drought conditions can cause soils to contract in response to a loss of soil moisture. A reduction in soil volume can affect the support to buildings or other structures and result in damage. Fissures in the soil can also develop and facilitate the deep penetration of water when moist conditions or runoff occurs. This produces a cycle of shrinkage and swelling that place repetitive stress on structures. The effect of expansive soil is most prevalent in regions prone to prolonged periods of drought followed by periods of moderate to high precipitation.

LOCATION

In Texas the most expansive soils are in a band 200 miles west from the coastline, stretching approximately from Beaumont down to Brownsville. These areas receive the most moisture and are also vulnerable to droughts, which can cause the soil to contract. In the Fayette County planning area, the problems associated with expansive soil typically occur during drought periods. Expansive soils (bentonite, smectite, or other reactive clays) expand when the soil particles attract water and can shrink when the clay dries.

Figure 14-1 shows areas of expansive soil in Texas. All of Fayette County falls within the medium risk area, indicated in light brown.

Figure 14-1. Location of Expansive Soils in Texas[1]



Source: Tavakoli, E. (2016). Laboratory Evaluation of TX-PROCHEM as an Ionic Liquid Soil Stabilizer. [Master's Thesis].

EXTENT

The extent to which soil expansion is present in an area can be determined using the predominant soil composition and associated permeability. The Soil Survey was developed by the USDA Soils Conservation Service and contains information that can be applied in determining the suitability of soils in the planning area when selecting sites for roads, structures, and infrastructure.[2]

[1] Tavakoli, E. (2016). Laboratory Evaluation of TX-PROCHEM as an Ionic Liquid Soil Stabilizer. [Master's Thesis].
[2] USDA, http://www.nrcs.usda.gov

SECTION 14: EXPANSIVE SOILS

Soils are measured in terms of swelling potential or volumetric swell to determine an estimate of the potential severity. The American Society for Testing and Materials (ASTM) soil expansion index is considered to have a greater range and better sensitivity of expansion than other indexes. Table 14-1 provides the extent categories for expansive soils per the ASTM:

Table 14-1. Expansive Soils Index[3]

POTENTIAL EXPANSION	EXPANSION INDEX
Very Low	0 – 20%
Low	21-50%
Medium	51-90%
High	91-130%
Very High	130%+

The amount and depth of potential swelling that can occur in a clay material are, to some extent, functions of the cyclical moisture content in the soil. In drier climates where the moisture content in the soil near the ground surface is low because of evaporation, there is a greater potential for extensive swelling than in the same soil in wetter climates where the variations of moisture content are not as severe. Volume changes in highly expansive soils range between 7 and 10 percent, however under abnormal conditions, they can reach as high as 25 percent.

The Fayette County planning area, including participating jurisdictions and ISDs, is primarily (89 percent) comprised of 2 major soil types. These soils present an expansion index (plasticity index) from low to moderate ranges as depicted in Table 14-1.

The areas along the center of the unincorporated areas of the Fayette County planning area are more vulnerable to an expansive soils event than on the outside eastern or western sides. Here, more than 50 percent of underlying soils have abundant clays with high swelling potential, therefore fall under the 'Medium' extent. This contrasts to less than 50 percent in the alternate areas, rated at the 'Low' extent. Most Unified Building Codes (UBC) mandate that special foundation design consideration be employed if the Expansion Index is 20 or greater.

HISTORICAL OCCURRENCES

Expansive soil is a condition that is native to Texas soil characteristics and cannot be documented as a time-specific event, except when it leads to structural and infrastructure damage. Extreme conditions can damage roads, structures, and infrastructure, including projects still under construction. Damages from expansive soils are typically associated with droughts, previous occurrences for expansive soils can be correlated with previous occurrences of drought, which are typically negligible.

[3] Panjaitan, Surta Ria Nurliana. "The Effects of Lime Content on the Bearing Capacity and Swelling Potential of Expansive Soil". Journal of Civil Engineering Research. 2014.

SECTION 14: EXPANSIVE SOILS

The Fayette County planning area has no known recorded events. However, due to the clay composition of the soils within this region, structural foundation issues are known to occur throughout the region. Seasonal changes in soil moisture can lead structural issues as a result of expansive soils. During the annual rainfall period (May and October) the ground may expand, leading to cracks or widening of cracks in foundations and streets. Drought conditions can cause the clay soil underground to contract and shift, leading to broken infrastructure such as water pipes.

PROBABILITY OF FUTURE EVENTS

The Texas Department of Licensing and Regulation requires structures built after 2005 to include soil tests to be conducted for the likelihood of soil expansion, compression or shifting. In such cases, top or subsoils are required to be removed and remaining soils stabilized. Builders must ensure that water drains away from the structure on all sides and building owners notified of the potential for damage if changes in drainage flow occur. These measures significantly reduce the probability of expansive soil impacts on newer and future development.

It is considered “Likely” that the high-risk areas in the Fayette County planning area will experience some expansive soil impacts such as problems with foundations, roadways, sidewalks and other structures and infrastructure in the future, especially during seasonal changes. Older structures will be impacted with greater frequency due to the soil testing and stabilization requirements for newer structures. See additional information on climate change at the end of this section.

VULNERABILITY AND IMPACT

The effects of expansive soils are most prevalent when periods of moderate to high precipitation are followed by drought and then again by periods of rainfall. Other cases of damage result from increases in moisture volume from such sources as broken or leaking water and sewer lines. Dry clays are capable of absorbing water and will increase in volume in an amount proportional to the amount of water absorbed. Soils capable of changes in volume present a hazard to structures built over them and to the pipelines buried in them. Houses and one-story commercial buildings are more apt to be damaged by the expansion of swelling clays than are multi-story buildings, which are usually heavy enough to counter swelling pressures. However, if constructed on wet clay, multi-story buildings may also be damaged by clay shrinkage when moisture levels are substantially reduced.

Cracked foundations and floors, jammed windows and doors, and ruptured pipelines are typical types of damage resulting from swelling soils. Damage to the upper floors of larger buildings can occur when motion in the structure is significant. While all infrastructure within the planning area is minimally vulnerable, slab on grade structures are more likely to suffer damages from expansive soils. In addition, older structures built to less stringent building codes may also be more susceptible to damage than new construction.

SECTION 14: EXPANSIVE SOILS

While the number of slabs on grade structures is not available, the U.S. Census data indicates approximately 8,040 of the housing units (60.9 percent of all housing units) in the planning area were built before 1980 and may be more susceptible to damages.

Table 14-2. Residential Structures at Greatest Risk

JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980
Fayette County	8,040
City of Carmine	113
City of Ellinger	60
City of Fayetteville	173
City of Flatonia	414
City of La Grange	1,690
City of Round Top	57
City of Schulenburg	840
Fayetteville ISD	4
Flatonia ISD	2
La Grange ISD	6
Round Top – Carmine ISD	5
Schulenburg ISD	8

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by expansive soils. The following critical facilities would be vulnerable to expansive soils in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

Table 14-3. Critical Facilities Vulnerable to Expansive Soils

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	• Uneven settling and shifting cause cracks in building foundations impacting the integrity of critical facility structures and lead to doors being unable to open or close properly. • Damages and cracks in streets and highway infrastructure may lead to emergency vehicles being unable to access areas increasing the need for emergency operations. • Ruptured water pipes can lead to loss of function or water pressure impacting drinking water availability and firefighting capabilities.

CRITICAL FACILITIES	POTENTIAL IMPACTS
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Uneven settling and shifting cause cracks in building foundations impacting the integrity of critical facility structures and lead to doors being unable to open or close properly. • Damages and cracks in streets and highway infrastructure may lead to emergency vehicles being unable to access areas increasing the need for emergency operations.
Commercial Supplier (food, gas/fuel, etc.)	• Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Wastewater and drinking water facilities and infrastructure may be damaged or destroyed resulting in services disruption or outage for multiple days or weeks. • Disruptions and outrages impact public welfare as safe drinking water is critical. • A break in essential and effective wastewater collection and treatment is a health concern, potentially spreading disease. • Exposure to untreated wastewater is harmful to people and the environment.

ASSESSMENT OF IMPACTS

Expansive soils are generally influenced by how wet or dry reactive clay types of soils become, so the climate of an area, and more specifically the seasonal precipitation-drought cycle associated with arid or semi-arid regions influences the occurrence and severity of these hazards. Problems associated with expansive soils in the Fayette County planning area, including participating jurisdictions and ISDs, typically occur during extended periods of drought.

Expansive soils present a hazard to lightweight buildings and other infrastructure. Uneven settling and shifting in such structures may occur, causing cracks in foundations, walls, streets, driveways, and sidewalks; ruptured pipes; and windows and doors that do not open and close properly. Special provisions are necessary in the construction of footings and slabs resting on expansive soils to minimize damages due to the expansiveness. Homeowners and public agencies that assume they cannot afford preventative measures such as more costly foundations and floor systems, often incur the largest percentage of damage and costly repairs from expanding soil. No figures are available for the total damage to homes in the Fayette County planning area from expansive clays. The greatest damage occurs when structures are constructed when clays are dry (such as during a drought) and then subsequent soaking rains swell the clay.

Infrastructure such as pipelines can be damaged, causing increased maintenance and repairs, replacement, or damage to the point of failure. Sewer and water lines are can also affected by shrinking and swelling soils. The movement of the soil can snap water and sewer and water lines, producing a minimum of temporary discomfort, and a maximum of a serious health and welfare

risk. Field monitoring and testing should be conducted on a regular basis, especially during extended drought periods, to avoid loss of function or water pressure, which could impact drinking water and firefighting capabilities. In addition, highways (I-10, U.S. Hwy 77, 90, 290, and State Hwy 71, 95, 159, 237) can be affected by expansive soils and could hinder evacuations if deemed not usable during disasters.

Unlike many other environmental hazards, the effects of expansive soil are deceptive in that they are not revealed suddenly or caused by a single event, but rather become increasingly evident and destructive over time. As such, the vast majority of expansive soil impacts are relatively benign in terms of emergency management and emergency response.

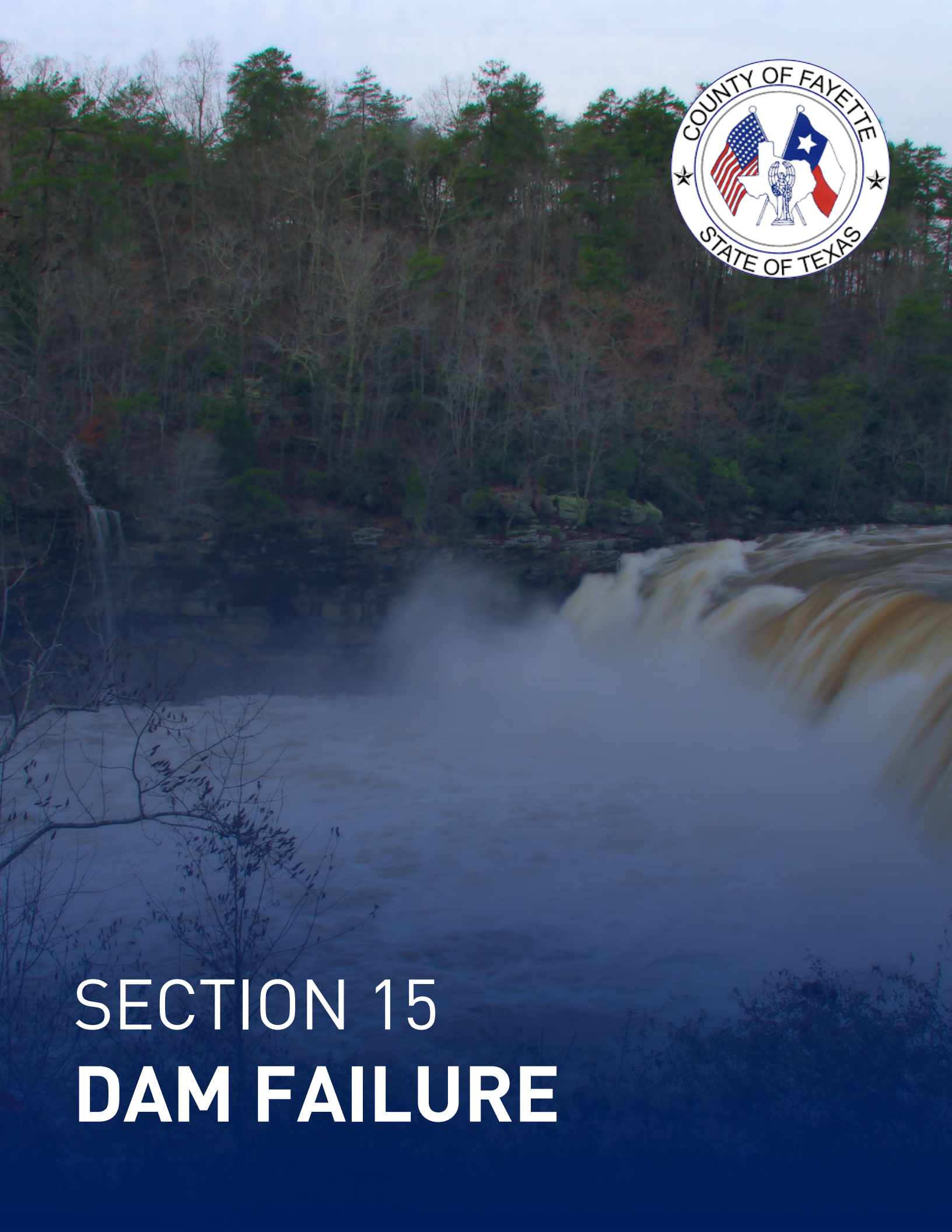
Expansive soil can directly impact infrastructure and as a result indirectly create impacts on residents. The following are a summary of impacts frequently associated with expansive soils:

- Expansive soils are influenced by the seasonal precipitation-drought cycle.
- Impacts to lightweight buildings and other infrastructure are most likely to occur. Impacts include: uneven settling and shifting in structures, cracks in foundations, walls, streets, driveways, and sidewalks; ruptured pipes; and windows and doors that do not open and close properly.
- 60.9 percent of homes in the Fayette County planning area were built before 1980 leading them to more susceptible to damages from expansive soils. 23 buildings and sites in the County are on the National Register of Historic Places, many of which pre-date modern building codes.
- Highways (I-10, U.S. Hwy 77, 90, 290, and State Hwy 71, 95, 159, 237) and roadways can be affected by expansive soils.
- Economic impacts are limited to uninsured damages.
- Impacts on people are indirect, with impacts related to disruption in city services such as water and sewer.
- As population grows and development increases in the County the potential risk to expansive soils will also increase.
- Limited impact anticipated to the natural environment other than changes in soil characteristics.

The impact of expansive soils experienced in the Fayette County planning area, including participating jurisdictions and ISDs, has resulted in no injuries and fatalities, supporting a “limited” severity of impact meaning injuries and/or illnesses are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10 percent of property is destroyed or with major damage.

CLIMATE CHANGE CONSIDERATIONS

Expansive soils are directly connected to drought and flood conditions as they literally swell and shrink with changing moisture conditions. Impacts of climate change on drought and flood events indicate similar changes to expansive soil frequency and impacts. Refer to Probability of Future Events section in Section 5 (Flood) and Section 6 (Drought) for more information on those hazards.



SECTION 15
DAM FAILURE

SECTION 15: DAM FAILURE

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HAZARD DESCRIPTION

DAMS

Dams are water storage, control, or diversion structures that impound water upstream in reservoirs. Dam failure can take several forms, including a collapse of or breach in the structure. While most dams have storage volumes small enough that failures have few or no repercussions, dams storing large amounts can cause significant flooding downstream. Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which cause most failures;
- Inadequate spillway capacity, resulting in excess overtopping of the embankment;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, or maintain gates, valves, and other operational components;
- Improper design or use of improper construction materials;
- Failure of upstream dams in the same drainage basin;
- High winds, which can cause significant wave action and result in substantial erosion;
- Destructive acts of terrorism; and,
- Earthquakes, which typically cause longitudinal cracks at the tops of the embankments, leading to structural failure.

Benefits provided by dams include water supplies for drinking; irrigation and industrial uses; flood control; hydroelectric power; recreation; and navigation. Dams in Texas serve many purposes, some of which include recreation, flood mitigation, irrigation, water supply, and fire protection. About 1 in 3 of the state's dams are for flood risk mitigation and 1 in 7 dams are for irrigation or water supply.[1]

While dams serve a role in helping communities' function, dams also represent a risk to public safety. Dams require ongoing maintenance, monitoring, safety inspections, and sometimes even rehabilitation to continue safe service.

[1] American Society of Civil Engineers. "2021 Report Card for America's Infrastructure: Infrastructure Texas Report Card." 2021. https://infrastructurereportcard.org/state-item/texas/

SECTION 15: DAM FAILURE

In the event of a dam failure, the energy of the water stored behind the dam is capable of causing 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 terrorist attacks of September 11, 2001 generated increased focus on protecting the country's infrastructure, including ensuring the safety of dams.

One major issue with the safety of dams is their age. The average age of America's more than 90,000 dams is 57 years.[2] According to estimates released in 2022 by the Association of State Dam Safety Officials, the total cost of rehabilitating non-federal dams is $75.69 billion. Of non-federal dams, the high-hazard potential dams are estimated at a total of $24.04 billion for rehabilitation.[3] In addition to the continual aging of dams, there have not been significant increases in the number of safety inspectors resulting in haphazard maintenance and inspection. Within Texas there are over 3,200 dams exempt from dam safety requirements by State legislation.[4]

The current maintenance budget does not match the scale of the United States' long-term modifications of its watersheds. Worse still, more people are moving into risky areas. As the population grows, dams that once could have failed without major repercussions are now upstream of cities and development. Dams once classified as low hazard have the potential to be reclassified as high hazard potential dams as development and populations increase downstream.

[2] American Society of Civil Engineers. "2021 Report Card for America's Infrastructure." 2021. https://infrastructurereportcard.org/

[3] Association of State Dam Safety Officials, "The Cost of Rehabilitating Our Nation's Dams". March 2022. https://damsafety-stag.s3.amazonaws.com/s3fs-public/files/Cost%20of%20Rehab%20Report-2022%20FINAL_0.pdf

[4] American Society of Civil Engineers. "2021 Report Card for America's Infrastructure: Infrastructure Texas Report Card." 2021. https://infrastructurereportcard.org/state-item/texas/

LOCATION

The State of Texas has 7,413 dams, all regulated by the Texas Commission on Environmental Quality (TCEQ). The National Dam Safety Review Board (in coordination with FEMA) and the National Inventory of Dams (NID) lists a total of fifty-two dams in or near the Fayette County planning area (Appendix D). Each of these dams were analyzed individually by location, volume, elevation, and condition (where available) when determining the risk, if any, for each dam. Each dam site was further analyzed for potential risks utilizing FEMA's National Flood Hazard Layer (where available) to map locations and fully understand development near the dam.

Most of the dams listed were embankments for typically dry detention drainage areas, irrigation reservoirs, or shored up stream embankments. These types of structures are utilized for flood control and irrigation and do not pose a dam failure risk. Other dams in the planning area feature such limited storage capacity that they pose no risk to structures, infrastructure, or citizens. Dams that were deemed to pose no past, current, or future risk to the planning area are not profiled in the plan as no loss of life or impact to critical facilities or infrastructure is expected in the event of a breach. Based on this detailed analysis, the planning team was able to determine that only three of the fifty-two dams pose a risk to the planning area (Table 15-1). Figure 15-1 illustrates general locations for each dam posing a potential risk to the planning area.

Figure 15-1. Dams with Potential Risk to Fayette County

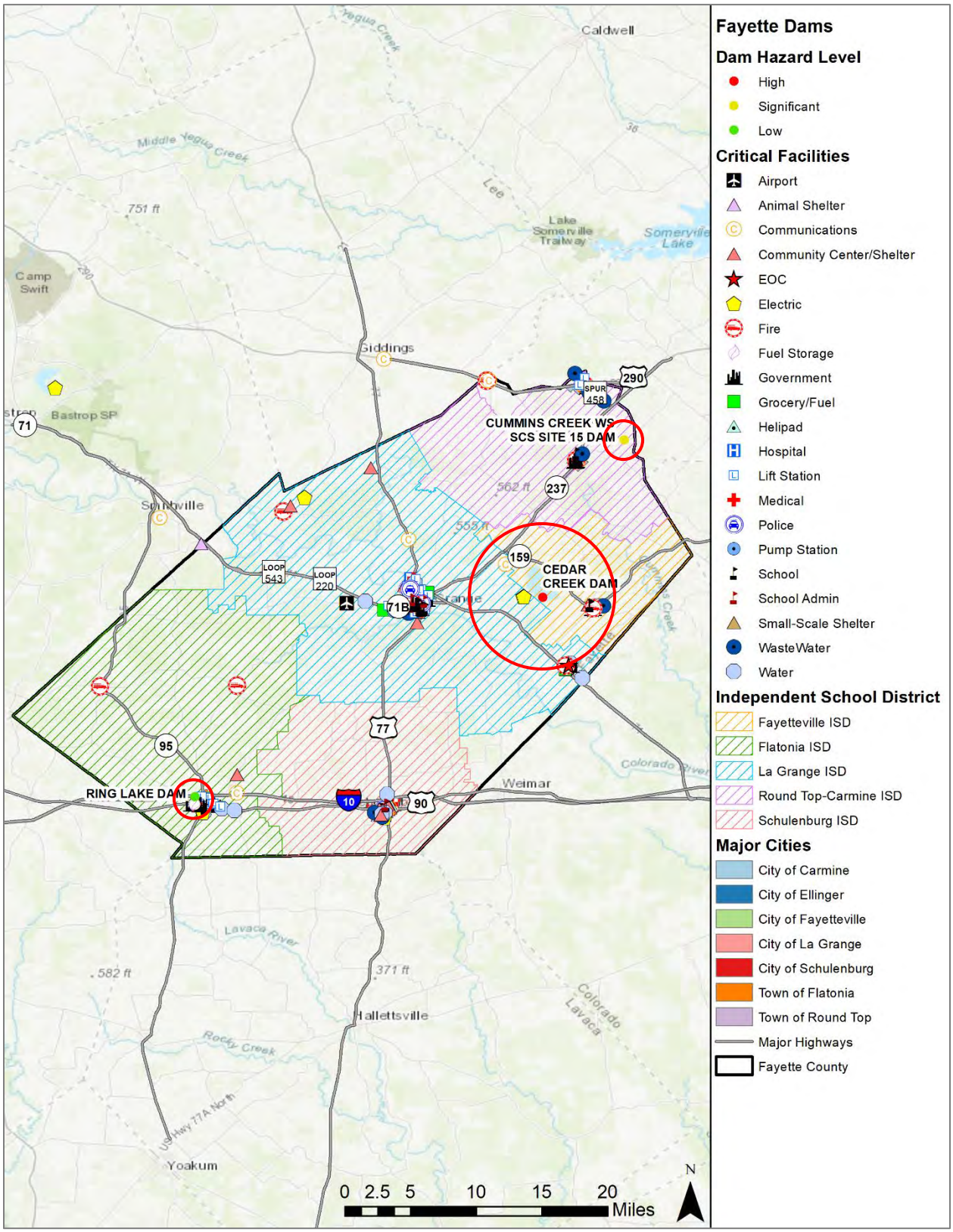


Table 15-1. Fayette County Dam Survey[5]

LOCATION	DAM NAME	HEIGHT (Ft.)	MAX STORAGE (Acre Ft.)	CONDITION	HAZARD CLASSIFICATION
Fayette County	Ring Lake Dam	18	216	Not Rated	Low
Fayette County	Cummins Creek WS SCS Site 15 Dam	31.5	1,849	Not Rated	Significant
Fayette County	Cedar Creek Dam	124	102,000	Satisfactory	High

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. For dams with a maximum storage capacity of 100,000 acre-feet or more, all census blocks within five miles are considered to be at risk to 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 considered to be at risk to 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 to potential dam failure hazards.

Ring Lake Dam

Ring Lake Dam is located in Fayette County and is privately owned. The earthen dam was constructed in 1966 for the purposes of a water supply. The area located near the dam is semi-rural with residential communities within 0.2 miles of the dam, and Interstate 10 located directly to the north. Extensive damages are not anticipated in the event of a breach due to the very limited storage of the dam. Maximum storage capacity is 216 acre-feet. In the event of a breach during extreme conditions, a dam failure could cause limited infrastructure damages, minor power outages and could disrupt utility systems. In the event of a breach, it is estimated that the average breach width would be 75.0 feet with a maximum breach flow of 5,801 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth of up to 3-5 feet, with the highest depth in the immediate area of the dam.

Cummins Creek WS SCS Site 15 Dam

The Cummins Creek WS SCS Site 15 Dam is located in Fayette County on Jacks Creek. The dam was constructed in 1959 and is owned by the Fayette County Water Control District for the primary purpose of flood risk reduction. In the event of a breach during extreme conditions, a dam failure could cause limited infrastructure damage, minor power outages and could disrupt utility systems. The area within a 1-mile radius of the dam is rural with limited development. The most significant facility in the immediate area of the dam is the Winedale Historical Complex. In addition, there are several access roads, and approximately 5-10 residential farms that could be impacted. In the event of a breach, it is estimated that the average breach width would be 147.6 feet with a maximum breach flow of 16,310 cubic feet per second according to the National Weather Service

[5] National Inventory of Dams

(NWS) Dam Break Equation. A dam breach could result in an estimated depth of up to 10 feet, with the highest depth in the immediate area of the dam.

Cedar Creek Dam:
Cedar Creek Reservoir also known as Lake Fayette or Fayette County Reservoir is located in Fayette County on Cedar Creek, which is a tributary of the Colorado River. The earthen dam is owned and operated by the Lower Colorado River Authority for the purposes of power generation to Fayette County and the surrounding area as well as recreational purposes. It was constructed in 1977. Maximum storage capacity is 102,000 acre-feet. In the event of a breach during extreme conditions, a dam failure could cause limited infrastructure damage, minor power outages and could disrupt utility systems. The area within a 5-mile radius of the dam is rural with limited development. The most significant facility in the immediate area of the dam is a power plant. In addition, there are several access roads, highway 71 and 159, and approximately 20-25 residential structures that could be impacted. In the event of a breach, it is estimated that the average breach width would be 566.5 feet with a maximum breach flow of 1,452,295 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth of up to 25 feet, with the highest depth in the immediate area of the dam.

Table15-3 represents the extent or magnitude of a dam failure event that could be expected for the Fayette County planning area, per profiled dam.

Table 15-3. Extent Summaries Per Profiled Dam

JURISDICTION	PROFILED DAM	EXTENT (Flow Depth)	LEVEL OF INTENSITY TO MITIGATE
Fayette County	Ring Lake Dam	0-5 Feet	Dam failure presents a low threat for the county due to the dam's limited capacity. Loss of life is not expected. While some residential structures could be impacted, the greatest threat in the event of a breach would be localized flooding and impacts to local farmland. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal.
Fayette County	Cummins Creek WS SCS Site 15 Dam	0-10 Feet	Dam failure presents a low threat for the county due to the dam's limited capacity. Loss of life is not expected. While some residential structures could be impacted, the greatest threat in the event of a breach would be localized flooding and impacts to local farmland. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal.
Fayette County	Cedar Creek Dam	0-25 Feet	Dam failure presents a low to moderate threat for the county and the LCRA due to the dam's capacity and condition. Loss of life is possible though unlikely. While some residential structures could be impacted, the greatest threat in the event of a breach would be localized

JURISDICTION	PROFILED DAM	EXTENT (Flow Depth)	LEVEL OF INTENSITY TO MITIGATE
			flooding. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal.

HISTORICAL OCCURRENCES

The State of Texas has not experienced loss of life or extensive economic damage due to a dam failure since the first half of the twentieth century. However, there may be many incidents that are not reported and, therefore, the actual number of incidents is likely to be greater. There has not been a recorded dam failure event for any of the participating jurisdictions in the Fayette County planning area, including all participating jurisdictions, and ISDs.

PROBABILITY OF FUTURE EVENTS

Due to the lack of historical occurrences, the probability of a future event is unlikely for the Fayette County planning area, including participating jurisdictions and ISDs, meaning an event is possible in the next ten years.

VULNERABILITY AND IMPACT

There are fifty-two dams in the Fayette County planning area that were evaluated in-depth to determine the risk, if any, associated with each dam. This analysis indicated three of the dams identified present a risk to structures or infrastructure in the planning area. These dams will be revaluated in the next planning process to confirm if risk has changed. As development increases in the planning area there is the potential for dam classifications to change along with populations near these dams.

Flooding is the most prominent effect of dam failure. If the 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 that can damage local ecosystems. If the event is severe, debris carried downstream can block traffic flow, cause power outages, and disrupt local utilities, such as water and wastewater, which could result in school closures. For specific vulnerabilities, please refer to the narrative for each dam under the Extent section of this profile.

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by dam failure events. The following critical facilities would be vulnerable to dam failure events in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

Table 15-4. Critical Facilities Vulnerable to Dam Failure Events

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications. • Structures, and emergency vehicles, including critical equipment, can be damaged by rising flood waters and floating debris. • Power outages could disrupt communications, delaying emergency response times. Power outages could disrupt critical care. • Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities. • Debris can impede emergency response vehicle access to areas. • Washed out roads and bridges can impede emergency response vehicle access to areas. • Flood-related rescues may be necessary at swift and low water crossing or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way. • Evacuations may be required for entire neighborhoods because of rise of floodwaters, or at hospitals due to extended power outages, gas line ruptures, or structural damages to facilities, further taxing limited response capabilities and increasing sheltering needs for displaced residents. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions. • Extended power outages may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Structures can be damaged by rising flood waters. • Power outages could disrupt critical care. • Backup power sources could be damaged, inundated or otherwise inoperable. • Critical staff may be impacted and unable to report for duty, limiting response capabilities. • Evacuations may be necessary due to extended power outages, gas line ruptures, or inundation of facilities. • Additional emergency responders and critical aid workers may not be able to reach the area for days. • Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations. • Temporary break in operations may significantly inhibit post event evacuations. • Damaged or destroyed highway infrastructure may substantially increase the need for airport operations. • Economic disruption due to power outages and fires negatively impact airport services as well as area businesses reliant on airport operations.

CRITICAL FACILITIES	POTENTIAL IMPACTS
Commercial Supplier (food, gas/fuel, etc.)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations and critical services may be significantly impacted due to damaged facilities and/or loss of communications. • Emergency service vehicles can be damaged by rising flood waters. • Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing emergency service workers in harm's way. • Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel. • Service responders are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions. • Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.

Annualized loss-estimates for dam failure are not available; neither is there a breakdown of potential dollar losses for critical facilities, infrastructure and lifelines, or hazardous-materials facilities. If a major dam should fail, the severity of impact could be substantial. Historically, the overall severity of impact from a dam would be considered "Limited," meaning it could result in injuries that can be treated with first-aid, critical facilities being shut down for 24-hours or less and less than 10 percent of the property in the estimated breach inundation area destroyed or with major damage.

ASSESSMENT OF IMPACTS

Any individual dam has a very specific area that will be impacted by a catastrophic failure. Dams identified as high or significant hazard can directly threaten the lives of individuals living or working in the inundation zone below the dam. The impact from any catastrophic failure would be similar to that of a flash flood. Dam failure threats can be associated with a variety of impacts, including:

- Cedar Creek Dam is classified as high hazard potential dam and may result in lives lost in the event of a failure.
- Future development downstream of dams has the potential to increase dam classification to significant or high hazard potential.
- Injuries from debris carried by the floodwaters are possible.
- Swift-water rescue of individuals trapped by the water puts the immediate responders at risk for their own lives.
- Individuals involved in the cleanup may be at risk from the debris left behind.
- Continuity of operations for any jurisdiction outside the direct impact area could be very limited.
- Roads and bridges downstream of a dam failure could be destroyed.
- Homes and businesses downstream of a dam could be damaged or destroyed.
- Emergency services may be temporarily unavailable.

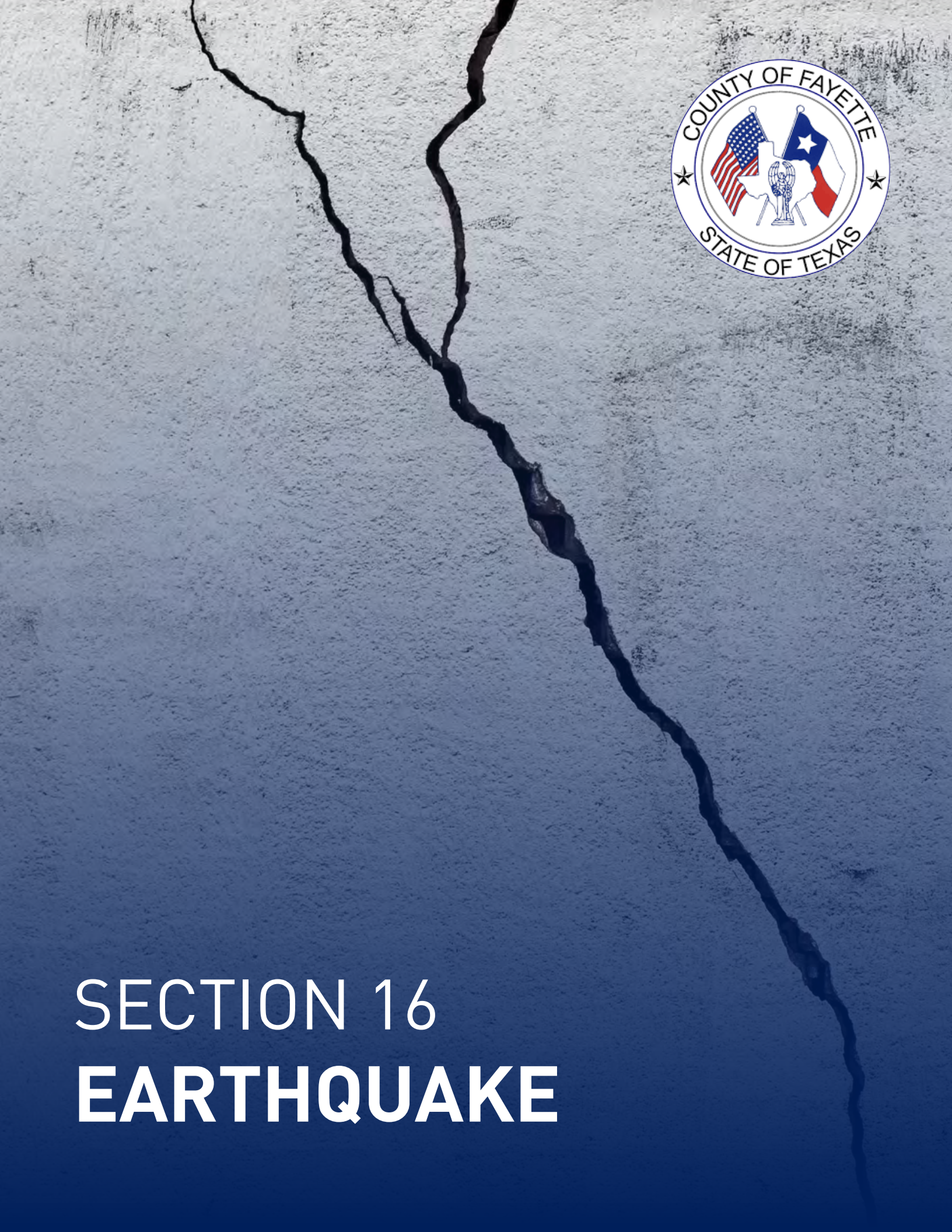
- Disruption of operations and the delivery of services in the impacted area.
- A large dam with a high head of water could effectively scour the terrain below it for miles, taking out all buildings and other infrastructure.
- Scouring force could erode soil and any buried pipelines.
- Scouring action of a large dam will destroy all vegetation in its path.
- Wildlife and wildlife habitats caught in the flow will likely be destroyed.
- Fish habitat will likely be destroyed.
- Topsoil will erode, slowing the return of natural vegetation.
- The destructive high velocity water flow may include substantial debris and hazardous materials, significantly increasing the risks to life and property in its path.
- Debris and hazardous material deposited downstream may cause further pollution of areas far greater than the inundation zone.
- Destroyed businesses and homes may not be rebuilt, reducing the tax base and impacting long term economic recovery.
- Historical or cultural resources may be damaged or destroyed. There are 23 buildings and sites in the County are listed on the National Register of Historic Places.
- Recreational activities and tourism may be temporarily unavailable or unappealing, slowing economic recovery.

The economic and financial impacts of dam failure on the area will depend entirely on the location of the dam, scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any dam failure event.

CLIMATE CHANGE CONSIDERATIONS

A direct connection between climate change and dam failure events is unclear. As air temperatures increase, so does the amount of moisture the atmosphere can hold leading to more frequent and intense rain and flooding. The increased potential volume of rainfall will likely lead to an increase in pressure placed on dam systems during future flood events. Additionally, the aging dams increase the possibility of dam failure and the risk of catastrophic flooding inside estimated dam inundation zones.

Safety features, known as spillways, are put in place on dams as a safety measure in the event of the reservoir filling too quickly. Spillway overflow events can result in increased discharges downstream and increased flooding potential. Climate change is likely to increase the probability of spillway overflows.



SECTION 16
EARTHQUAKE

SECTION 16: EARTHQUAKE

Hazard Description 1
Location 2
Extent 4
Historical Occurrences 7
Probability of Future Events 7
Vulnerability and Impact 7
Climate Change Considerations 9

HAZARD DESCRIPTION

An earthquake is the sudden movement of the Earth's surface cause by the release of stress accumulated within or along the edge of the Earth's tectonic plates, volcanic eruption, or by a manmade explosion. The majority of earthquakes occur along faults; however earthquakes can occur within plate interiors. Over geologic time, plates move and plate boundaries change, pushing weaken boundary regions to the interior part of the plates. These areas of weakness within the continents can cause earthquakes in response to stresses that originate at the edges of the plate or in the deeper crust.

Earthquake locations are described by the focal depth and geographic position of the epicenter. The focal depth of an earthquake is the depth from the Earth's surface to the region where an earthquake's energy originates (the focus or hypocenter). The epicenter is the point on the Earth's surface directly above the hypocenter. Earthquakes usually occur without warning, with their effects impacting great distances away from the epicenter.

According to the U.S. Geological Society (USGS) Earthquake Hazards Program, an earthquake hazard is anything associated with an earthquake that may influence an individual's normal activities. Table 16-1 describes definition of examples.

Table 16-1. Definitions of Earthquake Hazards[1]

HAZARD	DESCRIPTION
Surface Faulting	Displacement that reaches the earth's surface during slip along a fault. Commonly occurs with shallow earthquakes, those with an epicenter less than 20 kilometers.
Ground Motion (shaking)	The movement of the earth's surface from earthquakes or explosions. Ground motion or shaking is produced by waves that are generated by sudden slip on a fault or sudden pressure at the explosive source and travel through the earth and along its surface.
Landslide	A movement of surface material down a slope.

[1] Source: USGS, 2012

HAZARD	DESCRIPTION
Liquefaction	A process by which water-saturated sediment temporarily loses strength and acts as a fluid, like when you wiggle your toes in the wet sand near the water at the beach. This effect can be caused by earthquake shaking.
Tectonic Deformation	A change in the original shape of a material due to stress and strain.
Tsunami	A sea wave of local or distant origin that results from large-scale seafloor displacements associated with large earthquakes, major submarine slides, or exploding volcanic islands.
Seiche	The sloshing of a closed body of water from earthquake shaking

LOCATION

Earthquake hazard areas are mapped by the US Geological Survey from lowest hazard to highest hazard areas. Figure 16-1 shows major earthquake hazard areas. An Earthquake Hazard Map, also known as a Percent Peak Ground Accelerations (%PGA) Map. The map shows the %PGA values with a 2% chance of being exceeded over 50 years. %PGA is an earthquake measurement that displays three things: the geographic area affected (all colored areas on the map), the probability of an earthquake of each given level of severity (2% chance in 50 years), and the strength of ground movement (severity) shown as percent of the acceleration force of gravity (%g) (the PGA is indicated by color). The Fayette County planning area, including participating jurisdictions and ISDs, is identified in Figure 16-1, is located in a low hazard area of 0-4%g peak ground acceleration.

Figure 16-1. U.S. Map of Peak Ground Acceleration

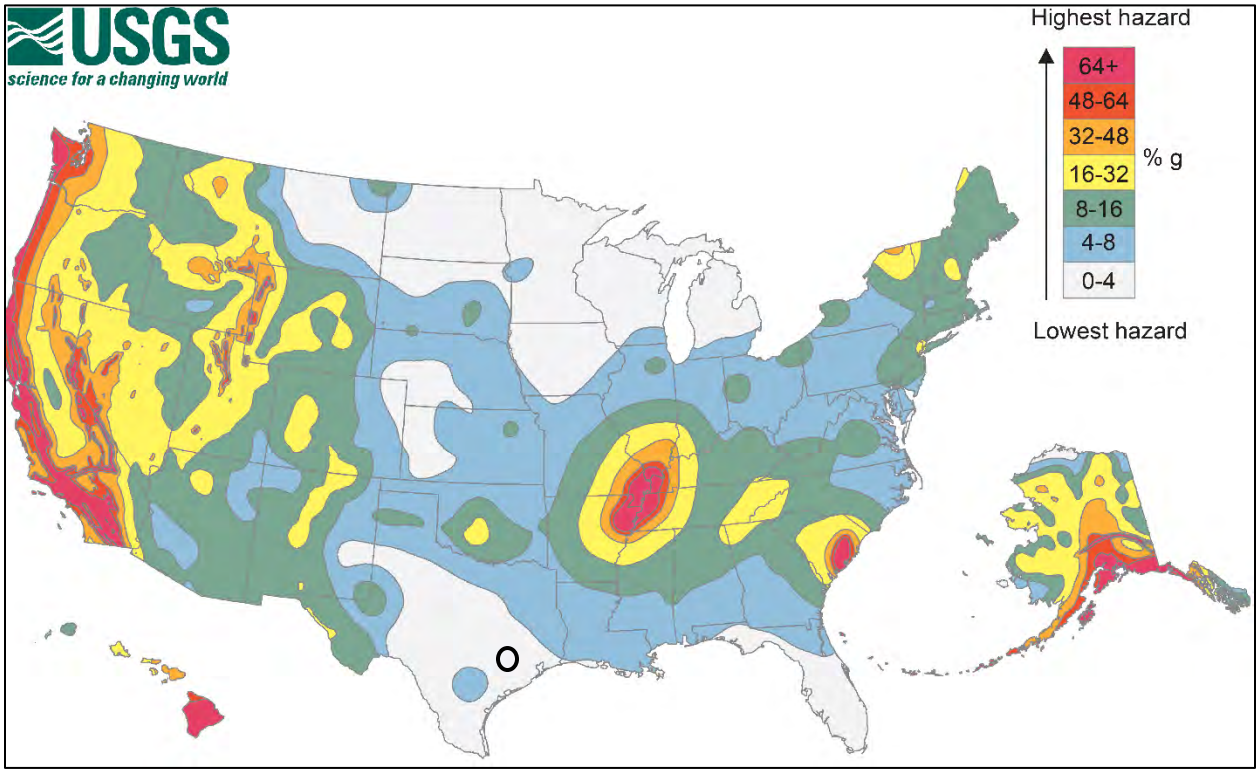
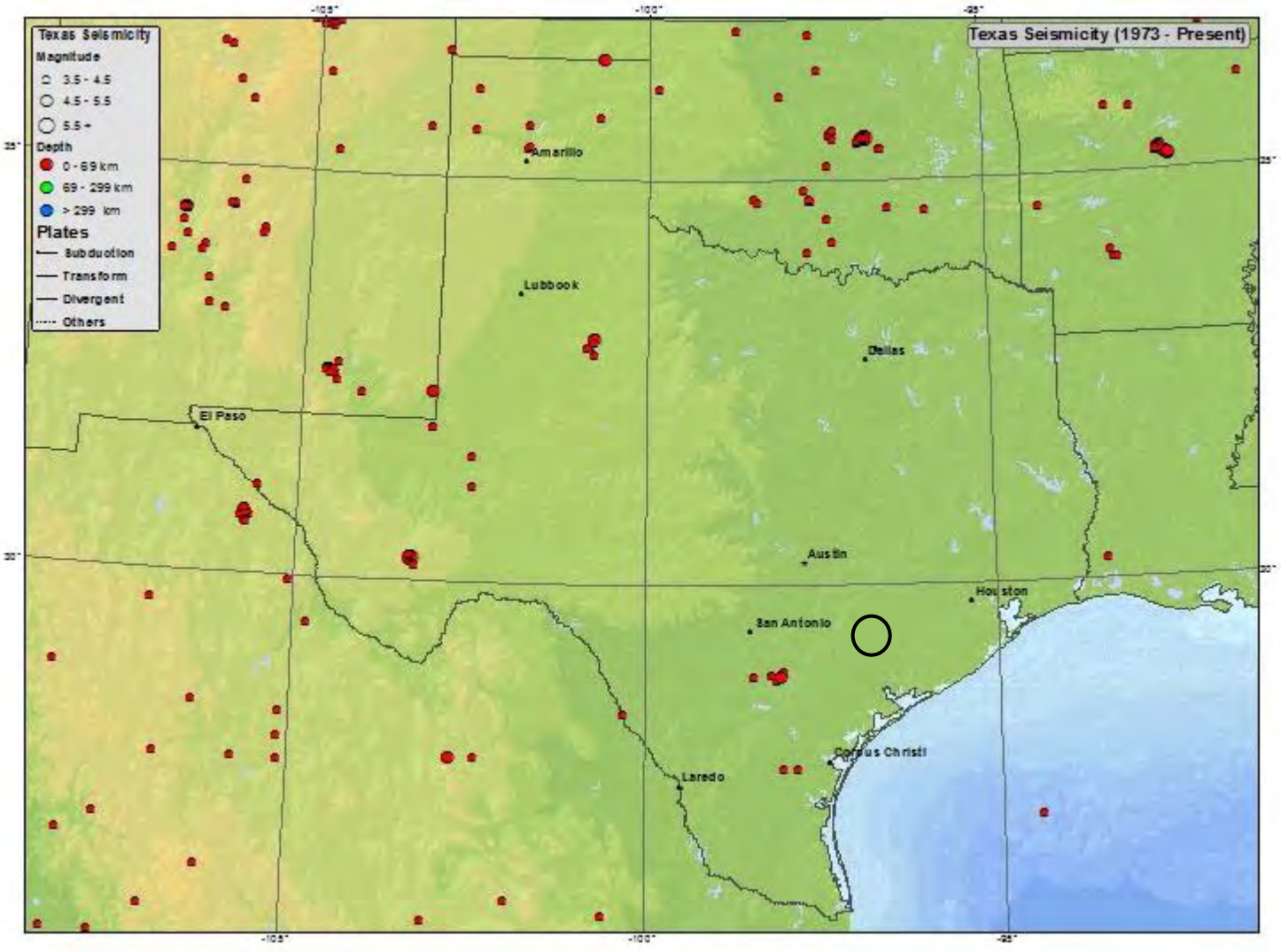


Figure 16-2 maps historic earthquake epicenters across Texas between 1973 and 2012.

Figure 16-2. Historic Earthquake Epicenters in Texas, 1973-2012



EXTENT

The magnitude, or intensity of an earthquake, is a recorded value of the amplitude of seismic waves. The Richter scale is the most commonly used scale that measures the magnitude of earthquakes. It has no upper limit and is not used to describe damage (Table 16-2).

Table 16-2. Richter Scale

RICHTER MAGNITUDES	EARTHQUAKE EFFECTS
2.5 or LESS	Usually not felt, but can be recorded by seismograph
2.5-5.4	Often felt, but only causes minor damage
5.5-6.0	Slight damage to buildings and other structures
6.1 TO 6.9	May cause a lot of damage in very populated areas

RICHTER MAGNITUDES	EARTHQUAKE EFFECTS
7.0 TO 7.9	Major earthquake; serious damage
8 OR GREATER	Great earthquake; can totally destroy communities near the epicenter

The intensity of an earthquake is expressed by the Modified Mercalli Scale, based on the effects of ground shaking on people, buildings, and natural features, and is location dependent. The Modified Mercalli Scale gives the intensity of the earthquake in values ranging from I to XII. Table 16-3 summarizes earthquake intensity as described by the Modified Mercalli Scale and provides a comparison between the Richter and Modified Mercalli Intensity Scales.

Table 16-3. Modified Mercalli Intensity (MMI) Scale

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER MAGNITUDE
I	INSTRUMENTAL	Not Felt except by a very few under especially favorable conditions	
II	FEEBLE	Felt only by a few persons at rest, especially on upper floors of buildings	< 4.2
III	SLIGHT	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration Estimated	
IV	MODERATE	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors, disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	
V	SLIGHTLY STRONG	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.	< 4.8
VI	STRONG	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.	< 5.4

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER MAGNITUDE
VII	VERY STRONG	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken	< 6.1
VIII	DESTRUCTIVE	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned	
IX	RUINOUS	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.	< 6.9
X	DISASTROUS	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.	< 7.3
XI	VERY DISASTROUS	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.	< 8.1
XII	CATASTROPHIC	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.	> 8.1

Table 16-4 lists the Modified Mercalli Intensity (MMI) with the corresponding Acceleration (%g) (PGA), as well as the perceived shaking and potential damage expected.

Table 16-4. Modified Mercalli Intensity (MMI) and PGA Equivalents

MMI	ACCELERATION (%g) (PGA)	PERCEIVED SHAKING	POTENTIAL DAMAGE
I	<.17	Not Felt	None
II	.17-1.4	Weak	None
III	.17-1.4	Weak	None

MMI	ACCELERATION (%g) (PGA)	PERCEIVED SHAKING	POTENTIAL DAMAGE
IV	1.4-3.9	Light	None
V	3.9-9.2	Moderate	Very Light
VI	9.2-18	Strong	Light
VII	18-34	Very Strong	Moderate

Taking into consideration the possible extent of an earthquake for the area, by reviewing Tables 16-2 through 16-4 in conjunction with previous occurrences as depicted in Figure 16-2, Fayette County planning area, including all participating jurisdictions and ISDs, experience on average less than 2.5 Richter Scale or Level IV or instrumental impact based on the Modified Mercalli intensity scale. This is the greatest extent the entire planning area can anticipate in the future.

HISTORICAL OCCURRENCES

According to USGS, and the National Geophysical Data Center (NGDC), there are no “significant” earthquakes on record for the state of Texas and the entire Fayette County planning area from 2150 B.C. to present. A significant earthquake, as defined by NGDC, is one that has caused at least moderate damage (approximately $1 million or more), has resulted in 10 or more deaths, has registered as a magnitude 7.5 or greater, has registered as Modified Mercalli Intensity (MMI) Scale X or greater, or generated a tsunami. None of these criteria have been met by any seismic activity known to have impacted the planning area, including participating jurisdictions and ISDs.

PROBABILITY OF FUTURE EVENTS

Earthquake Hazard Maps show the distribution of earthquake shaking levels that have a certain probability of occurring over a given period. According to the USGS, the entire Fayette County planning area has a PGA of 0-4%g for earthquakes with a 4-percent probability of occurring within 50 years. Based on historical records, the probability of an earthquake affecting the planning area, including participating jurisdictions and ISDs, is unlikely, meaning that an event is probable in the next ten years.

VULNERABILITY AND IMPACT

Little warning is usually associated with earthquakes and can impact areas a great distance away from the epicenter. The amount of damage depends on the density of population and buildings, and infrastructure construction in the affected area. Some places may be more vulnerable than others based on soil type, building age, and building codes in the Fayette County planning area.

The Fayette County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by earthquake events. The following critical facilities would be vulnerable to earthquake events in the Fayette County planning area, including participating jurisdictions and ISDs. For a comprehensive list by participating jurisdiction please see Appendix C.

Table16-5. Critical Facilities Vulnerable to an Earthquake

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Departments (EOC, Fire, Police, EMS), Hospitals	• Emergency operations and services may be significantly impacted due to power outages, damaged facilities, fires and/or loss of communications. Impact can impede emergency response vehicle access to areas. • Power outages could disrupt communications, delaying emergency response times. • Extended power outages may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	• Power outages could disrupt critical care. • Backup power sources could be damaged. • Evacuations may be necessary due to extended power outages or other associated damages to facilities.
Commercial Supplier (food, gas/fuel, etc.)	• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable. • Essential supplies like medicines, water, food, and equipment deliveries may be delayed. • Economic disruption due to power outages negatively impact airport services as well as area businesses reliant on airport operations.
Utility Services and Infrastructure (electric, water, wastewater, communications)	• Emergency operations and critical services may be significantly impacted due to power outages, damaged facilities, and/or loss of communications. Impact can impede emergency service vehicle access to areas. • Power outages could disrupt communications, delaying emergency response times further straining the capacity and resources of emergency service personnel.

With no historical events recorded, annualized loss-estimates for earthquakes are not available; neither is a breakdown of potential dollar losses of critical facilities and infrastructure. The potential severity of impact from an earthquake for the entire Fayette County planning area, including participating jurisdictions and ISDs, is classified as limited, meaning that less than 10 percent of infrastructure would be damaged with critical facilities being shut down for less than 24 hours.

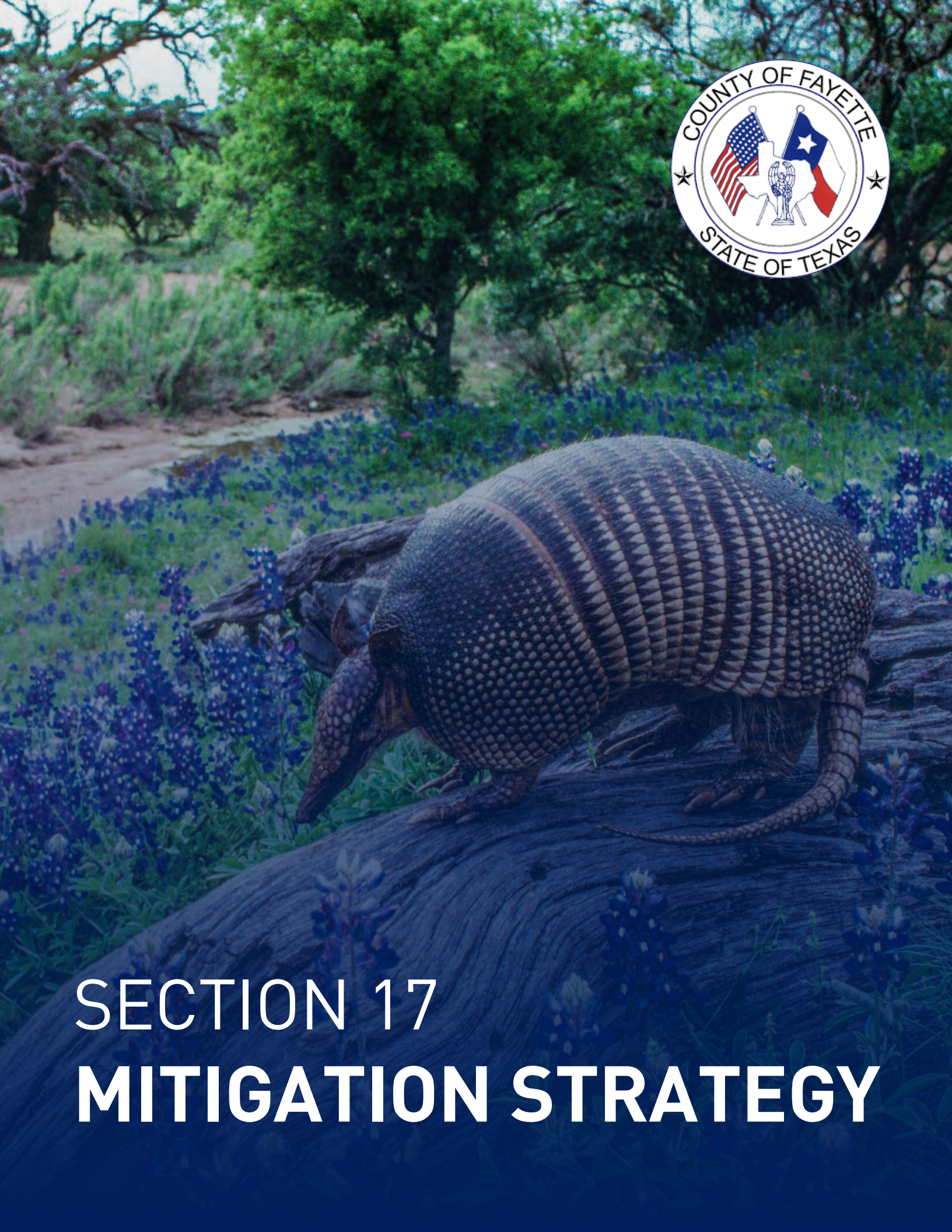
CLIMATE CHANGE CONSIDERATIONS

Damaging earthquakes are rare within the State of Texas, including the Fayette County planning area. Changing conditions of weather patterns and climate change has not been established as having a direct impact on earthquake intensity or frequency.

According to the USGS, statistically there is approximately an equal distribution of earthquakes in all cold weather, hot weather, rainy weather, etc. Very large low-pressure changes associated with major storm systems, like typhoons and hurricanes, are known to trigger episodes of fault slip or slow earthquakes in the Earth's crust and may also play a role in triggering some damaging earthquakes. However, the numbers are small and are not statistically significant.[2]

The Fayette County planning area is located outside of any known earthquake hazard areas and is not located on or near any fault lines. Climate change is assumed to have no impact on the probability or intensity of potential earthquakes in the Fayette County planning area, including all participating jurisdictions and ISDs.

[2] (n.d.). *Natural Hazards*. United Stated Geological Survey. https://www.usgs.gov/faqs/there-earthquake-weather



SECTION 17
MITIGATION STRATEGY

SECTION 17: MITIGATION STRATEGY

Mitigation Goals 1
Goal 1 1
Goal 2 1
Goal 3 2
Goal 4 2
Goal 5 2
Goal 6 2

MITIGATION GOALS

Based on the results of the risk and capability assessments, the Planning Team developed and prioritized the mitigation strategy. This involved utilizing the results of both assessments and reviewing the goals and objectives that were included in the previous 2016 Plan. At the Mitigation Workshop in February 2023, Planning Team members reviewed the mitigation strategy from the previous 2016 Plan. The consensus among all members present was that the strategy developed for the 2016 Plan did not require changes, as it identified overall improvements to be sought in the Plan Update. However, the order and priority of the goals and objectives were reorganized.

GOAL 1

Protect public health and safety.

OBJECTIVE 1.1

Advise the public about health and safety precautions to guard against injury and loss of life from hazards.

OBJECTIVE 1.2

Maximize utilization of the latest technology to provide adequate warning, communication, and mitigation of hazard events.

OBJECTIVE 1.3

Reduce the danger to, and enhance protection of, high risk areas during hazard events.

OBJECTIVE 1.4

Protect critical facilities and services.

GOAL 2

Build and support local capacity and commitment to continuously become less vulnerable to hazards.

OBJECTIVE 2.1

Build and support local partnerships to continuously become less vulnerable to hazards.

OBJECTIVE 2.2

Build a cadre of committed volunteers to safeguard the community before, during, and after a disaster.

OBJECTIVE 2.3
Build hazard mitigation concerns into county, city, and ISD planning and budgeting processes.

GOAL 3
Increase public understanding, support, and demand for hazard mitigation.

OBJECTIVE 3.1
Heighten public awareness regarding the full range of natural and man-made hazards the public may face.

OBJECTIVE 3.2
Educate the public on actions they can take to prevent or reduce the loss of life or property from all hazards and increase individual efforts to respond to potential hazards.

OBJECTIVE 3.3
Publicize and encourage the adoption of appropriate hazard mitigation measures.

GOAL 4
Protect new and existing properties.

OBJECTIVE 4.1
Reduce repetitive losses to the National Flood Insurance Program (NFIP).

OBJECTIVE 4.2
Use the most cost-effective approach to protect existing buildings and public infrastructure from hazards.

OBJECTIVE 4.3
Enact and enforce regulatory measures to ensure that future development will not put people in harm's way or increase threats to existing properties.

GOAL 5
Maximize the resources for investment in hazard mitigation.

OBJECTIVE 5.1
Maximize the use of outside sources of funding.

OBJECTIVE 5.2
Maximize participation of property owners in protecting their properties.

OBJECTIVE 5.3
Maximize insurance coverage to provide financial protection against hazard events.

OBJECTIVE 5.4
Prioritize mitigation projects, based on cost-effectiveness and sites facing the greatest threat to life, health, and property.

GOAL 6
Promote growth in a sustainable manner.

OBJECTIVE 6.1
Incorporate hazard mitigation activities into long-range planning and development activities.

OBJECTIVE 6.2

Promote beneficial uses of hazardous areas while expanding open space and recreational opportunities.

OBJECTIVE 6.3

Utilize regulatory approaches to prevent creation of future hazards to life and property.

SECTION 18
PREVIOUS ACTIONS

SECTION 18: PREVIOUS ACTIONS

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SUMMARY

Planning Team members were given copies of the previous mitigation actions submitted in the 2016 Plan at the mitigation workshop. Participating jurisdictions within Fayette County reviewed the previous actions and provided an analysis as to whether the action had been completed, should be deferred as an ongoing activity, or be deleted from the Plan Update. The actions from the 2016 Plan are included in this section as they were written in 2016, with the exception of the "2023 Analysis" section. The following jurisdictions were not participants within the last plan, therefore there are no past actions for their review: Cities of Ellinger, Fayetteville, Round Top, and Schulenburg, and the following ISDs: Fayetteville, Flatonia, La Grange, Round Top – Carmine, and Schulenburg.

FAYETTE COUNTY

	Fayette County – Action #1
Proposed Action:	Education and awareness of natural hazards
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Goal/Objectives:	Educate homeowners on how to mitigate their homes from all hazards. They will be partnering with the Texas Forest Service, Smoky the Bear campaign and NCRS. Homeowner information will be included in community mailings, the website, and present at community clubs and organizations.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	County Funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		Fayette County - Action #2
	Proposed Action:	Update building codes
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Goals/Objective:	Adopt 2015 IBC and update subdivision regulations.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Wildland Fire, Extreme Heat, High Winds, Flooding, Winter Storms, Hail, Earthquake, Lightning, Dam Failure, Drought, Expansive Soils
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	County Funds
Lead Agency/Department Responsible:	County Inspector
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update. County recommends that builders follow IBC codes and NFPA fire codes.

SECTION 18: PREVIOUS ACTIONS

		Fayette County – Action #3
	Proposed Action:	Purchase NOAA All Hazard Radios
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Goal/Objective:	County will purchase NOAA All Hazard Radios and distribute to residents
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Hazard Mitigation Grants
Lead Agency/Department Responsible:	Emergency management
Implementation Schedule:	60 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		Fayette County - Action #4
	Proposed Action:	Construct Safe Rooms in schools
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Goal/Objective:	Require public schools to construct multi-purpose safe rooms in accordance with FEMA safe room certification when new additions are made.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado and High winds
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	County funds. HMA funds. School District Funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	48 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		Fayette County - Action #5
	Proposed Action:	Develop mutual aid agreements with area communities
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Goal/Objective:	Mutual aid agreements need to be established before a response hazard event of dam failure, earthquake, flood, hail, hurricane/tropical storm, lightning, tornado, wildfire, wind, and winter weather.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, and Winter Weather
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	Medium
Estimated Cost:	$10,000
Potential Funding Sources:	County Funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	12 months

2023 ANALYSIS:
Completed and Defer to Plan Update. Fayette County falls under the CAPCOG mutual aid plan, the state mutual aid plan and other mutual aid agreements. Fayette County is in the process of developing mutual aid plans with at least one additional jurisdiction.

		Fayette County – Action #6
	Proposed Action:	Buyout all property in the Frisch Auf floodplain
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Goal/Objective:	Offer a voluntary property buyout to all the property owners in the Frisch Auf floodplain. Then maintain the area as open space in perpetuity.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	Medium
Estimated Cost:	$10,000
Potential Funding Sources:	County Funds. HMA Funds
Lead Agency/Department Responsible:	Floodplain Management
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update. In progress. This was done under a Hurricane Harvey buyout and demolition grant. Offers have been submitted and demolition contractors have been screened. Update cost in Plan Update.

SECTION 18: PREVIOUS ACTIONS

		Fayette County – Action #7
	Proposed Action:	Floodplain Management compliance
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Goal/Objective:	The county evaluated the floodplain ordinance based on the May 2015 flood event and will make the appropriate recommended changes.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	County Funds, FEMA
Lead Agency/Department Responsible:	Floodplain Management
Implementation Schedule:	12 months

2023 ANALYSIS:
Completed.

CITY OF CARMINE

	City of Carmine – Action #1
Proposed Action:	Education and Awareness of natural hazards
BACKGROUND INFORMATION	
Jurisdiction/Location:	City-wide
Goal/Objectives:	Educate homeowners on how to mitigate their homes from all hazards. They will be partnering with the Texas Forest Service, Smoky the Bear campaign and NCRS. Homeowner information will be included in community mailings, the website, and present at community clubs and organizations.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City and County Funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update. Update to include enlisting the assistance of the Fayette County Office of Emergency Management, the Texas Forest Service, the Carmine Volunteer Fire Department, the National Conservation Resource Services that would address all natural hazards, with appropriate educational materials that the City could distribute in its utility billings.

SECTION 18: PREVIOUS ACTIONS

		City of Carmine - Action #2
	Proposed Action:	Update building codes
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goals/Objective:	Adopt 2015 IBC and update subdivision regulations.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Wildland Fire, Extreme Heat, High Winds, Flooding, Winter Storms, Hail, Earthquake, Lightning, Dam Failure, Drought, Expansive Soils
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City Funds
Lead Agency/Department Responsible:	City Inspector
Implementation Schedule:	12 months

2023 ANALYSIS:
Completed. The City of Carmine has adopted the 2018 edition of the following international codes: Existing Buildings, Fuel Gas, Mechanical, Plumbing, and Property Maintenance. It has also adopted the 2020 edition of the National Electric Code. Through an oversight, the City did not update the 2009 edition of the International Building Code, but has an agenda item for its November 8, 2022, meeting to update that to the 2018 edition of the International Building Code.

SECTION 18: PREVIOUS ACTIONS

		City of Carmine – Action #3
	Proposed Action:	Purchase NOAA All Hazard Radios
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	City will purchase NOAA All Hazard Radios and distribute to residents
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Hazard Mitigation Grants
Lead Agency/Department Responsible:	Emergency management
Implementation Schedule:	60 months

2023 ANALYSIS:
Delete Action. The City no longer deems action a priority.

SECTION 18: PREVIOUS ACTIONS

		City of Carmine - Action #4
	Proposed Action:	Construct Safe Rooms in schools
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Require public schools to construct multi-purpose safe rooms in accordance with FEMA safe room certification when new additions are made.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado and High Winds
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City and County funds. HMA funds. School District
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	36 months

2023 ANALYSIS:
Delete Action. The City of Carmine has no jurisdiction over any public schools located within the City.

SECTION 18: PREVIOUS ACTIONS

		City of Carmine - Action #5
	Proposed Action:	Develop a soil conservation plan for wind and water erosion of soils
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Develop soil conservation plan that can evaluate expansive soils, protect drinking water, and help landowners learn the benefits of installing soil and water conservation practices to mitigate flood and wind hazards on the soil.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, and Winter Weather
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	Medium
Estimated Cost:	$10,000
Potential Funding Sources:	City and County Funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	60 months

2023 ANALYSIS:
Delete Action. The City no longer deems action a priority.

SECTION 18: PREVIOUS ACTIONS

		City of Carmine – Action #7
	Proposed Action:	Floodplain Management compliance
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	The city evaluated the floodplain ordinance based on the May 2015 flood event and will make the appropriate recommended changes.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City and county Funds, FEMA
Lead Agency/Department Responsible:	Floodplain Management
Implementation Schedule:	12 months

2023 ANALYSIS:
Completed.

CITY OF FLATONIA

		City of Flatonia – Action #1
	Proposed Action:	Electric distribution ROW tree maintenance
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objectives:	Inspect distribution system ROWs. Prioritize tree trimming for the City Electric Utility Crew.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local O&M funding
Lead Agency/Department Responsible:	Utility Department
Implementation Schedule:	12 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia - Action #2
	Proposed Action:	Emergency Notification Systems
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goals/Objective:	Upgrade emergency outdoor siren system to effectively cover city limits and mass media coverage.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure projects and Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Wildland Fire, Extreme Heat, High Winds, Flooding, Winter Storms, Hail, Earthquake, Lightning, Dam Failure, Drought, Expansive Soils
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local funding, Grants
Lead Agency/Department Responsible:	Administration
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia – Action #3
	Proposed Action:	Public Education for hazards
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Educate homeowners on how to mitigate their homes form all hazards. Research and compile suitable handout material for distribution. Compose and submit article for the local newspaper. Compose and present program to local civic organizations. Possible use of city website.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Hazard Mitigation Grants
Lead Agency/Department Responsible:	Emergency management
Implementation Schedule:	60 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia - Action #4
	Proposed Action:	Purchase NOAA All Hazard Radios
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	City will purchase NOAA All Hazard Radios and distribute to residents
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Hazard Mitigation Grants
Lead Agency/Department Responsible:	Emergency management
Implementation Schedule:	60 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia - Action #5
	Proposed Action:	Fire Hydrant Program
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Review and update existing fire hydrant location maps. Implement program and document each completed scheduled maintenance cycle.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local O&M budget
Lead Agency/Department Responsible:	Utility Department
Implementation Schedule:	36 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia – Action #6
	Proposed Action:	Drainage Program
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Develop and implement a drainage plan schedule to clear drains from debris and fallen trees.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local O&M budget, grants
Lead Agency/Department Responsible:	Street Department
Implementation Schedule:	48 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia - Action #7
	Proposed Action:	Standby electrical power supply
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Install equipment components for permanent generators at Water Plant #2 and Wastewater Treatment Plans from hazard events of dam/levee failure, earthquakes, extreme heat, flood, hail, hurricane/tropical storms, lightning, tornado, wildfire, wind, and winter weather.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam/Levee Failure, Earthquakes, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, and Winter Weather
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	Medium
Estimated Cost:	$100,000
Potential Funding Sources:	City budget, grants
Lead Agency/Department Responsible:	Utility Department
Implementation Schedule:	12 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia – Action #8
	Proposed Action:	Quick Connection emergency power
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Install equipment components for portable generators to be used at critical emergency shelters and support facilities from hazard events of dam/levee failure, earthquakes, extreme heat, flood, hail, hurricane/tropical storms, lightning, tornado, wildfire, wind, and winter weather.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam/Levee Failure, Earthquakes, Extreme Heat, Flood, Hail, Hurricane/Tropical Storms, Lightning, Tornado, Wildfire, Wind, and Winter Weather
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	Medium
Estimated Cost:	$10,000
Potential Funding Sources:	City budget, grants
Lead Agency/Department Responsible:	Utility Department
Implementation Schedule:	12 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia - Action #9
	Proposed Action:	Floodproof wastewater treatment plan
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Construct flood proofing elements to protect Wastewater treatment plant
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	Medium
Estimated Cost:	$100,000
Potential Funding Sources:	City budget, grants
Lead Agency/Department Responsible:	Utility Department
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of Flatonia – Action #10
	Proposed Action:	Update existing codes and ordinances
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Adopt 2015 IBC regulations. Stricter building codes goes to mitigate identified hazards, such as tornado, high wind and impact resistant materials
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, High Winds
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	Medium
Estimated Cost:	$10,000
Potential Funding Sources:	City budget
Lead Agency/Department Responsible:	Code Compliance
Implementation Schedule:	12 months

2023 ANALYSIS:
Defer to Plan Update.

CITY OF LA GRANGE

	City of La Grange – Action #1
Proposed Action:	Public Education for hazards
BACKGROUND INFORMATION	
Jurisdiction/Location:	City-wide
Goal/Objectives:	Educate homeowners on how to mitigate their homes form all hazards. Research and compile suitable handout material for distribution. Compose and submit article for the local newspaper. Compose and present program to local civic organizations. Possible use of city website.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of La Grange - Action #2
	Proposed Action:	Purchase NOAA All Hazard Radios
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goals/Objective:	City will purchase NOAA All Hazard Radios and distribute to residents
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Wildland Fire, Extreme Heat, High Winds, Flooding, Winter Storms, Hail, Earthquake, Lightning, Dam Failure, Drought, Expansive Soils
Effect on New/Existing Buildings:	This has no direct effect on structures
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Grants
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	60 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of La Grange – Action #3
	Proposed Action:	Install automated flood warning systems
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Rising flood waters affect roads, critical facilities commercial property and homes. Install automatic flood warning system
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and infrastructure projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Protects structures from flood
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City funds, grants
Lead Agency/Department Responsible:	Emergency management
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of La Grange - Action #4
	Proposed Action:	Update Building Codes
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Adopt 2015 IBC regulations. Stricter building codes goes to mitigate identified hazards, such as tornado, high wing and impact resistant materials
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	All hazards
Effect on New/Existing Buildings:	Protects buildings
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City funds
Lead Agency/Department Responsible:	City inspector
Implementation Schedule:	12 months

2023 ANALYSIS:
Defer to Plan Update.

		City of La Grange - Action #5
	Proposed Action:	Floodplain Management Compliance
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	The city evaluated the floodplain ordinance based on the May 2015 flood event and will make the appropriate recommended changes
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Local Plans and Regulations, Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City and County funds, FEMA
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	12 months

2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of La Grange – Action #6
	Proposed Action:	Construct Safe Rooms in schools
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Require public schools to construct multipurpose safe rooms in accordance with FEAM safer room certification when new additions are made
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Flood
Effect on New/Existing Buildings:	Update buildings for protection
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City and county funds, HMA funds, School district funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	36 months

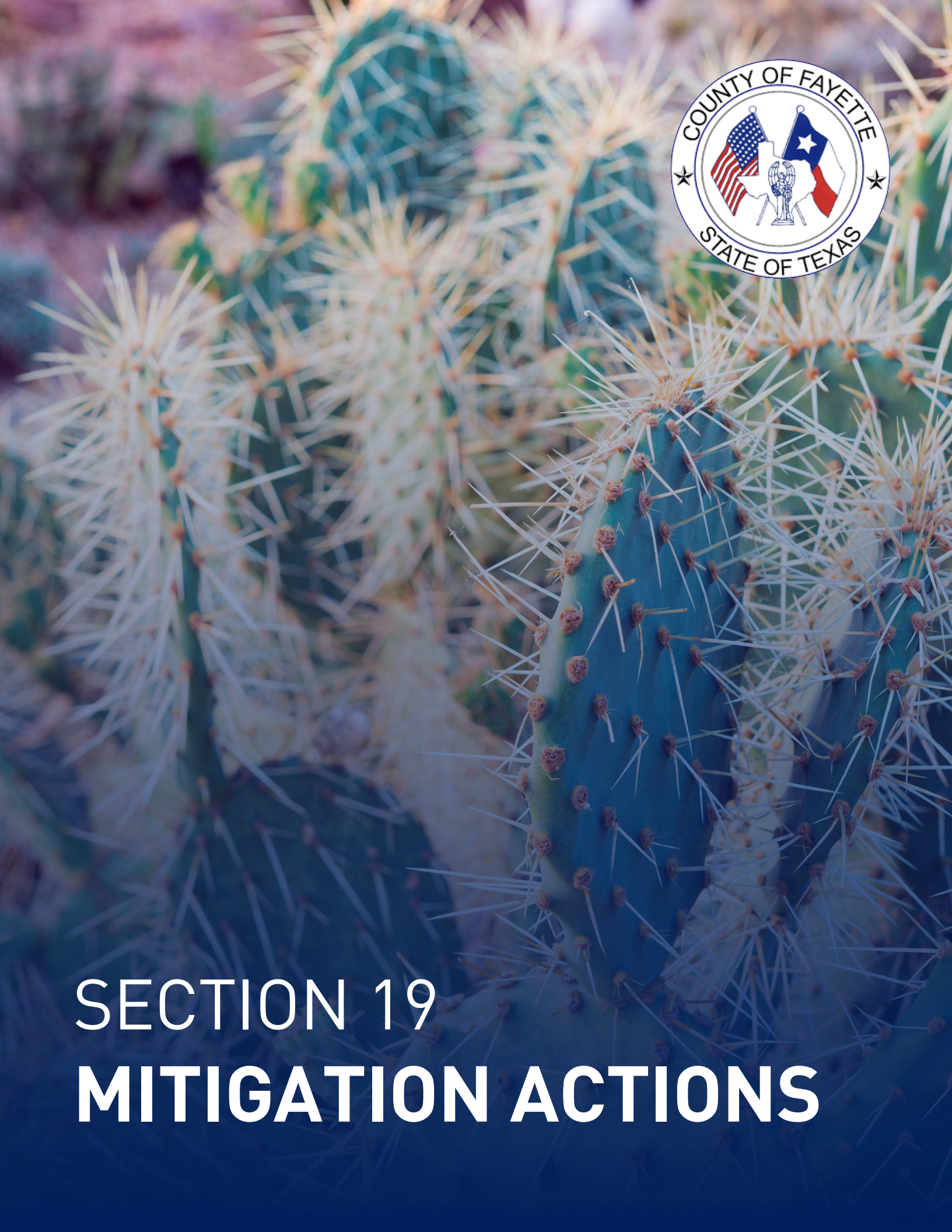
2023 ANALYSIS:
Defer to Plan Update.

SECTION 18: PREVIOUS ACTIONS

		City of La Grange - Action #7
	Proposed Action:	Develop a public awareness campaign for drought and extreme heat as part of drought contingency plans
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Goal/Objective:	Residents of La Grange needs to remind about natural hazards
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat and Drought
Effect on New/Existing Buildings:	None
Priority (High, Medium, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	City funds
Lead Agency/Department Responsible:	Emergency Management
Implementation Schedule:	24 months

2023 ANALYSIS:
Defer to Plan Update.



SECTION 19
MITIGATION ACTIONS

SECTION 19: MITIGATION ACTIONS

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SUMMARY

As discussed in Section 2, at the mitigation workshop the planning team and stakeholders met to develop mitigation actions for each of the natural hazards included in the Plan Update. Each of the actions in this section were prioritized based on FEMA's Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) criteria necessary for the implementation of each action.

As part of the economic evaluation of the STAPLEE analysis, jurisdictions analyzed each action in terms of the overall costs, measuring whether the potential benefit to be gained from the action outweighed costs associated with it. As a result of this exercise, priority was assigned to each mitigation action by marking them as High (H), Moderate (M), or Low (L). An action that is ranked as "High" indicates that the action will be implemented as soon as funding is received. A "Moderate" action is one that may not be implemented right away depending on the cost and number of citizens served by the action. Actions ranked as "Low" indicate that they will not be implemented without first seeking grant funding and after "High" and "Moderate" actions have been completed.

Within each mitigation action worksheet, the Planning Team considered all potential funding sources that could be utilized to implement the proposed project. To ensure all potential funding resources are considered and are not limited to those sources identified within the action worksheet, please see Appendix G for a list of all available State and Federal grant programs as of 2023. The Planning Team will continue to seek out other available funding sources during the 5-year cycle as notices of funding opportunity (NOFO) are released.

All mitigation actions created by Planning Team members are presented in this section in the form of Mitigation Action Worksheets. More than one hazard is sometimes listed for an action, if appropriate. Actions presented in this section represent a comprehensive range of mitigation

actions per current State and FEMA Guidelines, including two actions, per hazard, and of two different types for each participating jurisdiction. The term county-wide action refers to Fayette County and the Cities of Carmine, Ellinger, Fayetteville, Flatonia, La Grange, Round Top and Schulenburg. County-wide does not include ISDs.

Table 19-1. Fayette County Mitigation Action Matrix

TYPE OF ACTION	
Action #1 – Plans/Regulations (Blue)	Action #4 – Structural (Orange)
Action #2 – Education/Awareness (Red)	Action #5 – Preparedness/Response (Black)
Action #3 – Natural Systems Protections (Green)	

Jurisdiction	Flood	Drought	Extreme Heat	Lightning	Hail	Thunderstorm Wind	Tornado	Wildfire	Winter Storm	Expansive Soils	Dam Failure	Earthquake
Fayette County	XXXX	XXX	XXX	XXX	XX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
City of Carmine	XXX	XX	XX	XX	XX	XXX	XXX	XXX	XXX	XX	N/A	XX
City of Ellinger	XX	XX	XX	XX	XX	XX	XX	XXX	XX	XX	N/A	XX
City of Fayetteville	XX	XX	XX	XX	XX	XXX	XXX	XX	XX X	XX	N/A	XX
City of Flatonia	XXXX	XX	XXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXX	N/A	XXXX
City of La Grange	XXX	XX	XX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
City of Round Top	XX	XX	XX	XX	XX	XX	XX	XXX	XX	XX	N/A	XX
City of Schulenburg	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XX	XX
Fayetteville ISD	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX
Flatonia ISD	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX
La Grange ISD	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX
Round Top – Carmine ISD	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX
Schulenburg ISD	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX

FAYETTE COUNTY-WIDE

		Fayette County-wide – Action #1
	Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental contact listings.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including all participating jurisdictions
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (where applicable), Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	County and Local Emergency Managers / Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Fayette County-wide – Action #2
Proposed Action:	Upgrade critical facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities including all participating jurisdictions
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce impact on ground water. Reduce rainfall runoff volume and risk of flooding. Reduce risk and spread of wildfire.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	County Public Works/City Engineer/City Administrator
Implementation Schedule:	Ongoing
Incorporation into Existing Plans:	Local Plans and Ordinances

COMMENTS:

		Fayette County-wide – Action #3
	Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide and community-wide critical facilities
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (where applicable), Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	County Public Works/City Engineer/City Administrator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	Fayette County-wide – Action #4
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels.
BACKGROUND INFORMATION	
Site and Location:	County-wide and community-wide critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (where applicable), Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	County Public Works/City Engineer/City Administrator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Fayette County-wide– Action #5
Proposed Action:	Develop a Community Wildfire Protection Plan (CWPP).
BACKGROUND INFORMATION	
Site and Location:	Fayette County and all participating jurisdictions
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires. Reduce risk of damages, and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	County and Local Emergency Managers / Administration, County/Local Fire Department/VFD
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

FAYETTE COUNTY

	Fayette County – Action #1
Proposed Action:	Place a 12” Water Transfer line for Fire Protection along West State Highway 71. (6,200lf 12” PVC C-900 5,000lf 14” PVC C-900, 28ea Fire Hydrants)
BACKGROUND INFORMATION	
Site and Location:	Starting at West Point, Texas running parallel to State Highway 71 to La Grange, Texas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire by increasing water access and firefighting capabilities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduces risk to new and existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$4,167,670.00
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County OEM, Fire Department, Fayette Water Supply Corporation
Implementation Schedule:	Within 24-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

	Fayette County – Action #2
Proposed Action:	Place 6” waterline and build Booster Plant to enable FWSC to supply water to the City of Flatonia during emergency situations (150,000gal ground storage tank and pump house for boosters and SCADA).
BACKGROUND INFORMATION	
Site and Location:	State Highway 95 and Railroad overpass
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Ensures adequate water supply to residents during extreme weather events. Reduce risk of damages and inquires by increasing water access. Increases emergency response capabilities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduces risk to new and existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,140,900.00
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County OEM, Fire Department, Fayette Water Supply Corporation
Implementation Schedule:	Within 24-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

	Fayette County – Action #3
Proposed Action:	Build a water booster plant to enable Fayette Water Supply to transfer water to the City of La Grange during emergency situations (250,000gal ground storage tank and pump house for booster pumps and SCADA).
BACKGROUND INFORMATION	
Site and Location:	200 Bordovsky Road
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Ensures adequate water supply to residents during extreme weather events. Reduce risk of damages and inquires by increasing water access. Increases emergency response capabilities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduces risk to new and existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County OEM, Fire Department, Fayette Water Supply Corporation
Implementation Schedule:	Within 24-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

	Fayette County – Action #4
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	County-wide critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County Public Works, OEM
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

		Fayette County – Action #5
	Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains, and culverts.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000 (annually)
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County Judge, Commissioners, OEM, Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Fayette County – Action #6
Proposed Action:	Upgrade undersized stormwater drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	County-wide drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County OEM, Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan; Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Fayette County – Action #7
Proposed Action:	Provide how-to information to residents for installing backflow valves to prevent reverse-flow floods.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damage impact on residents after a flood event; Reduce risk of sewage back-up in structures; Reduce risk of injury or illness to residents.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$2,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	Fayette County OEM
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Fayette County – Action #8
Proposed Action:	Increase drainage capacity; add stormwater detention and/or retention basins as deemed necessary to reduce flood risk.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County Public Works
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Fayette County – Action #9
Proposed Action:	Assess and implement upgrades at low-water crossings as deemed necessary to reduce flood risk. Install a bridge and/or warning signs to indicate high-risk flood area.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure, Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County Public Works, Precinct Commissioners
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Fayette County – Action #10
Proposed Action:	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis. Ensure county has access to necessary equipment to maintain debris removal.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
Effect on New/Existing Buildings:	Reduce risk to existing and future structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County Judge and Commissioners, OEM, Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan ; Drainage Plan

COMMENTS:
County would look to establish an MOU and/or pre-proposed contract for accessibility to additional equipment needs during severe weather events.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	Fayette County – Action #11
Proposed Action:	Develop Master Drainage Plan: Addresses various matters relating to storm drainage including the identification of drainage and flooding problems, the compilation of base data related to rainfall and runoff, proposals for controlling storm water flows, and cost control measures regarding the construction, operation and maintenance of drainage facilities. Construct drainage improvements in accordance with the engineering recommendations identified in the master plan.
BACKGROUND INFORMATION	
Site and Location:	County-wide including Buckner's Creek area
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood,
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: FEMA - DR-4332 0153
Lead Agency/Department Responsible:	Fayette County OEM; Langford Community Management Services
Implementation Schedule:	Secure in 2021 - ongoing
Incorporation into Existing Plans:	Maintenance Plan ; Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Fayette County – Action #12
Proposed Action:	Assess current animal shelter location to harden/retrofit barn to a hazard-resistant level. If more cost effective, look to construct new facility for animal/livestock to be evacuated to in a severe weather event.
BACKGROUND INFORMATION	
Site and Location:	Fayette County Fairgrounds 1899 N. Jefferson St., La Grange ST TX 78945 Schulenburg Wolter's Park Fairgrounds 1103 Bohlmann Ave, Schulenburg, Tx 78956 Colorado River Cowboy Church 5122 TX-71, Smithville, TX 78957
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to structures and animals by an evacuation facility; reduce burden on emergency response during hazardous events
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Flood, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWST
Lead Agency/Department Responsible:	Fayette County OEM; City of La Grange; City of Schulenburg; Texas A&M Agrilife Extension; Fair Association
Implementation Schedule:	Within 23-48 months of plan adoption
Incorporation into Existing Plans:	Fayette County Emergency Animal Shelter Tactical Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes safety. Protects infrastructure, reduces cost of reparation, and prevents injury residents, response personnel, and livestock.

		Fayette County – Action #13
	Proposed Action:	Implement education and awareness programs utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County OEM
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

		Fayette County – Action #14
	Proposed Action:	Update building codes: Incorporate higher standards for hazard resistance in local application of the building code, ensuring that developers/contractors follow IBC codes and NFPA fire codes.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damage to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	Fayette County Judge and Commissioners
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

SECTION 19: MITIGATION ACTIONS

	Fayette County – Action #15
Proposed Action:	Acquire and distribute NOAA weather radios.
BACKGROUND INFORMATION	
Site and Location:	County-wide critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County OEM
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Fayette County – Action #16
Proposed Action:	Build safe room shelters throughout the jurisdiction so that residents can reach shelter in extreme weather events.
BACKGROUND INFORMATION	
Site and Location:	County-wide with focus on school districts
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Fayette County OEM and coordination with County ISDs
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan

COMMENTS:

	Fayette County – Action #17
Proposed Action:	Develop mutual aid agreements with area communities: Continue to work with neighboring jurisdictions to develop mutual aid agreements.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	Fayette County OEM, CAPCOG, FCEMS
Implementation Schedule:	On-going
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Fayette County – Action #18
Proposed Action:	Buyout Program: Develop a land acquisition program in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	County-wide flood risk areas, including Frisch Auf floodplain
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection (vacant land)

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000,000
Potential Funding Sources:	Hurricane Harvey Buyout and Demolition Grant
Lead Agency/Department Responsible:	Fayette County OEM, Floodplain Administrator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Fayette County – Action #19
Proposed Action:	Assess and implement 700mHz communication infrastructure and/or a county-wide emergency notification system during extreme weather events.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit: *(Current Cost/Losses Avoided)*	Promotes hazard awareness. Ensure continuity of emergency response. Reduces risk of injuries and property damage.
Type of Action: *(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: *(Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)*	Communication, Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1.5 – 3 million
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	County OEM, EMS, FSCO LCRA and CAPCOG
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Public safety radios in use today operate on the 900mHz radio system that will be taken out of operation in 2025-2026 due to federal interoperability standards and regulations. The existing 700mHz tower infrastructure does not allow for penetration into buildings in communities and several other gaps that are in the process of identifying.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

CITY OF CARMINE

	City of Carmine – Action #1
Proposed Action:	Implement education and awareness programs utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration; Fayette County OEM, Texas Forest Service, Carmine VFD, National Conservation Resource Services
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Carmine – Action #2
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	As funds become available
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Carmine – Action #3
Proposed Action:	Restrict future development in high-risk areas.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages to new structures and infrastructure through building restrictions in high-risk areas.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$2,500
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Carmine – Action #4
Proposed Action:	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
Effect on New/Existing Buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000 (price will vary)
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Ongoing
Incorporation into Existing Plans:	Maintenance Plan; Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Carmine – Action #5
Proposed Action:	Adopt and implement watering schedule at public buildings and critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide public buildings and critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to structures and infrastructure due to expansive soils by maintaining adequate soil moisture; Reduce risk and spread of wildfire.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Ongoing
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of Carmine – Action #6
Proposed Action:	Raise electrical components of sewage lift stations above the Base Flood Elevation (BFE).
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$250,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Carmine – Action #7
Proposed Action:	Adopt ordinance requiring tie-downs for mobile homes; Require manufactured housing be securely anchored to permanent foundations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of Carmine – Action #8
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains, and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000 (annually)
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Carmine – Action #9
Proposed Action:	Increase freeboard requirements for permitting structures in the SFHA; Adopt a “no-rise" in BFE in the 100-year floodplain; Update local flood ordinance to prohibit granting of variance in SFHA; Include "cumulative damage" provisions in local floodplain management ordinances.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood damages through development restrictions and improved construction requirements in flood-prone areas.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration / Floodplain Administrator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Flood Damage Prevention Ordinance

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Carmine – Action #10
Proposed Action:	Adopt and implement routine fire hydrant maintenance plan.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through routine maintenance of fire hydrants; Reduce risk of injury or damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new or existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration, Local Fire Department/VFD
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Carmine – Action #11
Proposed Action:	Install fire danger rating / burn ban signs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration, Local Fire Department/VFD
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Carmine – Action #12
Proposed Action:	Adopt and implement program to insulate outdoor pipes at critical and public buildings.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical and public facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages at public buildings resulting from freezing temperatures; Ensure continuity of public services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

CITY OF ELLINGER

	City of Ellinger – Action #1	
	Proposed Action:	Improve Storm water drainage.
	BACKGROUND INFORMATION	
	Site and Location:	Community-wide with focus on mitigating the amount of flooding in the lower south end of Ellinger
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event. Reduce the damage to roads from water erosion.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Public Works.
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
The City of Ellinger has secured administrator and engineer for possible funding allocation from federal grant.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Ellinger – Action #2
Proposed Action:	Protect Sewer Treatment Plant by implementing flood mitigation measures and/or hardening/retrofitting plant to a hazard resistant level.
BACKGROUND INFORMATION	
Site and Location:	Sewer Treatment Plant which is located in a low area, prone to flood
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce storm water impact on sewer plant operation. Reduce risk of flood water contamination; Ensure continuity of critical services
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structure and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Plant Operations Manager
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Ellinger Sewer and Water corporation is working to obtain funding to remedy this issue
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

		City of Ellinger – Action #3
	Proposed Action:	Improve Fire Protection which can include but is not limited to install fire hydrants in high-risk areas, defensible space, etc.
	BACKGROUND INFORMATION	
	Site and Location:	Community-wide in high-risk areas and WUI
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires. Reduce risk of damages and injuries
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Ellinger VFD
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan; CWPP

COMMENTS:
The City of Ellinger currently in the process of submitting grant application for 2023/2024 CDBG

	City of Ellinger – Action #4
Proposed Action:	Notification/Warning System.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Thunderstorm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Ellinger VFD
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

CITY OF FAYETTEVILLE

	City of Fayetteville – Action #1
Proposed Action:	Implement education and awareness programs (scalable projects) utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Site and Location:	Community-wide including ETJ communities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages. Ensure outreach t0 underserved populations and educate/inform the population on recommended actions.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$25,000 (annually)
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	OEM
Implementation Schedule:	Within 3 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Fayetteville – Action #2
Proposed Action:	Adopt architectural design standards for optimal wind conveyance.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages to structures and infrastructure; Reduce risk of injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of Fayetteville – Action #3
Proposed Action:	Require "safe rooms" to be added when constructing new schools, daycares, rest homes and critical care facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in new critical facilities during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Thunderstorm Wind
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes

COMMENTS:

	City of Fayetteville – Action #4
Proposed Action:	Build safe rooms throughout the community for residents to seek shelter during extreme weather events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide manufactured home parks, RV parks, and Fayetteville ISD
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Thunderstorm Wind
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$250,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, FISD staff
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan

COMMENTS:

	City of Fayetteville – Action #5
Proposed Action:	Adopt ordinance requiring tie-downs for mobile homes; Require manufactured housing be securely anchored to permanent foundations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of Fayetteville – Action #6
Proposed Action:	Strengthen building codes to mandate the use of steel connectors in new and existing construction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of Fayetteville – Action #7
Proposed Action:	Implement measures to secure traffic lights and traffic controls from high wind damage.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of Fayetteville – Action #8
Proposed Action:	Conduct public education program on fire risks and wildland fire mitigation, with the assistance of the Texas Forest Service.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Local Fire Department/VFD
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Fayetteville – Action #9
Proposed Action:	Assess current city-wide fire hydrants. Make necessary upgrades and improvements. Adopt and implement routine fire hydrant maintenance plan.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through routine maintenance of fire hydrants; Reduce risk of injury or damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new or existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$2,000,000 and then $50,000 annually for maintenance
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Public Works, OEM, Local Fire Department/VFD
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Fayetteville – Action #10
Proposed Action:	Install fire danger rating/burn ban signs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration, Local Fire Department/VFD
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Fayetteville – Action #11
Proposed Action:	Adopt and implement program to insulate outdoor pipes at critical and public buildings.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical and public facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damage at public buildings resulting from freezing temperatures; Ensure continuity of public services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of Fayetteville – Action #12
Proposed Action:	Add building insulation to walls and attics and wrap/insulate pipes at critical and public facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical and public facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damage at public buildings resulting from freezing temperatures; Reduce energy consumption and costs during extreme temperatures.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$250,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Fayetteville – Action #13
Proposed Action:	Develop and implement a safe room rebate program for individual safe rooms in single-family residences (scalable project).
BACKGROUND INFORMATION	
Site and Location:	Community-wide and ETJ communities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing in-home safe rooms in high-risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000 per safe room (residence)
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	OEM
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

	City of Fayetteville – Action #14
Proposed Action:	Acquire and distribute NOAA weather radios (scalable project).
BACKGROUND INFORMATION	
Site and Location:	Community-wide and ETJ communities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning. Ensure resident and vulnerable populations have a means to acquire information in event of a power outage.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	Within 6 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Fayetteville – Action #15
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities (scalable project).
BACKGROUND INFORMATION	
Site and Location:	Sewer Plant Water Facility OEM/City Hall Church Shelter Community Center
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Reduce economic impact in the event of a power outage.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel), Communication, Health/Medical, Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000 - $2500,000 per generator
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Schulenburg – Action #16
Proposed Action:	Assess wastewater treatment plant. Make recommended improvements and harden/Retrofit wastewater treatment plant to a hazard resistant level.
BACKGROUND INFORMATION	
Site and Location:	Wastewater treatment facilities and infrastructure
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$3,500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Fayetteville – Action #17
Proposed Action:	Acquire and install CO, flammable gas, and fire detectors in all critical structures.
BACKGROUND INFORMATION	
Site and Location:	Community-wide and ETJ critical infrastructures with emphasis on areas in WUI
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages and injuries through promoting hazard awareness.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$75,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Local Fire Department
Implementation Schedule:	Within 6 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

	City of Fayetteville – Action #18
Proposed Action:	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	Community-wide and ETJ locations
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
Effect on New/Existing Buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$35,000 for the first year, then $25,000 annually
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 3 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan; Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Fayetteville – Action #19
Proposed Action:	Bury existing electrical, telephone, internet, cable, and other utility lines.
BACKGROUND INFORMATION	
Site and Location:	Community-wide and ETJ locations
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel), Communication
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	Within 18 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Fayetteville – Action #20
Proposed Action:	Establish, adopt, and implement a "green infrastructure" program.
BACKGROUND INFORMATION	
Site and Location:	Community-wide city parks as well as OEM and Fayetteville ISD
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce impacts of flood through expanded greenspace and restoration of floodplains and wetlands; Reduce impacts of drought through green infrastructure that works to replenish groundwater reserves; Reduce impacts of Urban Island Heat effect in densely populated areas through tree planting.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Drought, Extreme Heat
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Low
Estimated Cost:	$250,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Fayetteville – Action #21
Proposed Action:	Upgrade undersized stormwater drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide and ETJ locations
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$750,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Fayetteville – Action #22
Proposed Action:	Mitigate low water crossings that can be mitigated and install warning signs at all low water crossings throughout city.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of injuries, fatalities and damages through education and awareness. Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$675,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

CITY OF FLATONIA

	City of Flatonia – Action #1
Proposed Action:	Increase drainage capacity: Garbade Lane and I10
BACKGROUND INFORMATION	
Site and Location:	Garbade Lane and I10
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Street Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Flatonia – Action #2
Proposed Action:	Assess and upgrade/install new well.
BACKGROUND INFORMATION	
Site and Location:	Well 10 Site
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk through alternative water source during extreme hazard events. Provides a city-wide water supply.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$900,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Utility
Implementation Schedule:	Within 120 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Flatonia – Action #3
Proposed Action:	Upgrade 700 system: Update the radios for the fire dept, school district, police department and utility department.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning. Improves emergency response efforts during extreme weather conditions.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$75,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Local Fire Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Flatonia – Action #4
Proposed Action:	Static water source: Build and/or construct a pond for alternative water source.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk through alternative water sources during extreme hazard events. Ensure emergency response efforts.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Local Fire Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

	City of Flatonia – Action #5
Proposed Action:	Upgrade area-wide wireless auto dialer and programing for all alarms.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communication and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Flood, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$200,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Utility
Implementation Schedule:	Within 72 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Flatonia – Action #6
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities including Fire Dept 1 & 2, Police Dept, City Hall and Chamber of commerce
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Flatonia – Action #7
Proposed Action:	Acquire and install 500 GPM booster pumps with VFD ink, electrical, Scada and piping.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$200,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Utility
Implementation Schedule:	Within 72 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Flatonia – Action #8
Proposed Action:	Upgrade Water line along SH 95 Fire protection.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire by increasing water access and firefighting capabilities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$750,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	Local Fire Department and Utility
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

	City of Flatonia – Action #9
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Flatonia ISD cafeteria and Gym
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$200,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Flatonia ISD
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Flatonia – Action #10
Proposed Action:	Upgrade Knox Box at all critical facilities and Flatonia ISD
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities and ISD
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Ensures appropriate access and response during extreme hazard events. Ensures evacuation. Reduces risk to injury and fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$150,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Local Fire Department, and Flatonia ISD
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Flatonia – Action #11
Proposed Action:	Acquire and provide a vehicle (4-wheel drive) capable of reaching citizens during an event.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Ensures emergency response efforts to residents in high-risk areas. Reduces risk of injuries and fatalities. Ensure appropriate evacuation efforts.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration, Local Police Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Flatonia – Action #12
Proposed Action:	Improve water delivery.
BACKGROUND INFORMATION	
Site and Location:	Well #12 2245 E. US Hwy
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk through ensuring adequate water source/supply during extreme hazard events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$150,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Utility
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	2030 Comprehensive Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during unforeseen events.

	City of Flatonia – Action #13
Proposed Action:	Improve water delivery: Install 500 GPM variable frequency drive pumps at water plant #2 to improve capacity during extreme events.
BACKGROUND INFORMATION	
Site and Location:	Water Plant #2 1975 E. US Hwy 90
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk through ensuring adequate water source/supply and critical services during extreme hazard events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$150,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Utility
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	2030 Comprehensive Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during unforeseen events.

	City of Flatonia – Action #14
Proposed Action:	Ensure adequate water supply: Drill new / alternative well due to holes in casing. Address failing well casings.
BACKGROUND INFORMATION	
Site and Location:	Water Plant #2 1975 E. US Hwy 90
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk through ensuring adequate water source/supply and critical services during extreme hazard events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$120,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Utility
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	2030 Comprehensive Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during unforeseen events.

	City of Flatonia – Action #15
Proposed Action:	Implement education and awareness programs utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Extreme Heat, Drought, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Flatonia – Action #16
Proposed Action:	Acquire and distribute NOAA weather radios.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

City of Flatonia – Action #17	
Proposed Action:	Electric distribution ROW tree maintenance: Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
Effect on New/Existing Buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan ; Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Flatonia – Action #18
Proposed Action:	Implement and enhance Emergency Notification System: Upgrade emergency outdoor siren system to effectively cover city limits and mass media coverage including a remote system.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communication and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of Flatonia – Action #19
Proposed Action:	Adopt and implement routine fire hydrant program: Review and update existing fire hydrant location maps. Implement program and document each completed scheduled maintenance cycle.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through routine maintenance of fire hydrants; Reduce risk of injury or damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new or existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration, Local Fire Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

City of Flatonia – Action #20	
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains, and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000 (annually)
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Flatonia – Action #21
Proposed Action:	Acquire and install generators and/or portable generators at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities, including Water Plant #2 and Wastewater Treatment Plants
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

City of Flatonia – Action #22	
Proposed Action:	Floodproof wastewater treatment plant: Construct flood proofing elements to protect Wastewater treatment plant.
BACKGROUND INFORMATION	
Site and Location:	Wastewater Treatment Plant
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages or injuries through flood mitigation at high-risk structures; Reduce repetitive flood losses/claims; Reduce community recovery efforts and costs.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Flatonia – Action #23
Proposed Action:	Adopt 2015 IBC regulations and stricter building codes to mitigate the effects of hazards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Extreme Heath, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

CITY OF LA GRANGE

	City of La Grange – Action #1
Proposed Action:	Implement education and awareness programs utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Expansive Soils, Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Emergency Management
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of La Grange – Action #2
Proposed Action:	Acquire and distribute NOAA weather radios.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Emergency Management
Implementation Schedule:	Within 60months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of La Grange – Action #3
Proposed Action:	Install automated flood warning system.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damage and injuries in high-risk areas during flooding event through education and awareness programs; Reduce demand on emergency response.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Emergency Management
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of La Grange – Action #4
Proposed Action:	Adopt 2015 IBC regulations and stricter building codes to mitigate the effects of hazards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Inspector
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of La Grange – Action #5
Proposed Action:	Floodplain Management Compliance: The city evaluated the floodplain ordinance based on the May 2015 flood event and will incorporate and implement recommended changes.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damage or injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Emergency Management
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	City of La Grange – Action #6
Proposed Action:	Build safe room shelters throughout the jurisdiction so that residents can reach shelter.
BACKGROUND INFORMATION	
Site and Location:	Community-wide focusing on public schools.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Emergency Management, La Grange ISD
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

	City of La Grange – Action #7
Proposed Action:	Develop a public awareness campaign for drought and extreme heat as part of drought contingency plans.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Emergency Management
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

CITY OF ROUND TOP

	City of Round Top – Action #1
Proposed Action:	Conduct public education program on fire risks and wildland fire mitigation, with the assistance of the Texas Forest Service.
BACKGROUND INFORMATION	
Site and Location:	Community-wide boundaries and a radius of 10 miles
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Local Fire Department/VFD
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Round Top – Action #2
Proposed Action:	Install fire danger rating/burn ban signs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide boundaries and a radius of 10 miles
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration, Local Fire Department/VFD
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Round Top – Action #3
Proposed Action:	Implement a community education program regarding fire dangers for identified risk areas; Distribute pamphlets through neighborhood associations or insert flyers in water bills to make residents aware of wildfire hazard areas and fire protection measures for homes and yards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide boundaries and a radius of 10 miles
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Local Fire Department/VFD
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Round Top – Action #4
Proposed Action:	Install warning signs at hazardous bridges and roadways subject to ice.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages and injuries on roadways and bridges during winter storm events through education and awareness programs; Reduce demand on emergency response during winter storms.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

		City of Round Top – Action #5
	Proposed Action:	Educate citizens on mitigation measures to prevent frozen pipes; Educate homeowners on carbon monoxide monitors/alarms
	BACKGROUND INFORMATION	
	Site and Location:	Community-wide
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages and injuries through mitigation education and awareness.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Round Top – Action #6
Proposed Action:	Adopt and implement program to insulate outdoor pipes at critical and public buildings.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical and public facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages at public buildings resulting from freezing temperatures; Ensure continuity of public services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

	City of Round Top – Action #7
Proposed Action:	Improve Fire Protection which can include but is not limited to install fire hydrants in high-risk areas, defensible space, etc.
BACKGROUND INFORMATION	
Site and Location:	Community-wide in high-risk areas and WUI
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires. Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration, Local Fire Department/VFD
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

	City of Round Top – Action #8
Proposed Action:	Assess current wastewater and water treatment facilities and infrastructure. Implement necessary upgrades to make facilities and infrastructure more hazard resistant.
BACKGROUND INFORMATION	
Site and Location:	Community-wide wastewater and water treatment facilities and infrastructure
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24-60 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

CITY OF SCHULENBURG

	City of Schulenburg – Action #1
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Schulenburg – Action #2
Proposed Action:	Upgrade and/or construction facility to act as a community center or EOC to operate and shelter in extreme weather conditions
BACKGROUND INFORMATION	
Site and Location:	Site Location to be determined
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Ensure continuity of critical services during and after event; Reduce risk of injury to residents, emergency and critical personnel. Ensures evacuation center for vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Schulenburg – Action #3
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Schulenburg – Action #4
Proposed Action:	Explore other alternative power sources. Assess and upgrade electrical grid.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 24-60 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	City of Schulenburg – Action #5
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains, and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000 (annually)
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Schulenburg – Action #6
Proposed Action:	Assess and make necessary upgrades and/or replaced of storm drain at Eilers St.
BACKGROUND INFORMATION	
Site and Location:	Eilers St.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Schulenburg – Action #7
Proposed Action:	Assess and make necessary upgrades and/or replaced of bridge/box culvert at Baumgarten St.
BACKGROUND INFORMATION	
Site and Location:	Baumgarten St.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Schulenburg – Action #8
Proposed Action:	Assess and upgrade drainage and wastewater system to ensure incasement in concrete or other hazard-resistant material.
BACKGROUND INFORMATION	
Site and Location:	Community-wide drainage and wastewater system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damage impact on residents after a flood event; Reduce risk of sewage back-up in structures; Reduce risk of injury or illness to residents.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$2,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Public Works
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Schulenburg – Action #9
Proposed Action:	Assess and upgrade wastewater line at Hwy. 90 to North Main. Obtain necessary permits (railroad permit) to implement necessary repairs.
BACKGROUND INFORMATION	
Site and Location:	Hwy. 90 to North Main.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damage impact on residents after a flood event; Reduce risk of sewage back-up in structures; Reduce risk of injury or illness to residents.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$400,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Public Works
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	City of Schulenburg – Action #10
Proposed Action:	Increase drainage capacity as deemed necessary to reduce flood risk.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration and Public Works
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	City of Schulenburg – Action #11
Proposed Action:	Cut firebreaks into public wooded and/or high-risk areas according to risk factors.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through targeted firebreaks.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Public Works and Local Fire Department/VFD
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Schulenburg – Action #12
Proposed Action:	Perform hazardous fuels mitigation activities in public wooded and/or high-risk areas according to risk factors.
BACKGROUND INFORMATION	
Site and Location:	Community-wide with emphasis on high-risk/WUI areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through targeted firebreaks.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Public Works and Local Fire Department/VFD
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	City of Schulenburg – Action #13
Proposed Action:	Work with local businesses to harden/retrofit facilities to act as cooling/heating center during extreme weather events.
BACKGROUND INFORMATION	
Site and Location:	Community identified facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of injury and fatalities to vulnerable populations during extreme cold or heat events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
Lead Agency/Department Responsible:	City Administration
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan

COMMENTS:

FAYETTVILLE ISD

		Fayetteville ISD – Action #1
	Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate students, faculty, and parents of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for parents, students, and faculty.
	BACKGROUND INFORMATION	
	Site and Location:	District-wide
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect students and faculty from potential injuries and damages.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, NOAA, SBA
Lead Agency/Department Responsible:	ISD Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Fayetteville ISD – Action #2
Proposed Action:	Upgrade ISD campuses to include drought mitigation measures such as grey water reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide water for critical facilities during water outages and reduce water use.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	Fayetteville ISD – Action #3
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	Fayetteville ISD – Action #4
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Fayetteville ISD – Action #5
Proposed Action:	Install cover walkways or canopies throughout district during extreme heat events.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to students and faculty by providing shelter during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

	Fayetteville ISD – Action #6
Proposed Action:	Construct safe rooms within the district to FEMA construction guidelines.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to students and faculty by providing shelter in high-risk areas during extreme weather events. Reduce risk of injuries and fatalities to students and faculty.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

FLATONIA ISD

		Flatonia ISD – Action #1
	Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate students, faculty, and parents of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for parents, students, and faculty.
	BACKGROUND INFORMATION	
	Site and Location:	District-wide
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect students and faculty from potential injuries and damages.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, NOAA, SBA
Lead Agency/Department Responsible:	ISD Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Flatonia ISD – Action #2
Proposed Action:	Upgrade ISD campuses to include drought mitigation measures such as grey water reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide water for critical facilities during water outages and reduce water use.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	Flatonia ISD – Action #3
Proposed Action:	Acquire and install generators with hard wired quick connections at all campus facilities
BACKGROUND INFORMATION	
Site and Location:	District-wide facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$200,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration/Maintenance, City Administration
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	Flatonia ISD – Action #4
Proposed Action:	Upgrade Knox Box at all campuses.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Ensures appropriate access and response during extreme hazard events. Ensures evacuation. Reduces risk to injury and fatalities to students and faculty.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$150,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration/Maintenance, City Administration, Local Fire Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Evacuation Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

LA GRANGE ISD

	La Grange ISD – Action #1
Proposed Action:	Upgrade ISD campuses to include drought mitigation measures such as grey water reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide water for critical facilities during water outages and reduce water use.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	La Grange ISD– Action #2
Proposed Action:	Implement education and awareness program utilizing classrooms, social media, bulletins, flyers, etc. to educate students, parents and area residents of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect students and faculty from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$5,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, NOAA, SBA
Lead Agency/Department Responsible:	Director of Operations and School Safety
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	La Grange ISD– Action #3
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	La Grange ISD – Action #4
Proposed Action:	Elevate electrical transformers throughout District.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$250,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	La Grange ISD – Action #5
Proposed Action:	Flood Mitigation: Assess, identify, and implement actions to reduce or eliminate flooding at identified location within district.
BACKGROUND INFORMATION	
Site and Location:	LGISD High School and Middle School are located next to the Colorado river and between two major City of La Grange stormwater drainage paths.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages or injuries through flood mitigation at high-risk areas; Reduce the need for emergency response Reduces damage, injuries, and fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$250,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	La Grange ISD – Action #6
Proposed Action:	Increase drainage capacity as deemed necessary to reduce flood risk.
BACKGROUND INFORMATION	
Site and Location:	East of the LGISD High School property line next to the stadium and the transportation lot.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$10,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration, City of La Grange
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
There is an underground City stormwater drainage pipe that surfaces next to the stadium then surface drains through a creek bed that extends throughout White Rock Park and out to the river. Where the drain surface is a location of flooding for us. The stadium and turf get excess water causing our turf fill to wash across the field and onto the track. The transportation lot gets 3-4 feet of water, and we have to be strategic about removing vehicles near the side of the creek bed so they do not flood. This occurs with as little as 3-4 inches of rain.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	La Grange ISD – Action #7
Proposed Action:	Install cover walkways or canopies throughout district during extreme heat events.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to students and faculty by providing shelter during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$300,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

ROUND TOP – CARMINE ISD

		Round Top - Carmine ISD – Action #1
	Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate students, faculty, and parents of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for parents, students, and faculty.
	BACKGROUND INFORMATION	
	Site and Location:	District-wide
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect students and faculty from potential injuries and damages.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, NOAA, SBA
Lead Agency/Department Responsible:	ISD Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Round Top - Carmine ISD – Action #2
Proposed Action:	Upgrade ISD campuses to include drought mitigation measures such as grey water reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide water for critical facilities during water outages and reduce water use.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	Round Top – Carmine ISD – Action #3
Proposed Action:	Assess and implement necessary mitigation improvements to sewage pipes and back-up within the district.
BACKGROUND INFORMATION	
Site and Location:	District-wide affected areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup. Reduces damages to school district. Reduce potential injuries or health related concerns to students and faculty.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and City Administration
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects district and reduces risk of flooding.

	Round Top - Carmine ISD – Action #4
Proposed Action:	Construct safe rooms within the district to FEMA construction guidelines.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to students and faculty by providing shelter in high-risk areas during extreme weather events. Reduce risk of injuries and fatalities to students and faculty.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

	Round Top – Carmine ISD – Action #5
Proposed Action:	Harden/retrofit campus facilities to hazard-resistant levels.
BACKGROUND INFORMATION	
Site and Location:	District-wide campus facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at campus facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to students and faculty.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to students and faculty.

SCHULENBURG ISD

		Schulenburg ISD – Action #1
	Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate students, faculty, and parents of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for parents, students, and faculty.
	BACKGROUND INFORMATION	
	Site and Location:	District-wide
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect students and faculty from potential injuries and damages.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Expansive Soils, Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, NOAA, SBA
Lead Agency/Department Responsible:	ISD Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Schulenburg ISD – Action #2
Proposed Action:	Upgrade ISD campuses to include drought mitigation measures such as grey water reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide water for critical facilities during water outages and reduce water use.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	Schulenburg ISD – Action #3
Proposed Action:	Construct safe rooms within the district to FEMA construction guidelines.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to students and faculty by providing shelter in high-risk areas during extreme weather events. Reduce risk of injuries and fatalities to students and faculty.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

	Schulenburg ISD – Action #4
Proposed Action:	Acquire and install generators with hard wired quick connections at all campus facilities.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	Schulenburg ISD – Action #5
Proposed Action:	Harden/retrofit campus facilities to hazard-resistant levels.
BACKGROUND INFORMATION	
Site and Location:	District-wide campus facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at campus facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to students and faculty.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Earthquake, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to students and faculty.

	Schulenburg ISD – Action #6
Proposed Action:	Install cover walkways or canopies throughout district during extreme heat events.
BACKGROUND INFORMATION	
Site and Location:	District-wide campuses
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to students and faculty by providing shelter during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

	Schulenburg ISD – Action #7
Proposed Action:	Construct covered areas for transportation vehicles to prevent damage from extreme weather conditions
BACKGROUND INFORMATION	
Site and Location:	District transportation area
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages for critical transportation vehicles. Reduce risk of injury to students and faculty. Ensure mean of evacuation.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Evacuation Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to students and faculty.

		Schulenburg ISD – Action #8
	Proposed Action:	Install lightning protection for existing and future infrastructure and critical facilities.
	BACKGROUND INFORMATION	
	Site and Location:	District-wide campuses
	Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Lightning
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

	Schulenburg ISD – Action #9
Proposed Action:	Adopt and implement program to insulate pipes at campus buildings.
BACKGROUND INFORMATION	
Site and Location:	District-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages resulting from freezing temperatures; Ensure continuity of public services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

	Schulenburg ISD – Action #10
Proposed Action:	Study conducted on flooding issues and damage sustained to campus parking lot. Review and implement recommended flood mitigation actions.
BACKGROUND INFORMATION	
Site and Location:	Campus parking lots at the New Gym and Football Field (West of the Elementary School)
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through flood mitigation and drainage improvements.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline: (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	Local District Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TDEM; Federal Grants: FEMA HMA Grants, CDBG, SBA
Lead Agency/Department Responsible:	ISD Administration and Maintenance
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects district and reduces risk of flooding.

SECTION 20
PLAN MAINTENANCE

SECTION 20: PLAN MAINTENANCE

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PLAN MAINTENANCE PROCEDURES

The following is an explanation of how the participating jurisdictions within Fayette County, and the general public will be involved in implementing, evaluating, and enhancing the Plan over time. When the plan is discussed in all maintenance procedures it includes mitigation actions and hazard assessments. The sustained hazard mitigation planning process consists of four main parts:

- Incorporation
- Monitoring and Evaluation
- Updating
- Continued Public Involvement

INCORPORATION

Participating jurisdictions within Fayette County will be responsible for further development and implementation of mitigation actions. Each action has been assigned to a specific department within the participating jurisdictions. The following describes the process by which participating jurisdictions will incorporate elements of the mitigation plan into other planning mechanisms.

PROCESS OF INCORPORATION

Once the Plan Update is adopted, participating jurisdictions within Fayette County will implement actions based on priority and the availability of funding. The Planning Area currently implements policies and programs to reduce loss to life and property from hazards. The mitigation actions developed for this Plan Update enhance this ongoing effort and will be implemented through other program mechanisms where possible.

The potential funding sources listed for each identified action may be used when the jurisdiction seeks funds to implement actions. An implementation time period or a specific implementation date has been assigned to each action as an incentive for completing each task and gauging whether actions are implemented in a timely manner.

Participating jurisdictions within Fayette County will integrate implementation of their mitigation actions with other plans and policies such as construction standards and emergency management plans, and ensure that these actions, or proposed projects, are reflected in other planning efforts.

SECTION 20: PLAN MAINTENANCE

Coordinating and integrating components of other plans and policies into goals and objectives of the Plan Update will further maximize funding and provide possible cost-sharing of key projects, thereby reducing loss of lives and property and mitigating hazards affecting the area.

Upon formal adoption of the Plan Update, planning team members from each participating jurisdiction will work to integrate the hazard mitigation strategies into other plans and codes as they are developed. Participating team members will conduct periodic reviews of plans and policies, once per year at a minimum, and analyze the need for revisions in light of the approved Plan. The planning team will review all comprehensive land use plans (applicable jurisdictions only), capital improvement plans (applicable jurisdictions only), annual budget reviews, emergency operations or management plans, and transportation plans (applicable jurisdictions only) to guide and control development. Participating jurisdictions will ensure that capital improvement planning (applicable jurisdictions only) in the future will also contribute to the goals of this hazard mitigation Plan Update to reduce the long-term risk to life and property from all hazards. Within one year of formal adoption of the hazard mitigation Plan Update, existing planning mechanisms will be reviewed by each jurisdiction.

Fayette County is committed to supporting the participating jurisdictions as they implement their mitigation actions. Planning team members will review and revise, as necessary, the long-range goals and objectives in strategic plan and budgets to ensure that they are consistent with this mitigation action plan. Additionally, the Planning Area will work to advance the goals of this hazard mitigation plan through its routine, ongoing, long-range planning, budgeting, and work processes.

Table 20-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts. The team members, listed in Table 20-2 below, will be responsible for the review of these planning mechanisms and their incorporation of the plan, with the exception of the Floodplain Management Plans; the jurisdictions who have a Floodplain Administrator on staff will be responsible for incorporating the plan when floodplain management plans are updated or new plans are developed.

Table 20-1. Methods of Incorporation of the Plan

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
Annual Budget Review	Fayette County: EMC City of Carmine: City Secretary City of Ellinger: Mayor City of Fayetteville: Mayor City of Flatonia: City Manager City of La Grange: Fire Chief City of Round Top: Mayor City of Schulenburg: City Administrator Fayetteville ISD: Superintendent Flatonia ISD: Superintendent La Grange ISD: Director of Operations Round Top-Carmine ISD: Superintendent	Various departments and key personnel that participated in the planning process for participating jurisdictions within Fayette County will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
	Schulenburg ISD: Superintendent	
Capital Improvement Plans	City of Ellinger: Mayor City of Flatonia: City Manager City of La Grange: Fire Chief Fayetteville ISD: Superintendent Flatonia ISD: Superintendent Round Top-Carmine ISD: Superintendent	Several participating jurisdictions within Fayette County have a Capital Improvement Plan (CIP) in place or under development. Prior to any revisions to the CIP, City and ISD departments will review the risk assessment and mitigation strategy sections of the HMAP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Comprehensive Plans	City of Ellinger: Mayor City of Flatonia: City Manager City of La Grange: Fire Chief City of Schulenburg: City Administrator Round Top-Carmine ISD: Superintendent	Several participating jurisdictions within Fayette County have Long-term Comprehensive Development Plans in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.
Floodplain Management Plans	Fayette County: Floodplain Administrator City of Carmine: Floodplain Administrator City of Fayetteville: Floodplain Administrator City of Flatonia: Floodplain Administrator City of La Grange: Floodplain Administrator City of Round Top: Floodplain Administrator City of Schulenburg: Floodplain Administrator	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 5 of this Plan Update discussing the people and property at risk to flood will be reviewed and revised when participating jurisdictions within Fayette County update their management plans or develops new plans.
Grant Applications	Fayette County: Grants Manager City of Carmine: City Secretary City of Ellinger: Mayor City of Fayetteville: Mayor City of Flatonia: City Manager City of La Grange: Fire Chief City of Round Top: Mayor	The Plan will be evaluated by participating jurisdictions within Fayette County when grant funding is sought for mitigation projects. If a project is not in the Plan Update, a Plan Revision may be necessary to include the action in the Plan.

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
	City of Schulenburg: City Administrator Fayetteville ISD: Superintendent Flatonia ISD: Superintendent La Grange ISD: Director of Operations Round Top-Carmine ISD: Superintendent Schulenburg ISD: Superintendent	
Regulatory Plans	Fayette County: EMC City of Ellinger: Mayor City of Fayetteville: Mayor City of Flatonia: City Manager City of La Grange: Fire Chief City of Schulenburg: City Administrator Fayetteville ISD: Superintendent Flatonia ISD: Superintendent La Grange ISD: Director of Operations Round Top-Carmine ISD: Superintendent Schulenburg ISD: Superintendent	Currently, several participating jurisdictions within Fayette County have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County, City, and ISD departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.

MONITORING AND EVALUATION

Periodic revisions of the Plan are required to ensure that goals, objectives, and mitigation actions are kept current. When the plan is discussed in these sections it includes the risk assessment and mitigation actions as a part of the monitoring, evaluating, updating and review process. Revisions may be required to ensure the Plan is in compliance with federal and state statutes and regulations. This section outlines the procedures for completing Plan revisions, updates, and review. Table 20-2 indicates the department and title of the party responsible for Plan monitoring, evaluating, updating, and review of the Plan.

Table 20-2. Team Members Responsible for Plan Monitoring, Evaluating, Updating, and Review of the Plan

JURISDICTION	TITLE
Fayette County	EMC
City of Carmine	City Secretary
City of Ellinger	Mayor
City of Fayetteville	Mayor

SECTION 20: PLAN MAINTENANCE

JURISDICTION	TITLE
City of Flatonia	City Manager
City of La Grange	Fire Chief
City of Round Top	Mayor
City of Schulenburg	City Administrator
Fayetteville ISD	Superintendent
Flatonia ISD	Superintendent
La Grange ISD	Director of Operations
Round Top-Carmine ISD	Superintendent
Schulenburg ISD	Superintendent

MONITORING

Designated Planning Team members are responsible for monitoring, evaluating, updating, and reviewing the Plan, as shown in Table 20-2. Individuals holding the title listed in Table 20-2 will be responsible for monitoring the Plan on an annual basis. Plan monitoring includes reviewing and incorporating into the Plan other existing planning mechanisms that relate or support goals and objectives of the Plan; monitoring the incorporation of the Plan into future updates of other existing planning mechanisms as appropriate; reviewing mitigation actions submitted and coordinating with various County, City, and ISD departments to determine if mitigation actions need to be re-evaluated and updated; evaluating and updating the Plan as necessary; and monitoring plan maintenance to ensure that the process described is being followed, on an annual basis, throughout the planning process. The Planning Team will develop a brief report that identifies policies and actions in the plan that have been successfully implemented and any changes in the implementation process needed for continued success. A summary of meeting notes will report the particulars involved in developing an action into a project. In addition to the annual monitoring, the Plan will be similarly reviewed immediately after extreme weather events include but not limited to state and federally declared disasters.

EVALUATION

As part of the evaluation process, the Planning Team will assess changes in risk; determine whether the implementation of mitigation actions is on schedule; determine whether there are any implementation problems, such as technical, political, legal, or coordination issues; and identify changes in land development or programs that affect mitigation priorities for each respective department or organization.

The Planning Team will meet on an annual basis to evaluate the Plan and identify any needed changes and assess the effectiveness of the plan achieving its stated purpose and goals. The team will evaluate the number of mitigation actions implemented along with the loss-reduction associated with each action. Actions that have not been implemented will be evaluated to determine if any social, political, or financial barriers are impeding implementation and if any changes are necessary to improve the viability of an action. The team will evaluate changes in land development and/or programs that affect mitigation priorities in their respective jurisdictions.

The annual evaluation process will help to determine if any changes are necessary. In addition, the Plan will be similarly evaluated immediately after extreme weather events including but not limited to state and federally declared disasters.

UPDATING

PLAN REVISIONS

At any time, minor technical changes may be made to update the Fayette County Hazard Mitigation Action Plan Update 2023. Material changes to mitigation actions or major changes in the overall direction of the Plan or the policies contained within it, must be subject to formal adoption by the participating jurisdictions.

The participating jurisdictions within Fayette County will review proposed revisions and vote to accept, reject, or amend the proposed change. Upon ratification, the Revision will be transmitted to TDEM.

In determining whether to recommend approval or denial of a Plan Revision request, participating jurisdictions will consider the following factors:

- Errors or omissions made in the identification of issues or needs during the preparation of the Plan Update;
- New issues or needs that were not adequately addressed in the Plan Update; and
- Changes in information, data, or assumptions from those on which the Plan Update was based.

FIVE (5) YEAR REVIEW

The Plan will be thoroughly reviewed by the Planning Team at the end of three years from the approval date, to determine whether there have been significant changes in the planning area that necessitate changes in the types of mitigation actions proposed. Factors that may affect the content of the Plan include new development in identified hazard areas, increased exposure to hazards, disaster declarations, increase or decrease in capability to address hazards, and changes to federal or state legislation.

The Plan review process provides the participating jurisdictions within Fayette County an opportunity to evaluate mitigation actions that have been successful, identify losses avoided due to the implementation of specific mitigation measures, and address mitigation actions that may not have been successfully implemented as assigned.

It is recommended that the full Executive and Advisory Planning Team (Section 2, Tables 2-1 and 2-2) meet to review the Plan at the end of three years because grant funds may be necessary for the development of a five-year update. Reviewing planning grant options in advance of the five-year Plan update deadline is recommended considering the timelines for grant and planning cycles can be in excess of a year.

Following the Plan review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures and Plan Revision process outlined herein. Upon completion of the review, update, and revision process the revised Plan will be submitted to TDEM for final review and approval in coordination with FEMA.

CONTINUED PUBLIC INVOLVEMENT

Public input was an integral part of the preparation of this Plan and will continue to be essential for Plan updates. The Public will be directly involved in the annual evaluation, monitoring, reviews and cyclical updates. Changes or suggestions to improve or update the Plan will provide opportunities for additional public input.

The public can review the Plan on the participating jurisdictions' websites, where officials and the public are invited to provide ongoing feedback, via email.

The Planning Team may also designate voluntary citizens from the planning area or willing stakeholder members from the private sector businesses that were involved in the Plan's development to provide feedback on an annual basis. It is important that stakeholders and the immediate community maintain a vested interest in preserving the functionality of the planning area as it pertains to the overall goals of the mitigation plan. The Planning Team is responsible for notifying stakeholders and community members on an annual basis and maintaining the Plan.

Media, including local newspaper and radio stations, will be used to notify the public of any maintenance or periodic review activities during the implementation, monitoring, and evaluation phases. Additionally, local news media will be contacted to cover information regarding Plan updates, status of grant applications, and project implementation. Local and social media outlets, such as Facebook and Twitter, will keep the public and stakeholders apprised of potential opportunities to fund and implement mitigation projects identified in the Plan.

APPENDIX A
PLANNING TEAM

APPENDIX A: PLANNING TEAM

Planning Team Members 1
Stakeholders 3

PLANNING TEAM MEMBERS

The Fayette County Hazard Mitigation Action Plan 2023 was organized using a direct representative model. An Executive Planning Team from the participating jurisdictions, shown in Table A-1, was formed to coordinate planning efforts and request input and participation in the planning process. Table A-2 reflects the Advisory Planning Team, consisting of area organizations and departments that participated throughout the planning process. Table A-3 is comprised of stakeholders who were invited to provide Plan input. Public outreach efforts and meeting documentation is provided in Appendix E.[1]

Table A-1. Executive Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Fayette County	Emergency Management Coordinator
City of Carmine	City Secretary
City of Ellinger	Mayor
City of Fayetteville	Mayor
City of Flatonia	City Manager
City of La Grange	Fire Chief
City of Round Top	Mayor
City of Schulenburg	City Administrator
Fayetteville ISD	Superintendent
Flatonia ISD	Superintendent
La Grange ISD	Director of Operations
Round Top – Carmine ISD	Superintendent
Schulenburg ISD	Superintendent

Table A-2. Advisory Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Fayette County	County Auditor
Fayette County	County Code Enforcement and Permitting

[1] Information contained in Appendix E is exempt from public release under the Freedom of Information Act (FOIA).

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ORGANIZATION / DEPARTMENT	TITLE
Fayette County	County Commissioner, Precinct 4
Fayette County	County Court Commissioner
Fayette County	County Judge
Fayette County	EMC / Grant Administrator
Fayette County	Emergency Medical Service Director
Fayette County	Floodplain Administrator
Fayette County	GIS Administrator
Fayette County	Sergeant
Fayette County	Sheriff
City of Carmine	City Attorney
City of Carmine	Mayor
City of Ellinger	Commissioner
City of Fayetteville	City Secretary
City of Fayetteville	Fire Chief
City of Flatonia	Assistant Fire Chief
City of Flatonia	Chief of Police
City of Flatonia	City Secretary
City of Flatonia	Fire Chief
City of Flatonia	Mayor
City of La Grange	Chief of Police
City of La Grange	City Secretary
City of La Grange	Mayor
City of Round Top	City Clerk
City of Round Top	Fire Chief
City of Schulenburg	Chief of Police
City of Schulenburg	City Secretary
City of Schulenburg	Fire Chief

APPENDIX A: PLANNING TEAM

ORGANIZATION / DEPARTMENT	TITLE
City of Schulenburg	Mayor
Fayetteville ISD	Assistant Superintendent
Fayetteville ISD	Maintenance Director
Flatonia ISD	Assistant to the Superintendent
La Grange ISD	Assistant Superintendent
La Grange ISD	Superintendent
Round Top – Carmine ISD	Administrative Secretary
Schulenburg ISD	Administrative Secretary
Schulenburg ISD	Maintenance

STAKEHOLDERS

The following groups listed in Table A-3 represent a list of organizations invited to stakeholder meetings, public meetings, and workshops throughout the planning process and include members of community groups, non-profit organizations, private businesses, utility providers, neighboring counties, school and universities, state and federal agencies. The public was also invited to participate via e-mail throughout the planning process. Many of the invited organizations and stakeholders participated and were integral to providing comments and data for the Plan. For a list of attendees at meetings, please see Appendix E.

Table A-3. Stakeholders

AGENCY	TITLE	STAKEHOLDER TYPE
American Red Cross	Community Preparedness	Nonprofit / Community Organization
Bastrop County	Emergency Management Coordinator	Neighboring Community
Bluebonnet Trails Community Services	HR Director	Utility Provider
Caldwell County	Emergency Management Coordinator	Neighboring Community
Capital Area Council of Governments	Director of Regional Planning & Services	Regional Agency
Capital Area Council of Governments	Regional Service Program Specialist	Regional Agency
Colorado County	Emergency Management Coordinator	Neighboring Community
Combined Community Action (Meals on Wheels)	Executive Director	Nonprofit / Community Organization

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AGENCY	TITLE	STAKEHOLDER TYPE
Department of Homeland Security	General Contact	Federal Agency
Environmental Protection Agency Region 6	Regional Administrator	Federal Agency
Fayette Community Foundation	Executive Director	Nonprofit / Community Organization
Fayette County Groundwater Conservation District	General Manager	Utility Provider
Fayette County Historical Commission	Commission Secretary	
Fayette Water Supply Corporation	General Manager	Utility Provider / Involved In Hazard Mitigation Activities
Fayette Regional Air Center	Airport Manager	Private Organization
Feeding America – Central Texas Food Bank	PR Representative	Nonprofit / Community Organization
Gardenia E. Janseen Animal Shelter (Fayette Animal Shelter Foundation)	Executive Director	Nonprofit / Community Organization
Gonzales County	Emergency Management Coordinator	Neighboring Community
Habitat for Humanity	Executive Director	Nonprofit / Community Organization
Lavaca County	Emergency Management Coordinator	Neighboring Community
Lee County	Emergency Management Coordinator	Neighboring Community
Lee-Fayette Counties Cummins Creek WCID #1	Administrative Assistant	Utility Provider
Lower Colorado River Authority	Representative	Utility Provider / Involved In Hazard Mitigation Activities
NOAA	Chief of Police, Planning, & Communications	Federal Agency
Office of Rural and Community Affairs	Executive Director	State Agency
Stanzel Foundation	Executive Director	Community Organization
Texas A&M AgriLife Extension	Fayette County Representative	State Agency
Texas Commission on Environmental Quality (TCEQ), Region 11	Regional Director	State Agency

APPENDIX A: PLANNING TEAM

AGENCY	TITLE	STAKEHOLDER TYPE
Texas Department of Emergency Management (TDEM), Region 12	District Representative	State Agency
Texas Department of Transportation	Assistance Maintenance Supervisor	State Agency
Texas Department of Transportation	La Grange Office Representative	State Agency
Texas Department of Transportation	Maintenance Supervisor	State Agency
Texas Forest Service	La Grange Office Mitigation & Prevention Coordinator	State Agency
Texas Health and Human Services Commission	Executive Director	Healthcare Agency
Texas House District 13	Legislative Representative	State Legislature
Texas Parks & Wildlife (Texas Fish and Game)	Administrative Assistant	State Agency
Texas Senate District 18	Senator	State Legislature
St. Marks Medical Center	General Contact	Healthcare Agency
U.S. Fish & Wildlife Service, Southwest Region	Public Affairs for Texas	Federal Agency
U.S. Army Corps of Engineers	Southwest Regional Representative	Federal Agency
Washington County	Emergency Management Services	Neighboring Community

APPENDIX B
PUBLIC SURVEY RESULTS

APPENDIX B: PUBLIC SURVEY RESULTS

Overview 1
Public Survey Results 2

OVERVIEW

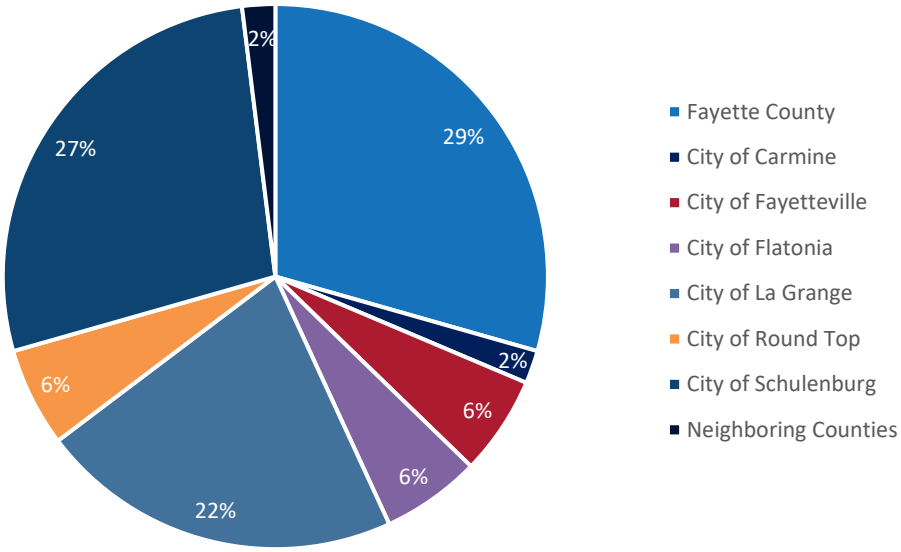
Fayette County prepared a public survey that requested public opinion on a wide range of questions relating to natural hazards. The survey was made available via the County's websites, along with participating jurisdictions. This survey link was also distributed at public meetings and stakeholder events throughout the planning process.

A total of 51 surveys were collected, the results of which are analyzed in Appendix B. The purpose of the survey was twofold: 1) to solicit public input during the planning process, and 2) to help the jurisdictions identify any potential actions or problem areas.

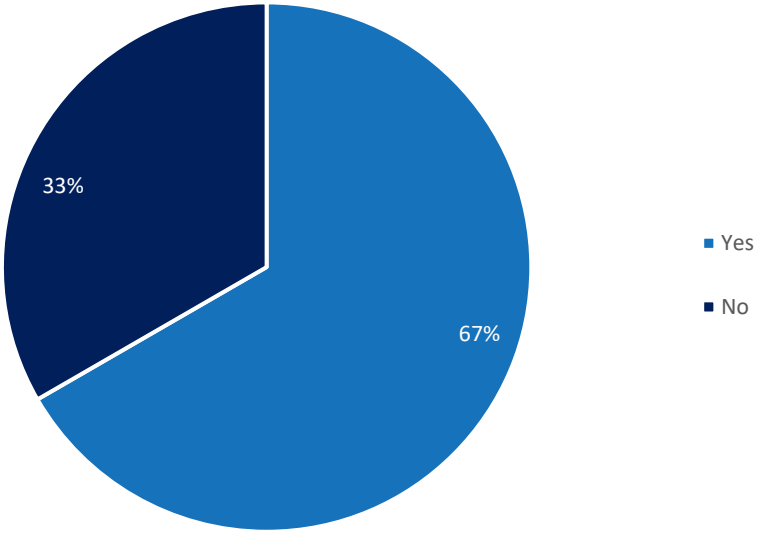
The following survey results depict the percentage of responses for each answer. Similar responses have been summarized for questions that did not provide a multiple-choice answer or that required an explanation.

PUBLIC SURVEY RESULTS

1. Please state the jurisdiction (city or community) where you reside.[1]

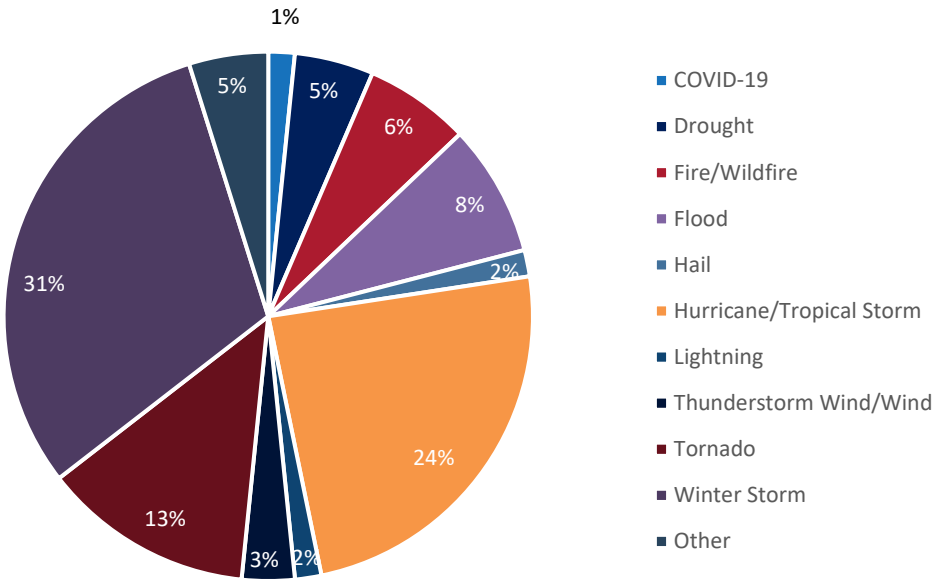


2. Have you ever experienced or been impacted by a disaster?

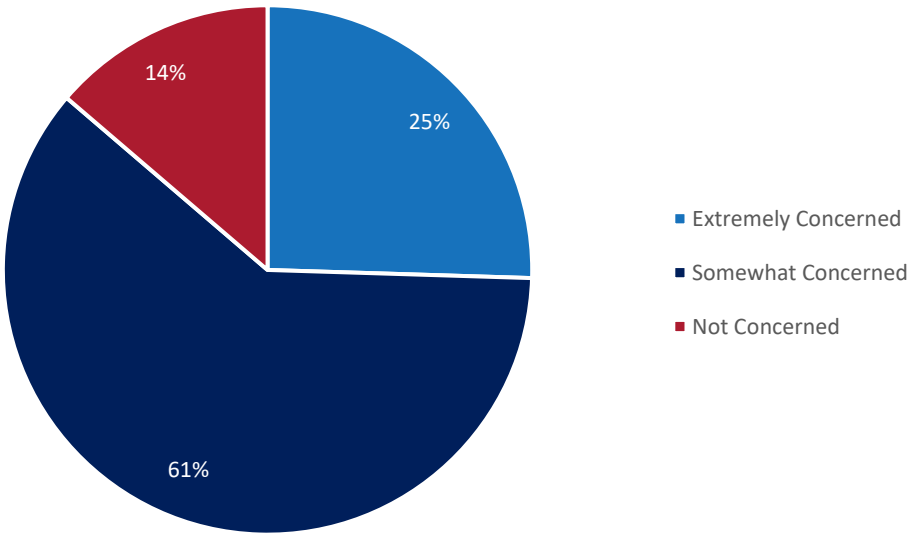


[1] The ISDs are represented within the geographic location in which they are located.

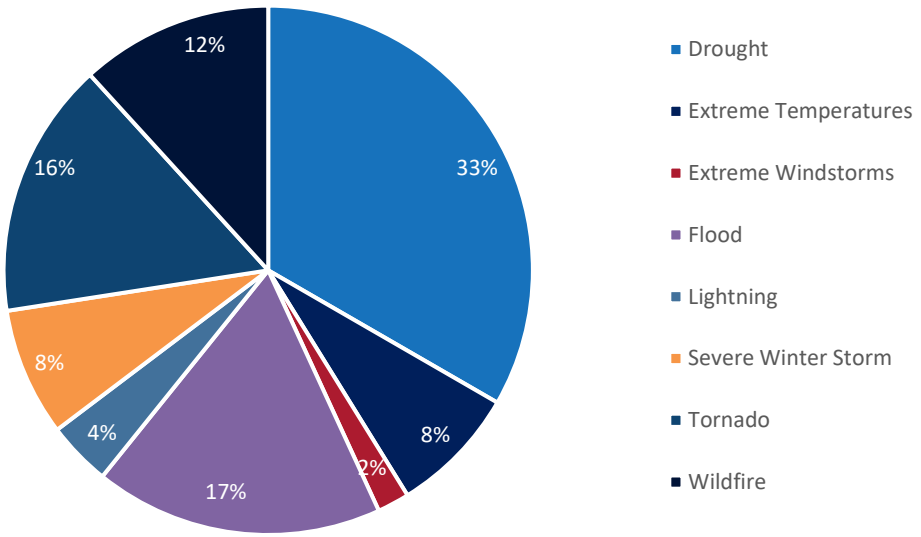
3. If you answered “Yes” to Question #2, please explain.



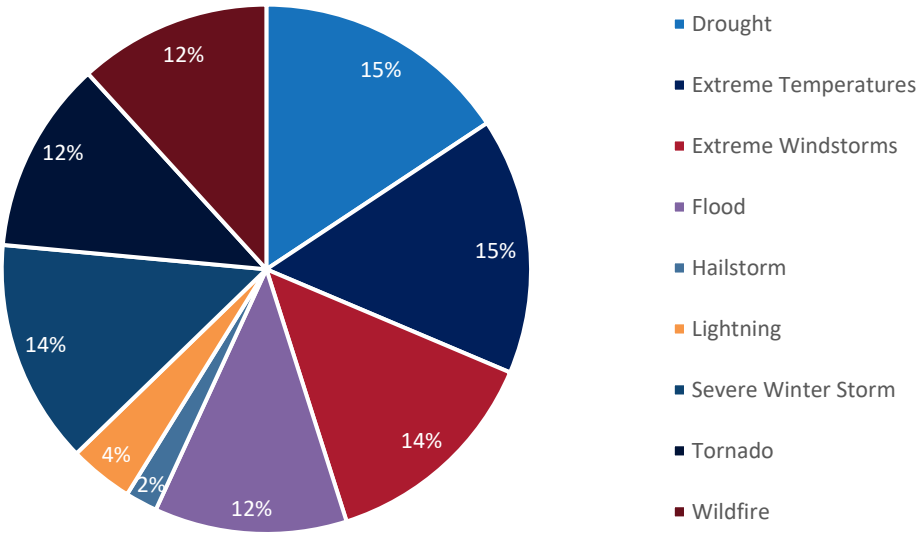
4. How concerned are you about the possibility of your community being impacted by a disaster?



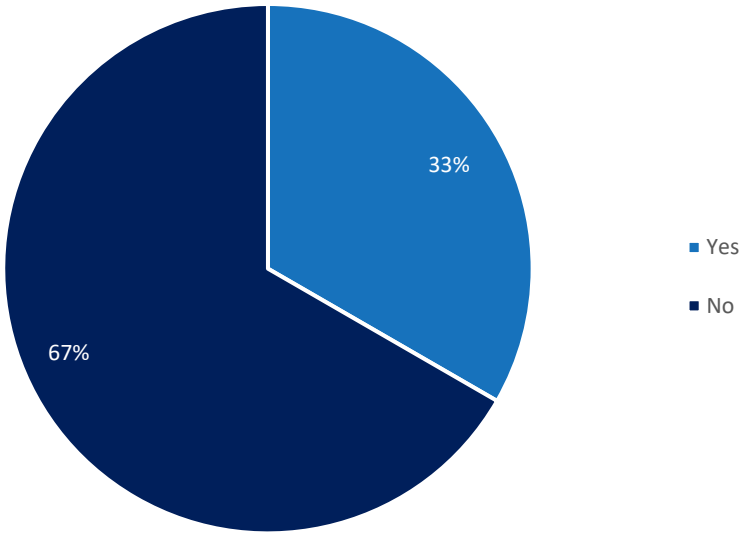
5. Please select the one hazard you think is the highest threat to your neighborhood:



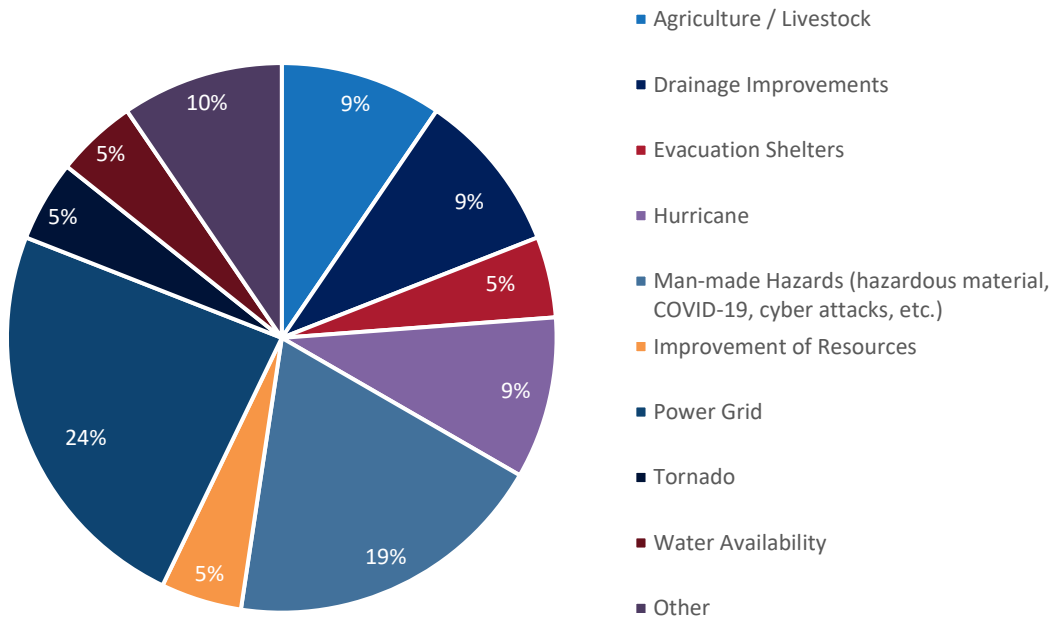
6. Please select the one hazard you think is the second highest threat to your neighborhood:



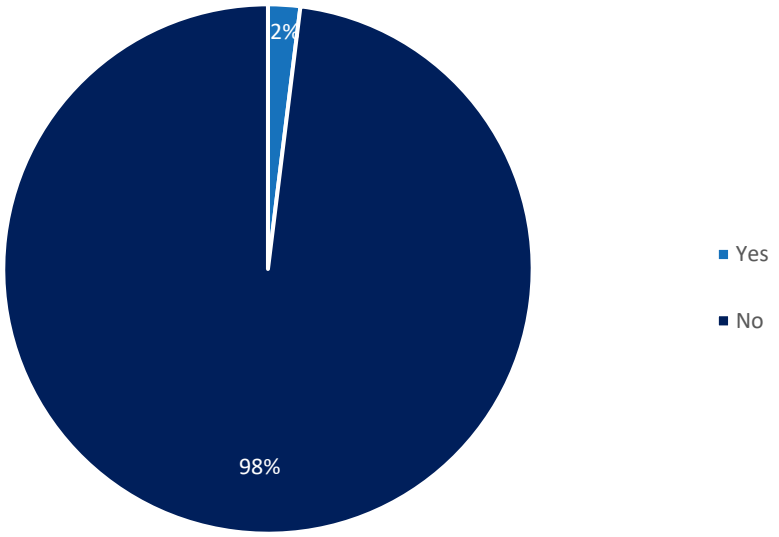
7. Is there another hazard not listed above that you this is a wide-scale threat to your neighborhood?



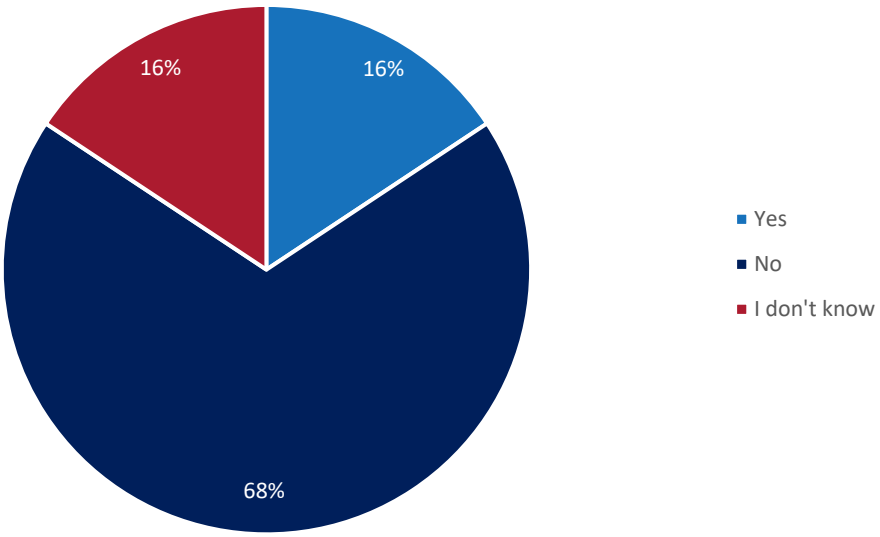
8. If you answered “Yes” to Question #7, please explain.



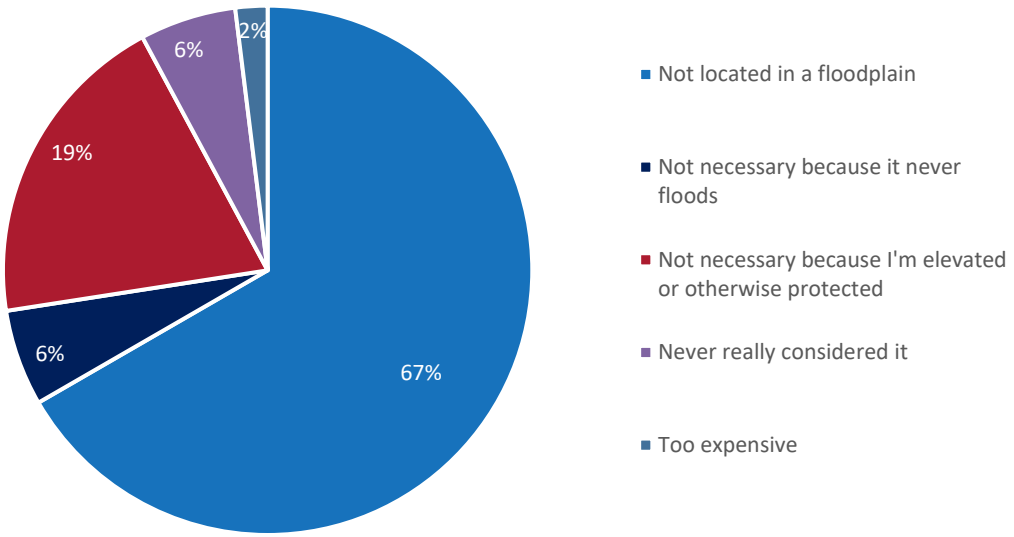
9. Is your home located in a floodplain?



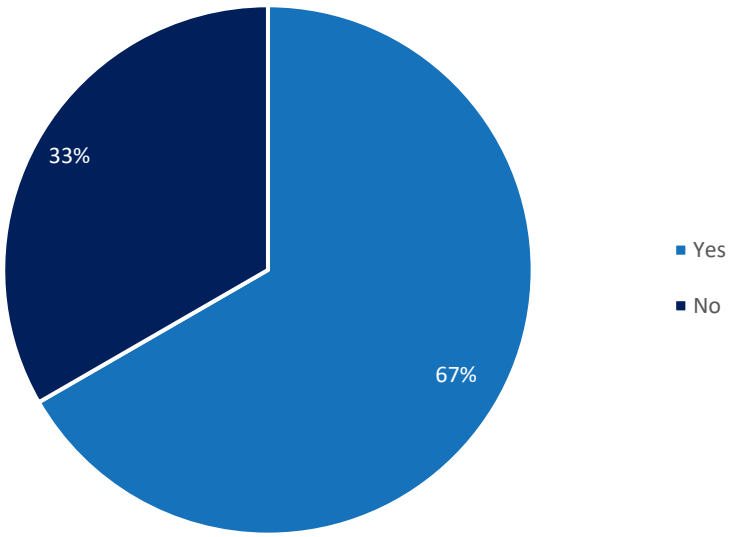
10. Do you have flood insurance?



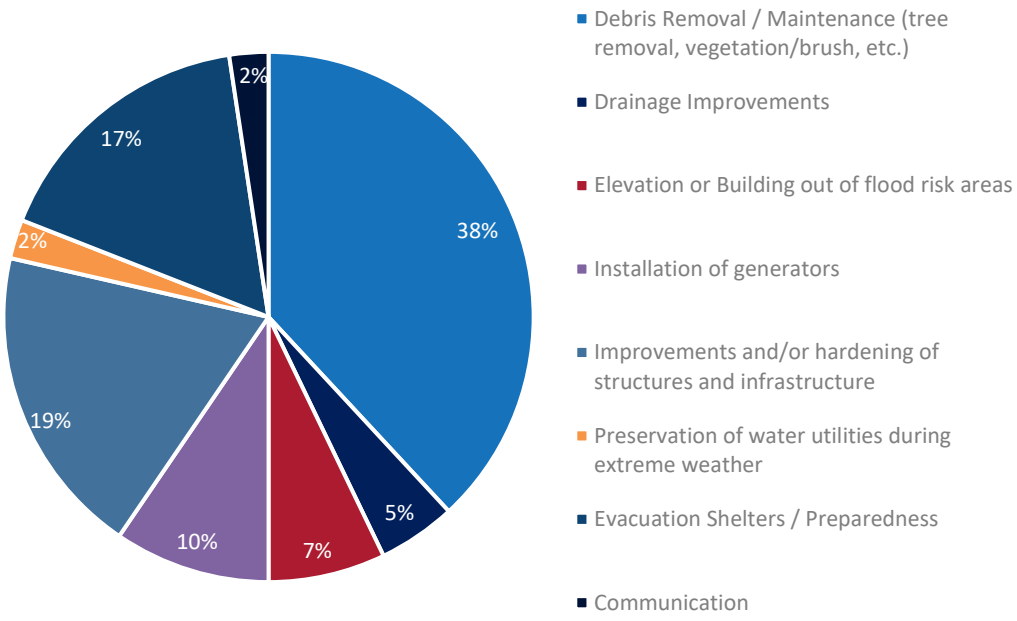
11. If you do not have flood insurance, why not?



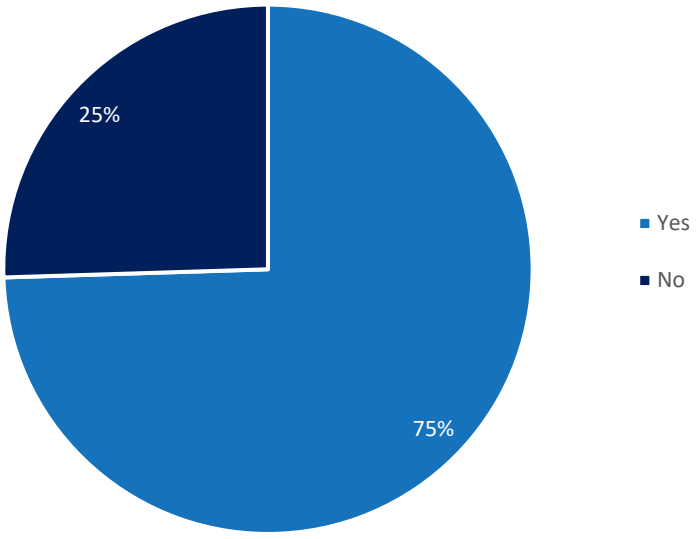
12. Have you taken any actions to make your home or neighborhood more resistant to hazards?



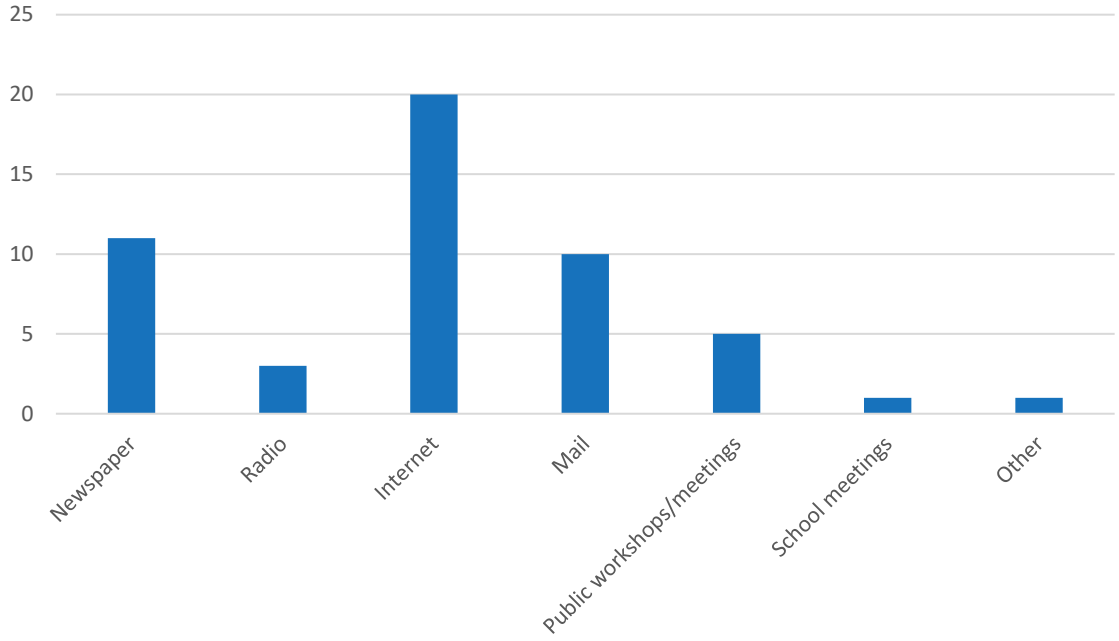
13. If you answered “Yes” to Question #12, please explain.



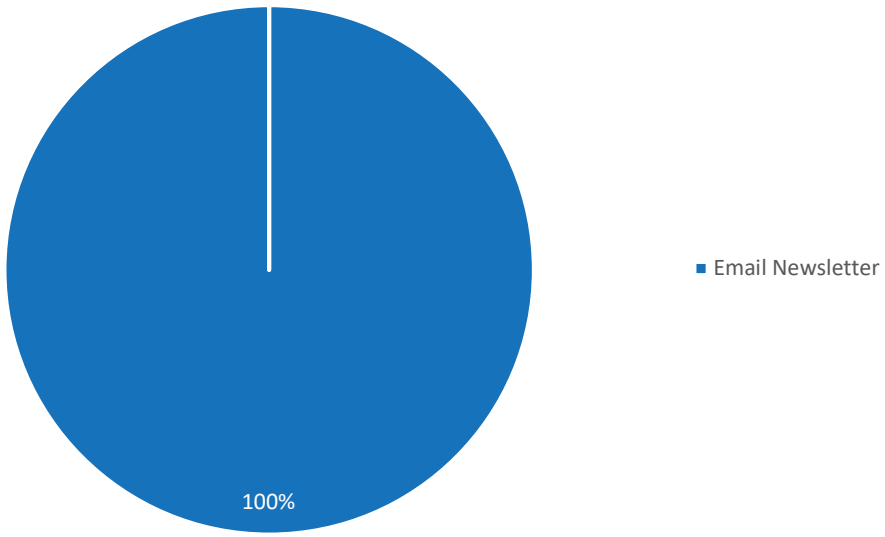
14. Are you interested in making your home or neighborhood more resistant to hazards?



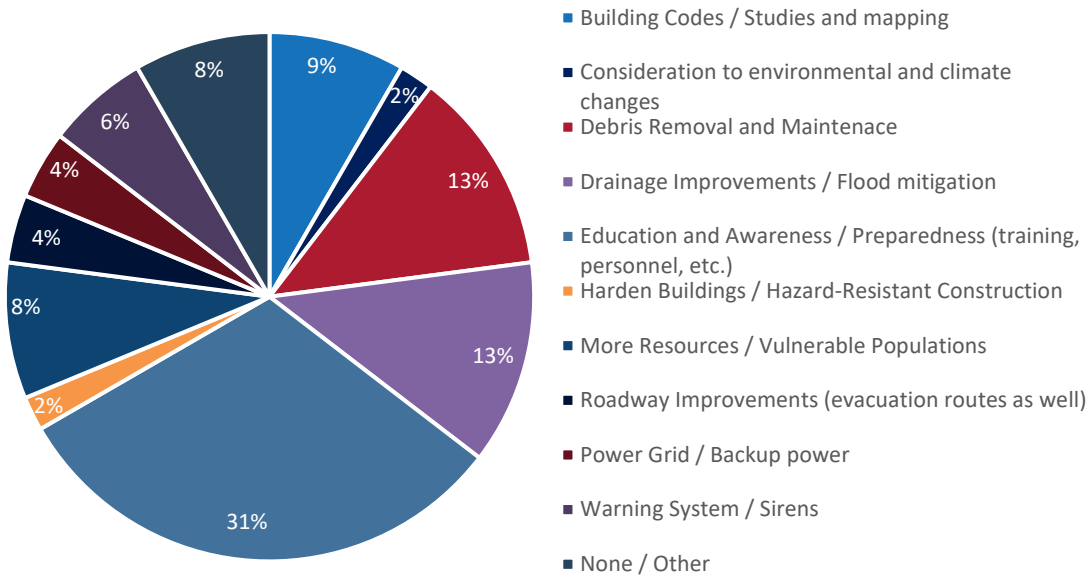
15. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?



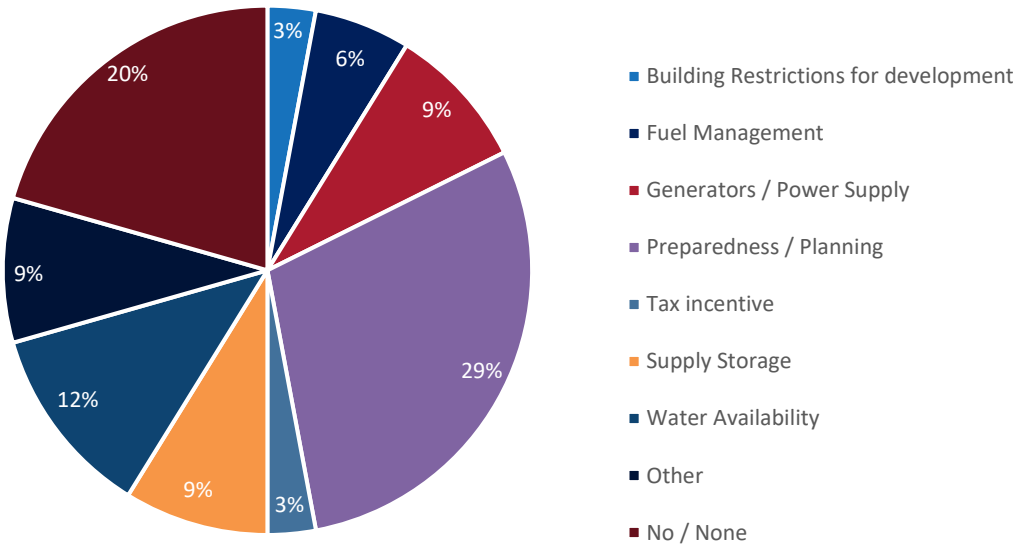
16. If you answered “Other” to Question #15, please explain.



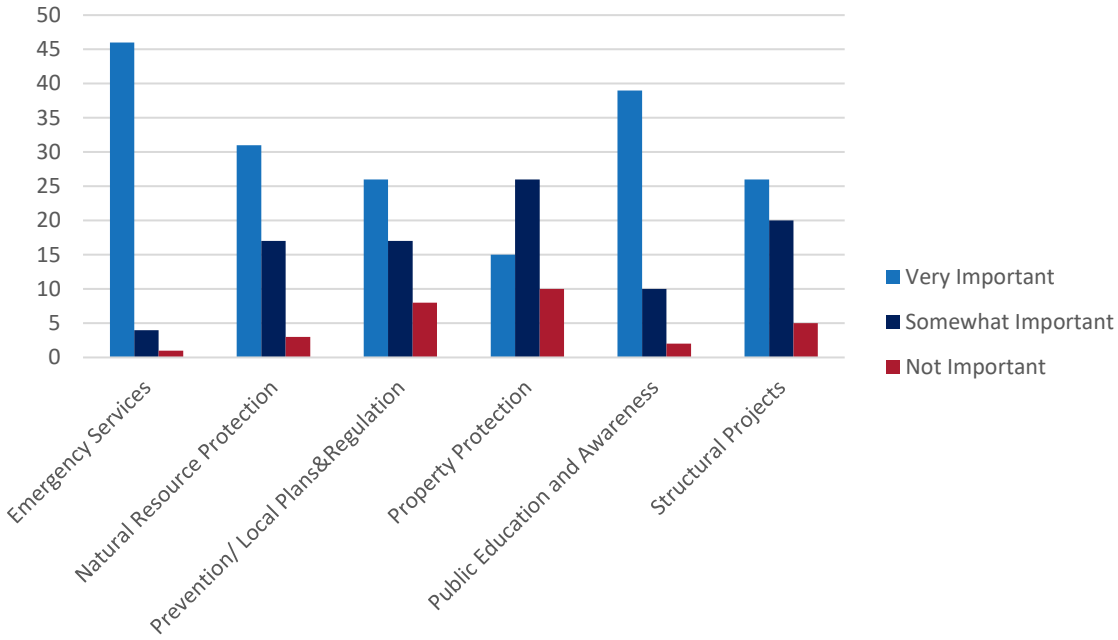
17. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?



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



19. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.



Emergency Services - Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical facilities or systems.

Natural Resource Protection - Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.

Prevention / Local Plans & Regulations - Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.

Property Protection - Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.

Public Education and Awareness - Actions to inform citizens about hazards and techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials, and demonstration events.

Structural Projects - Actions 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 modification, retaining walls, and storm sewers.

APPENDIX C
CRITICAL FACILITIES

APPENDIX C: CRITICAL FACILITIES

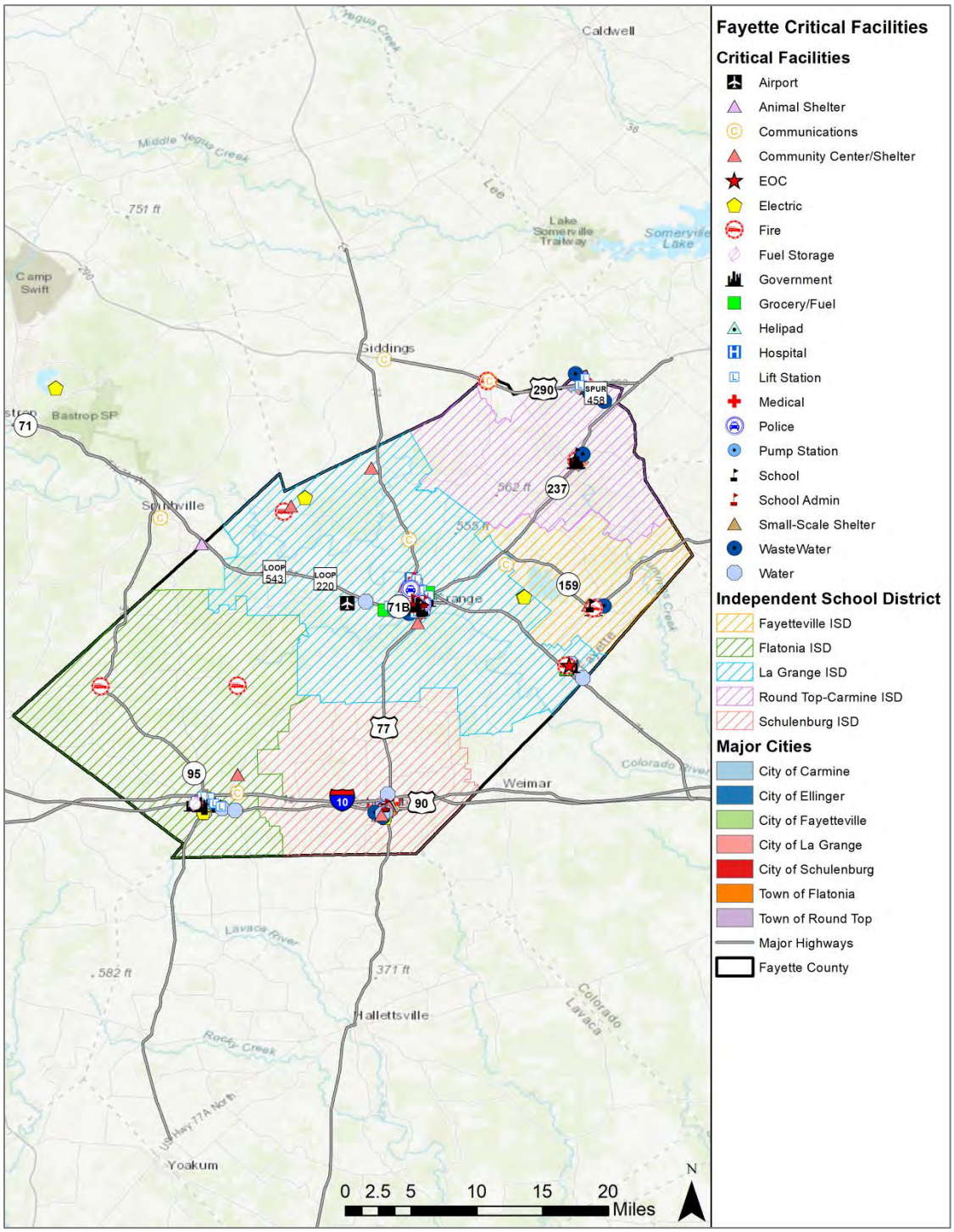
Overview 1
Critical Facilities 2

OVERVIEW

Appendix C is **For Official Use Only (FOUO)** and may be exempt from public release under FOIA. Figures C-1 through C-13 locate all critical facilities that were included in the risk assessment. Mapped facilities were provided by Planning Team members. Tables C-1 through C-13 note the critical facilities by type.

CRITICAL FACILITIES

Figure C-1. Critical Facilities in Fayette County



APPENDIX C: CRITICAL FACILITIES

Table C-1. Critical Facilities by Type in Fayette County

TYPE	NUMBER
Airport	1
Air (Heli) Evacuation	1
Animal Shelter	3
Commercial (Food) Suppliers	2
Commissioner Precinct Equipment Barn	4
Communication Tower	11
Electric Utility	2
EMS Station	4
EOC / EMS	1
Fire Station (VFD)	13
Fuel Supply	1
Government Building	9
LCRA Maintenance Facility	2
LCRA Critical Power Plant	4
Medical Hospital	1
Police Station	3
Power Plant	4
School	7
Shelter	4
Telecommunication Utility	1
Water Utility	1

Figure C-2. Critical Facilities in the City of Carmine

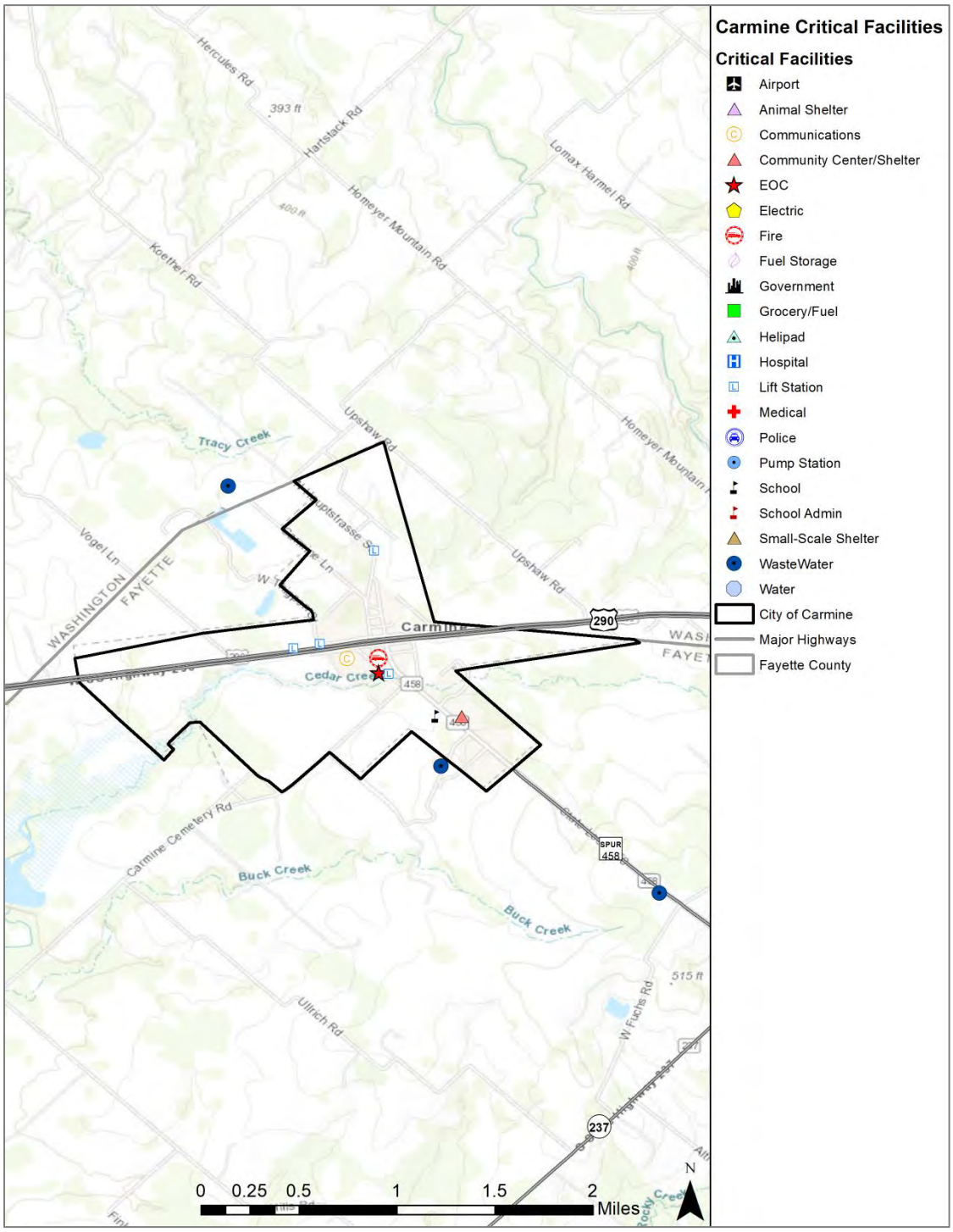


Table C-2. Critical Facilities by Type in the City of Carmine

TYPE	NUMBER
Government Building	1
Lift Station	4
Wastewater Plant	1
Water Plant	2

Figure C-3. Critical Facilities in the City of Ellinger

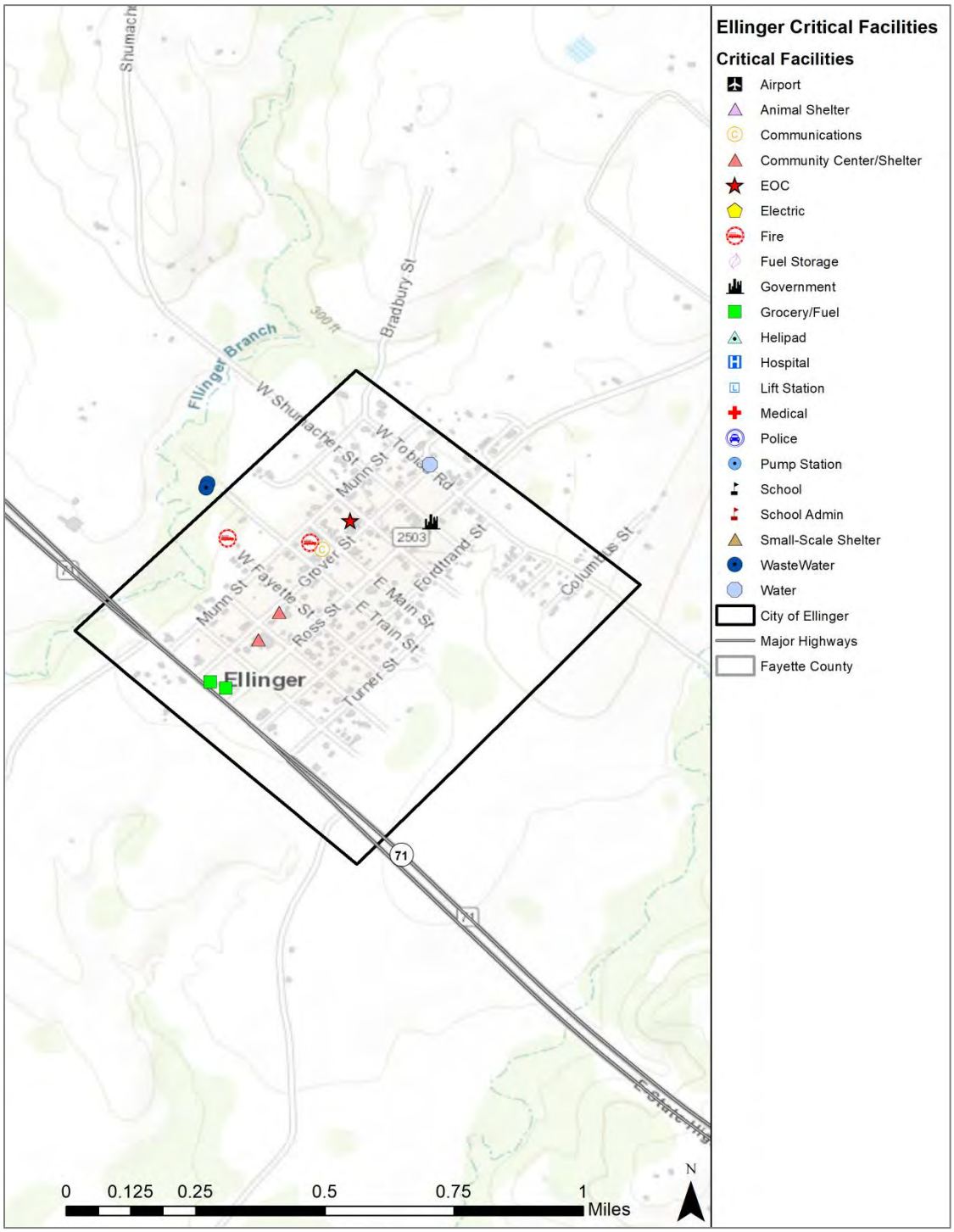


Table C-3. Critical Facilities by Type in the City of Ellinger

TYPE	NUMBER
Church / Shelter	1
Commercial Food Supplier	1
Communication Tower	1
Electric Provider	1
Fire Department	1
Fuel Supplier	1
Government Building	2
Wastewater Treatment Plant	1
Water Storage	1
Water Treatment Plant	1
Water Well	3

Figure C-4. Critical Facilities in the City of Fayetteville

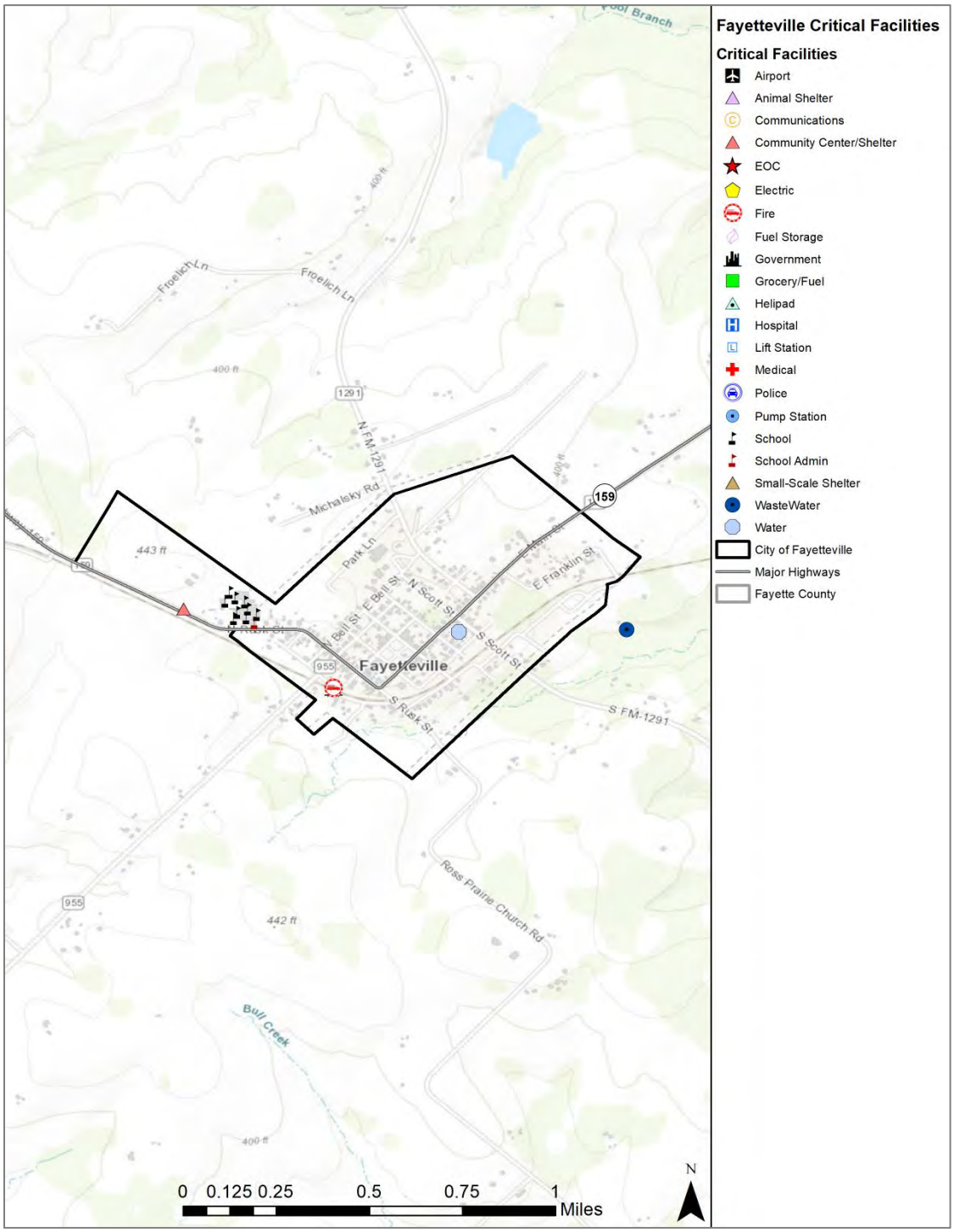


Table C-4. Critical Facilities by Type in the City of Fayetteville

TYPE	NUMBER
Fire Department	1
Government Building	1
Sewer Plant	1
Water Well	1

Figure C-5. Critical Facilities in the City of Flatonia

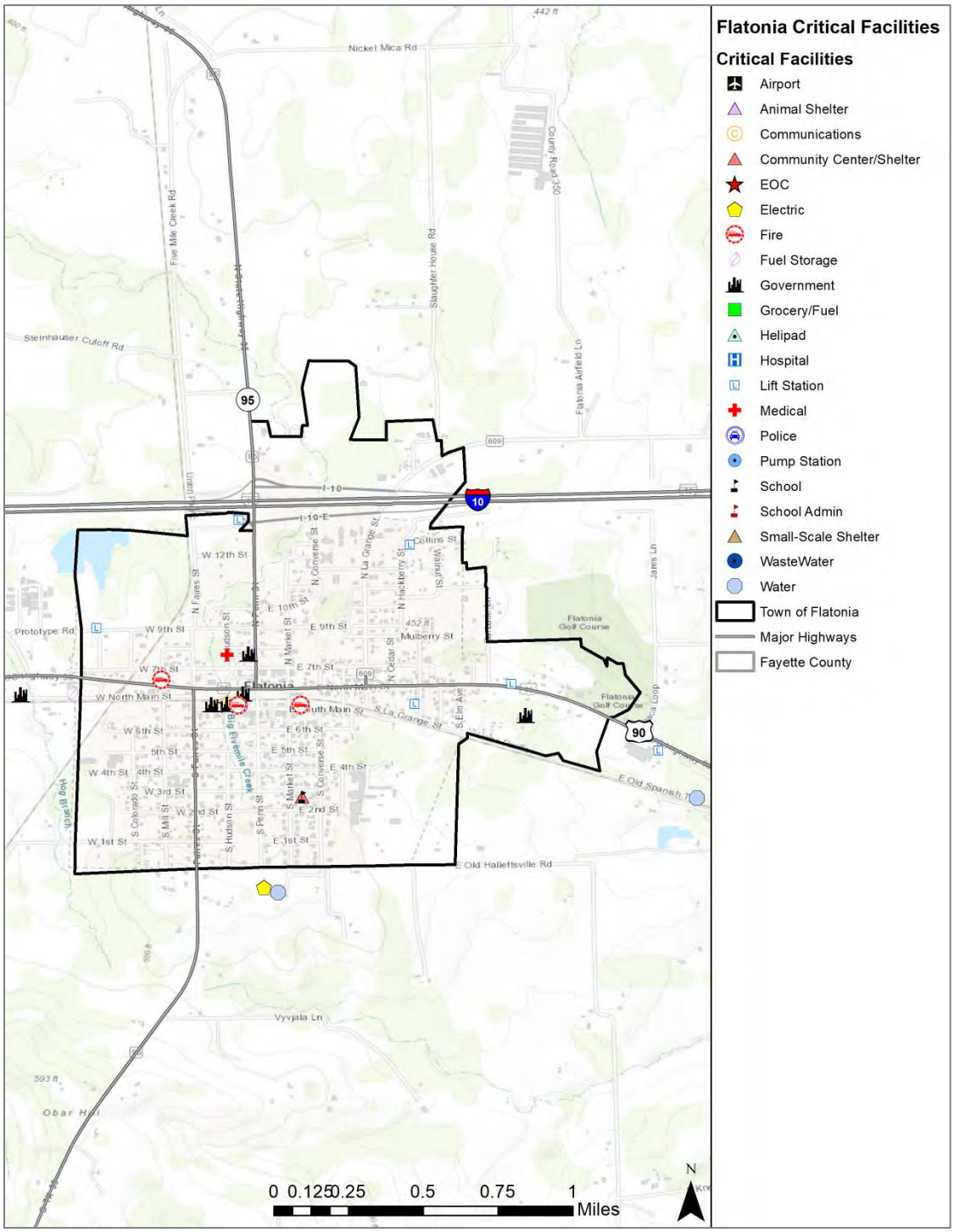


Table C-5. Critical Facilities by Type in the City of Flatonia

TYPE	NUMBER
Electric Substation	1
Electrical Infrastructure	1
Fire Station (VFD)	2
Fuel Storage Tank	1
Government Building	4
Lift Station	7
Police Station	1
Residential Facility	1
School District	1
Sewer Plant	1
Utility / Maintenance Building	1
Water Well Supply Plant	3

Figure C-6. Critical Facilities in City of La Grange

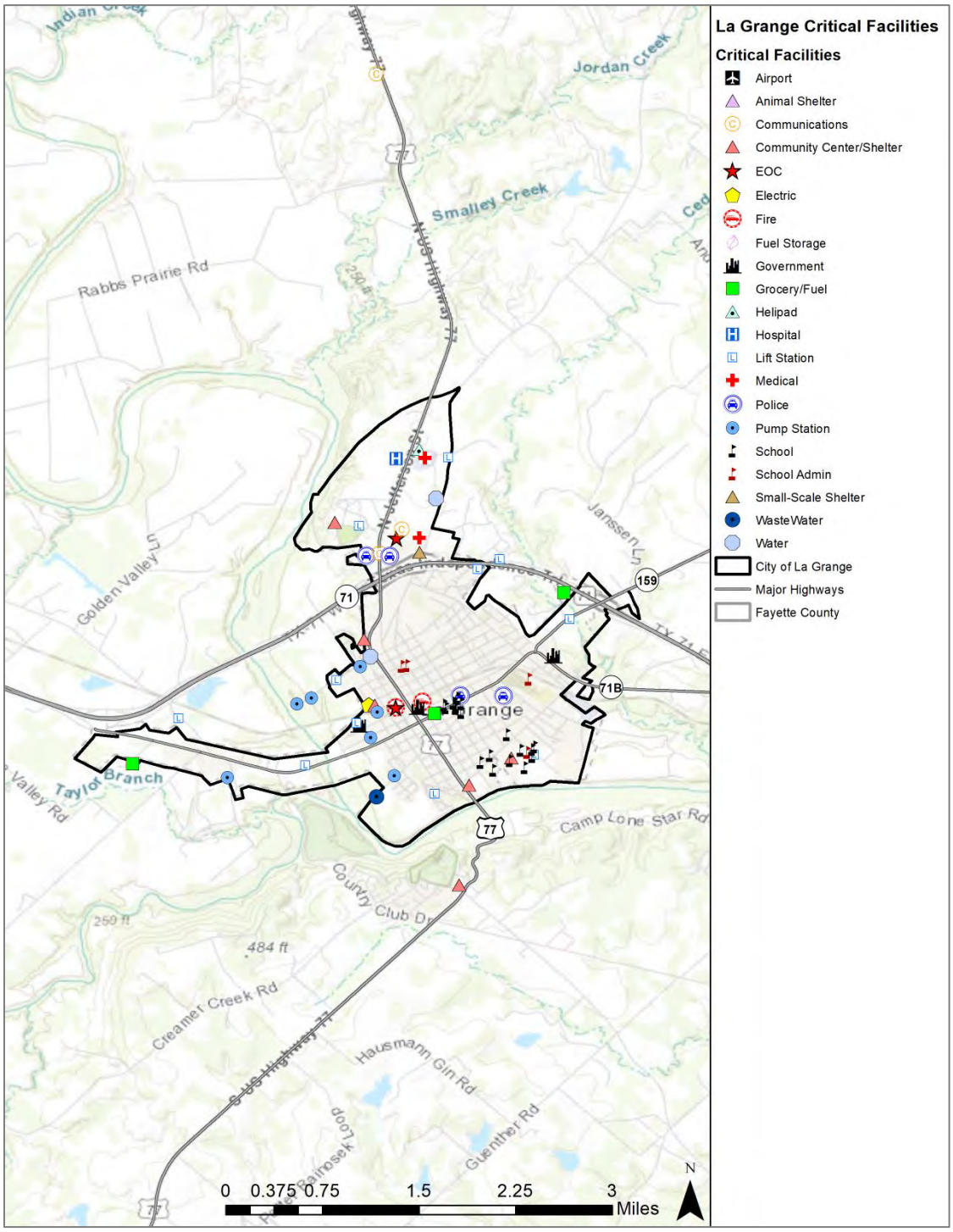


Table C-6. Critical Facilities by Type in City of La Grange

TYPE	NUMBER
EMS Station	1
Fire Station	1
Government Building	2
Lift Station	11
Medical Hospital	1
Nursing Home / Assisted Living	3
Police Station	1
Pump Station	7
Wastewater Plant	1
Water Storage – Elevated Tank	2

Figure C-7. Critical Facilities in City of Round Top

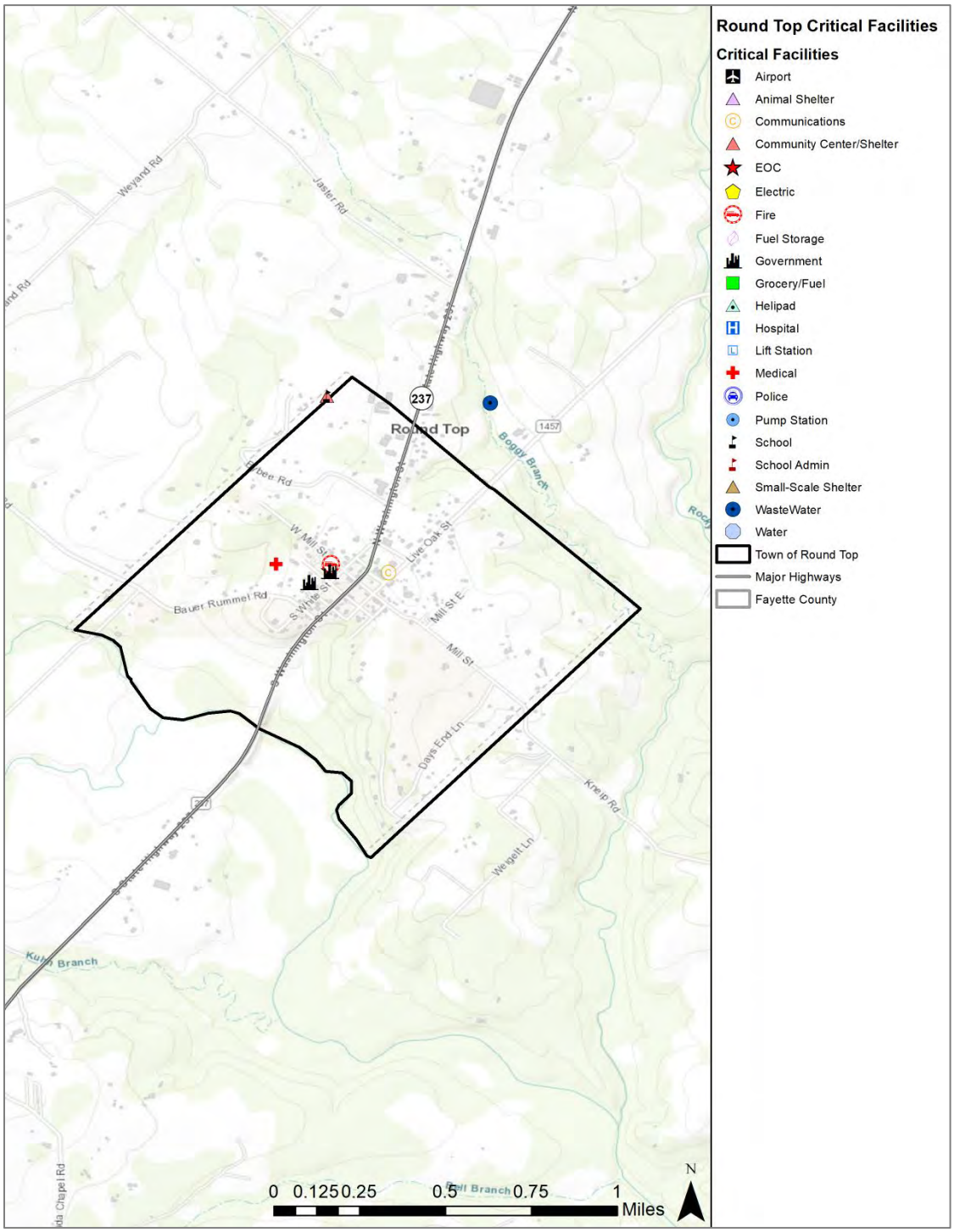
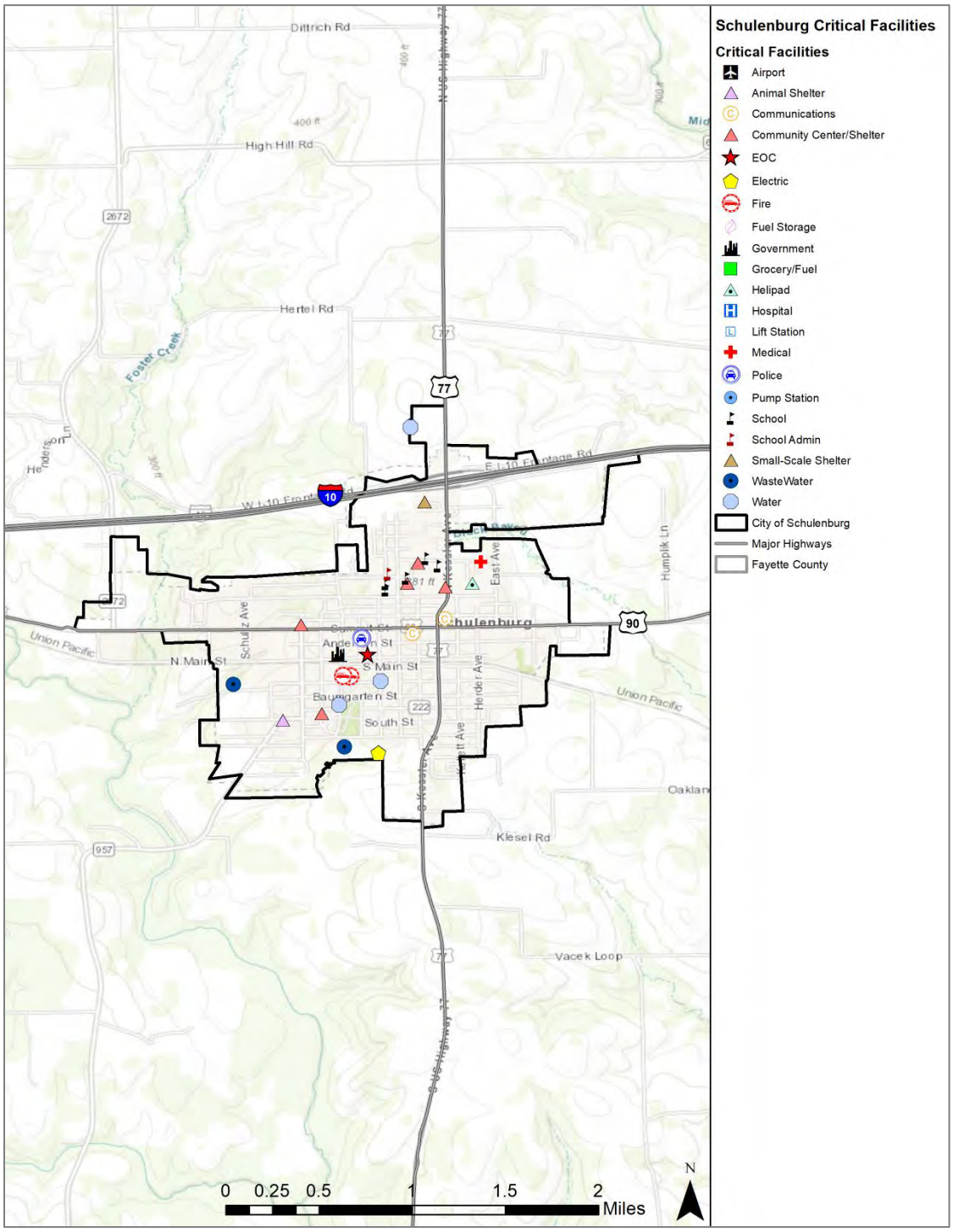


Table C-7. Critical Facilities by Type in City of Round Top

TYPE	NUMBER
Fire Station (VFD)	1
Government Building	2
Wastewater Plant	1
School District	1

Figure C-8. Critical Facilities in the City of Schulenburg



APPENDIX C: CRITICAL FACILITIES

Table C-8. Critical Facilities by Type in City of Schulenburg

TYPE	NUMBER
Air (Heli) Evacuation	1
Community Center	1
Electric Substation	1
Fire Station (VFD)	1
Government Building	1
Nursing Home/ Assisted Living Facility	3
Police Station	1
Retirement Community	1
School District	1
Shelter	1
Wastewater Treatment Plant	2
Water Plant	1
Water Well	2

Figure C-9. Critical Facilities in Fayetteville ISD

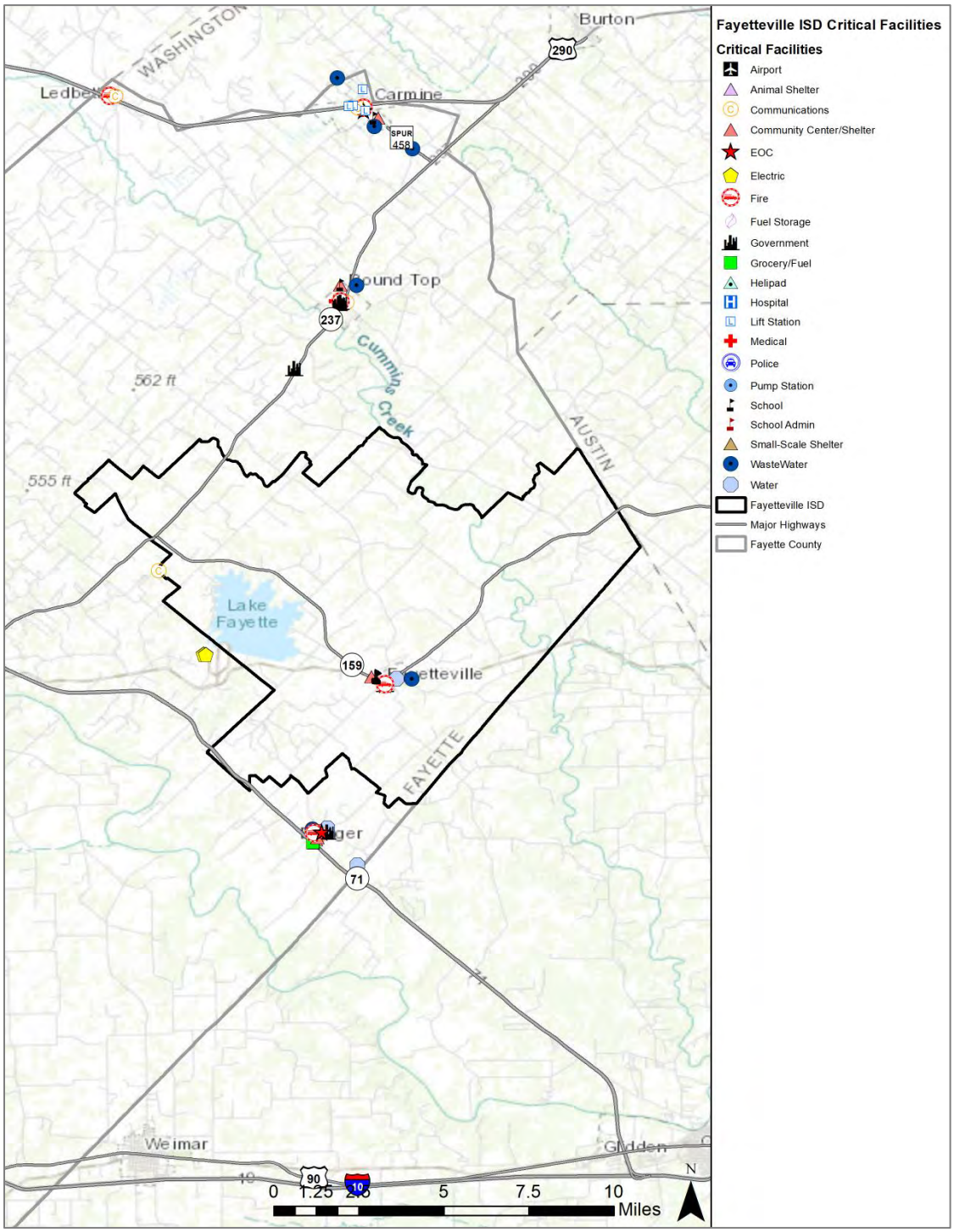


Table C-9. Critical Facilities by Type in Fayetteville ISD

TYPE	NUMBER
Administration Building	1
Ag Building	1
Cafeteria	1
Elementary School	1
Gymnasium	2
Intervention Learning Facility	1
Junior High School	1
Science Building	1

Figure C-10. Critical Facilities in Flatonia ISD

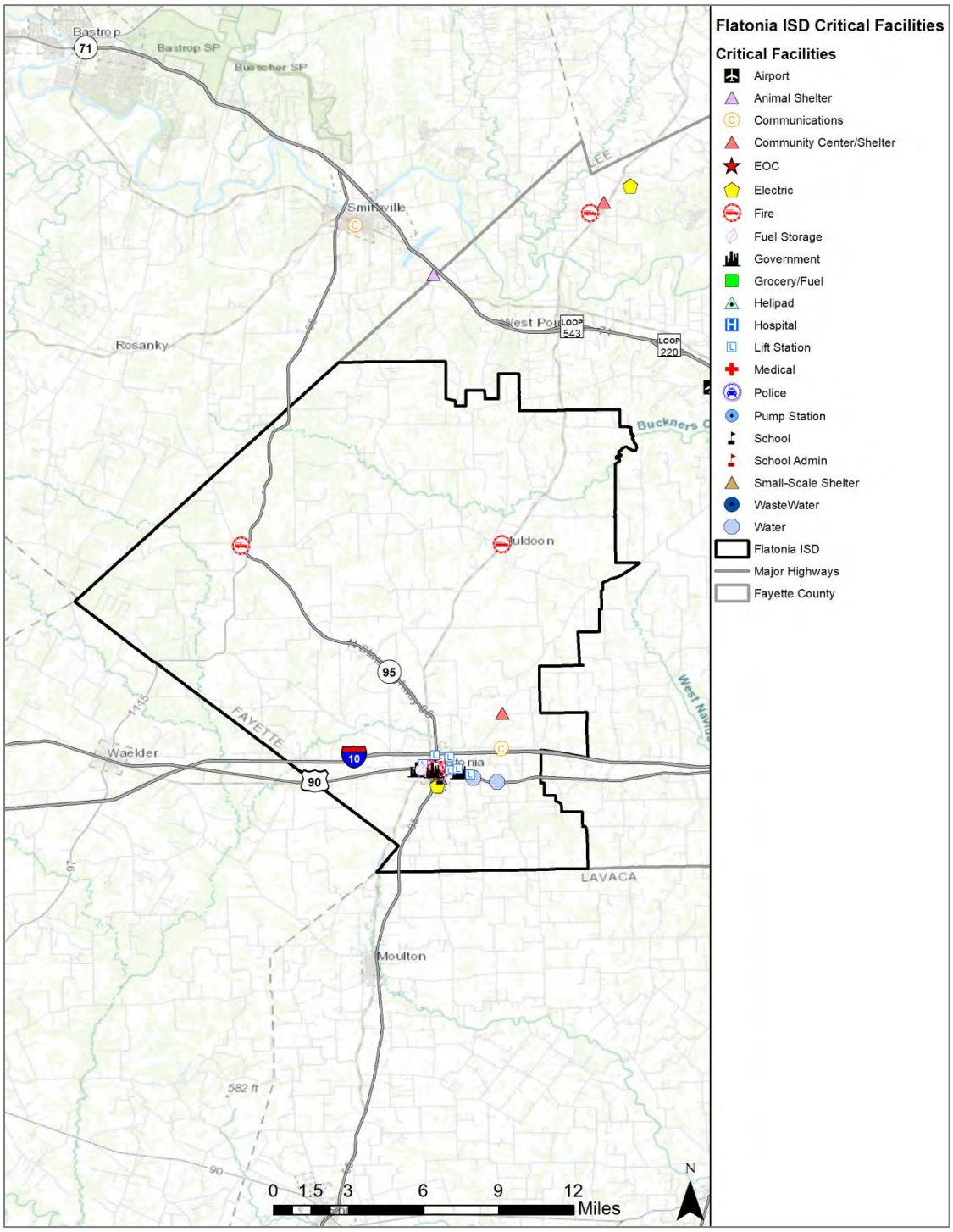


Table C-10. Critical Facilities by Type in Flatonia ISD

TYPE	NUMBER
Administration Building	1
Maintenance Shop	1
Residential Facility	1
School Campus Wing	8

Figure C-11. Critical Facilities in La Grange ISD

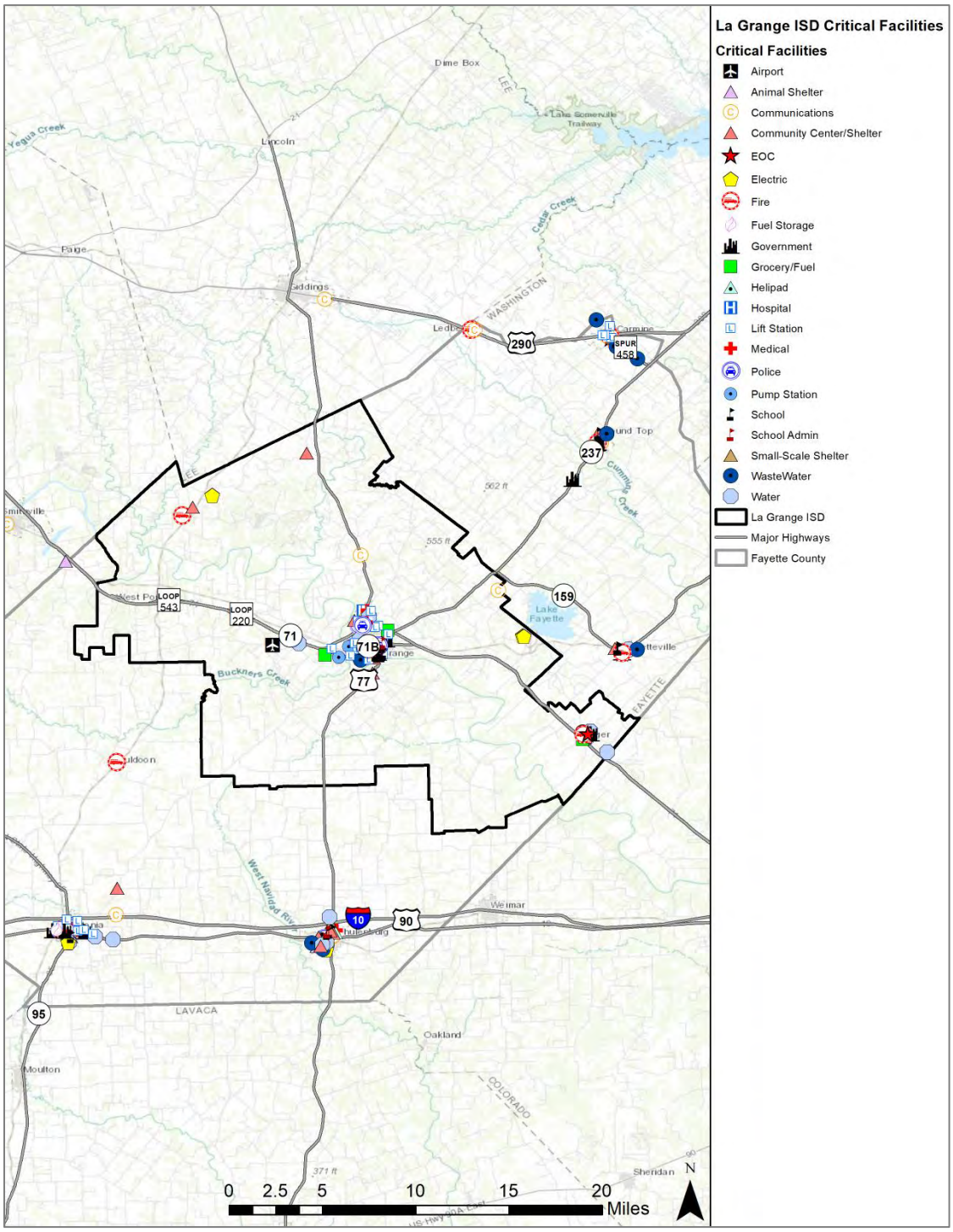


Table C-11. Critical Facilities by Type in La Grange ISD

TYPE	NUMBER
Central Campus Building	1
Central Campus Center	3
Central Campus Elementary School	1
Central Campus Gymnasium	2
Central Campus Wing	2
Maintenance Facility	1
North Campus Administration Building	1
North Campus Center	1
South Campus Annex	1
South Campus High School	1
South Campus Middle School	1
South Campus Sport Field	2
South Campus Stadium	1
South Campus Stadium Building	2
South Campus Stadium Concession Building	1
South Campus Tennis Court	1
South Campus Transportation Facility	1

Figure C-12. Critical Facilities in Round Top – Carmine ISD

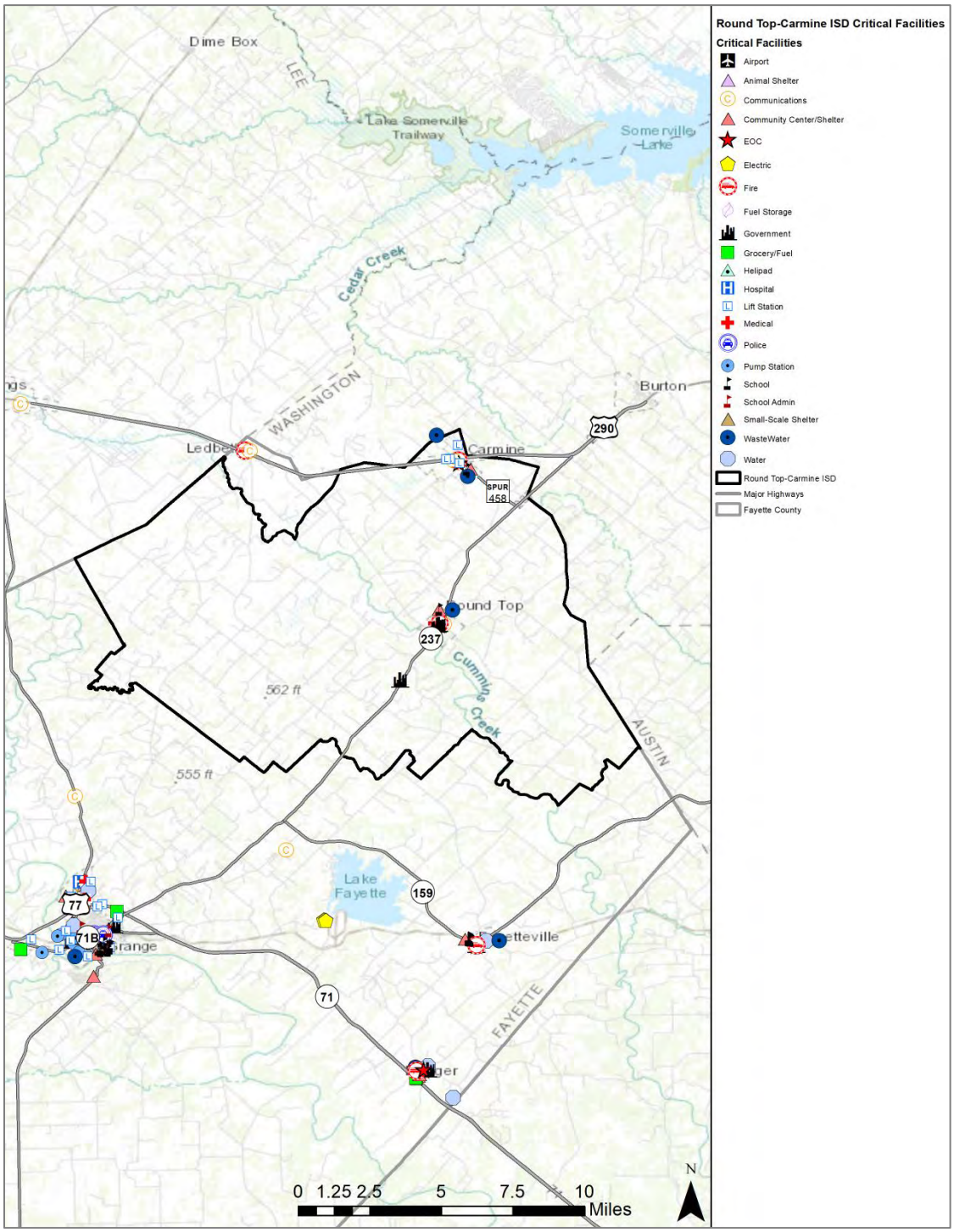


Table C-12. Critical Facilities by Type in Round Top – Carmine ISD

TYPE	NUMBER
Elementary School	1
High School	1

Figure C-13. Critical Facilities in Schulenburg ISD

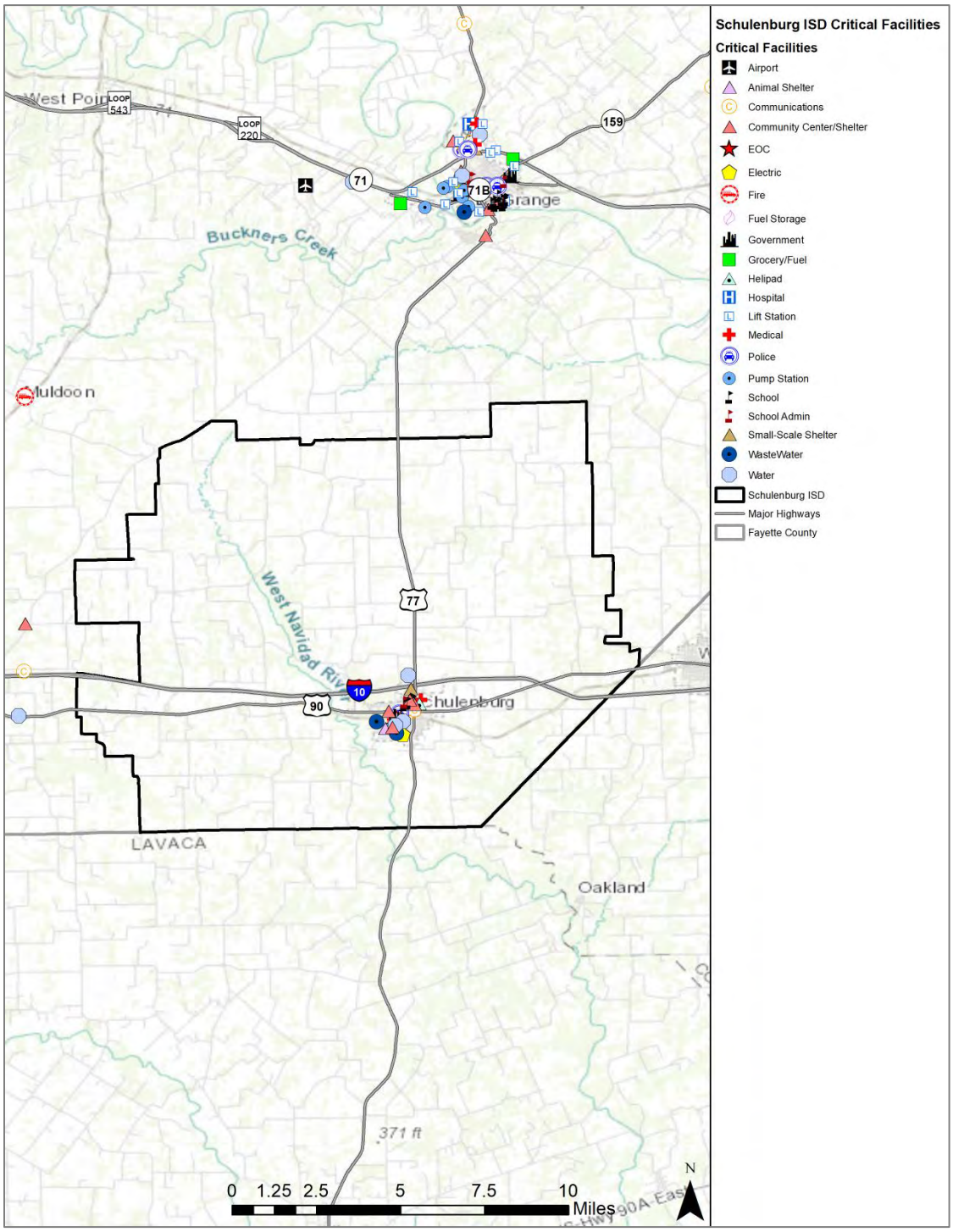


Table C-13. Critical Facilities by Type in Schulenburg ISD

TYPE	NUMBER
Administrative Office	1
Elementary School	1
High School	1
Junior High School	1

APPENDIX D
DAM LOCATIONS

APPENDIX D: DAM LOCATIONS

Overview 1
Dam Locations 1

OVERVIEW

Appendix D is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

DAM LOCATIONS

Table D-1 below reflects all dams that are located in the participating jurisdictions within the Fayette County Hazard Mitigation Action Plan Update 2023. This list includes High, Significant, and Low Hazard Dams. Section 15 of the Plan doesn't profile dams that were deemed to pose no past, current, or future risk to the planning area as no loss of life or impact to critical facilities or infrastructure is expected in the event of a breach. The asterisk denotes those that were profiled in the hazard assessment.

Table D-1. List of Dam Locations and Storage Capacities

JURISDICTION	LATITUDE	LONGITUDE	HEIGHT (Feet)	STORAGE (Acre Feet)
Fayette County	30.031667	-97.013333	30	31
Fayette County	29.885166	-97.188904	10	52
Fayette County	30.000972	-96.940041	21	75
Fayette County	29.996492	-96.858946	11	79
Fayette County	29.998245	-96.943985	31	90
Fayette County	29.864816	-96.873099	18	90
Fayette County	29.999313	-96.9459	30	100
Fayette County	29.713754	-97.215374	7	110
Fayette County	29.778996	-96.933411	25	130
Fayette County	29.655589	-97.143571	16	147
Fayette County	29.85	-96.85	30	157
Fayette County	29.80367	-97.119089	19	170
Fayette County	29.997797	-96.940588	23	180
Fayette County	30.034851	-96.751874	27	184
Fayette County	29.916142	-96.798545	25	188
Fayette County	30.0311	-96.9361	23.8	201.6
Fayette County	29.803573	-96.84252	22	206

APPENDIX D: DAM LOCATIONS

JURISDICTION	LATITUDE	LONGITUDE	HEIGHT (Feet)	STORAGE (Acre Feet)
Fayette County	29.916667	-97.133333	27	213
Fayette County*	29.695337	-97.116983	18	216
Fayette County	29.827373	-96.920395	22	232
Fayette County	29.755922	-96.85904	22	250
Fayette County	29.878785	-96.718427	25	300
Fayette County	30.018399	-96.675739	18	350
Fayette County	29.936192	-97.144756	35	526
Fayette County	29.989809	-96.621826	27	578
Fayette County	29.925588	-96.670653	31	664
Fayette County	29.980107	-96.696932	37	888
Fayette County	30.014021	-96.686572	38	950
Fayette County	29.988437	-96.769804	34	1,086
Fayette County	29.951948	-96.653936	31	1,304
Fayette County	30.059955	-96.748247	32	1,356
Fayette County	30.007511	-96.705683	35	1,618
Fayette County	30.116647	-96.743343	26	1,636
Fayette County*	30.088208	-96.644375	31.5	1,849
Fayette County	30.073517	-96.78333	28	1,865
Fayette County	30.113182	-96.770105	34	2,700
Fayette County	29.916925	-96.634114	42	3,202
Fayette County	29.9889	-96.782505	41	3,594
Fayette County	30.098929	-96.763632	24.5	3,676
Fayette County	29.982784	-96.729174	40	4,125
Fayette County	30.07365	-96.760784	35	4,280
Fayette County	30.130021	-96.714669	32	4,471
Fayette County*	29.914919	-96.733866	124	102,000
City of La Grange	30.000947	-96.960559	22	45
City of La Grange	30.01075	-96.952684	10	55

APPENDIX D: DAM LOCATIONS

JURISDICTION	LATITUDE	LONGITUDE	HEIGHT (Feet)	STORAGE (Acre Feet)
City of La Grange	30.005201	-96.958796	21	56
City of La Grange	30.006364	-96.961841	26	65
City of La Grange	30.011043	-96.962943	22	69
City of La Grange	29.850082	-96.947385	26	135
City of La Grange	29.965359	-96.860427	26	137
City of La Grange	29.856667	-96.91	29	213
City of Schulenburg	29.754011	-96.993971	25	296

APPENDIX E
MEETING DOCUMENTATION

APPENDIX E: MEETING DOCUMENTATION

Workshop Documentation 1

Public Meeting Documentation 5

Public Notices 7

WORKSHOP DOCUMENTATION

Appendix E is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

Fayette County held a series of Planning Team workshops: a Kickoff Workshop on October 24, 2022, a Risk Assessment Workshop January 4, 2023, and a Mitigation Strategy Workshop on February 9, 2023. At each of these workshops members of the Planning Team were informed of the planning process, expressed opinions, and volunteered information. Fayette County hosted public meetings. The sign-in sheets for each workshop and public meeting are included below. For more details on the workshops and planning process, see Section 2.

Figure E-1. Fayette County Kickoff Workshop, October 24, 2022

COUNTY OF FAYETTE STATE OF TEXAS

H2O PARTNERS

FAYETTE COUNTY HAZARD MITIGATION PLAN
Kick-Off Workshop
Fayette County EMS Station
1721 N Von Minden Rd, La Grange, TX 78945
October 24th, 2022 @ 5:30 pm

Name	Jurisdiction	Title	Email	Phone
Laura Haverlah	H2O Partners	Mitigation Specialist	lhaverlah@h2opartnersusa.com	512 293 1333
David Van Dresar	Fayette Co. GCD	General Manager	david@fayettecountygroundwater.com	979-968-3135
Josh Vandever	Fayette Co EMS	EMS Director	josh.vandever@co.fayette.tx.us	(979) 639-1397
Joseph J Lamtr	Ellinger City	Commissioner	Jaksamasolc@yahoo.com	979 338-9269
Mike Stroup	Fayetteville	Mayor	mayor.fayetteville@CYOTX.com	713-598-6331
[illegible]	[illegible]	Councilman	Place1.Fayetteville	281-386-7471
Kyle Novicke	TxDot-Fayette Co	Maint. Sup.	kyle.novicke@txdot.gov	979 877 8882
Brian Jasek	TxDOT - Fayette Co.	Assistant Maint Sup.	Brian.jasek@txdot.gov	979 968 8333
Shawn Munzer	La Grange ISD	Director of Ops & School Safety	[illegible]@lgisd.net	979-968-7000
JOE WEBER	FAYETTE COUNTY	JUDGE	joe.weber@co.fayette.tx.us	(979) 968-6469
Kayla Burnett	H2O Partners	Mitigation Specialist	kburnett@h2opartnersusa.com	512-541-9184

FAYETTE COUNTY HAZARD MITIGATION PLAN
Kick-Off Workshop
Fayette County EMS Station
1721 N Von Minden Rd, La Grange, TX 78945
October 24th, 2022 @ 5:30 pm

Name	Jurisdiction	Title	Email	Phone
Troy Brenek	Schulenberg	Chief	t.brenek@schulenburgtx.org	361 772 0836
Tami Walker	City of Schulenburg	City Admin	t.walker@schulenburgtx.org	(979) 743-4126
Craig Moreau	Fayette Co.	EMC	craig.moreau@co.fayette.tx.us	979 639 1411

Figure E-2. Fayette County Risk Assessment Workshop, January 4, 2023

FAYETTE COUNTY HAZARD MITIGATION PLAN
Risk Assessment Workshop
1721 N Von Minden Road, La Grange, TX
January 4, 2023, @ 2:00 pm

Name	Jurisdiction	Title	Email	Phone
Gary Kramer	WCID	BOD Director/Treasurer	kramer.gary.a@gmail.com	409-939-8920
Bradley C. Loehr	BEFCO Engineering	Project Engineer	bradley@befcoengineering.com	979-702-1316
Ron Nahrmann	Fayette Co SO	Sgt	ron.nahrmann@co.fayette.tx.us	979-966-2109
Keith Korenek	" " "	Sheriff	keith.korenek@co.fayette.tx.us	979 249 6781
Eddie Schneider	Winchester Area VFD	Chief	elsch43@gmail.com	979-966-7071
James Ivy	Flatonia Fire Rescue	Asst Chief	flatoniafire941@gmail.com	361 772 3857
Abraham Pace	Ledbetter VFD	Captain	abrahampace@yahoo.com	979-966-2126
Jan Dockery	La Grange - City Mayor	Mayor	mayordockery@cityoflg.com	979-968-5805 979-540-0266
Frank Menefee	LaGrange	EMC	Fmenefee@cityoflg.com	979-968-5805
Stephen Kelly	Muldoon VFD	Chief / Fayette Co FF Assoc.	chief1099@yahoo.com	512-914-6021
Shann Muzny	LaGrange ISD	Director of Safety & Oprt	shannmuzny@lgisd.net	979-968-7000
Joseph Lammert	Ellinger	City Commissioner	Jakesmasok@yahoo.com	979 338-9269
Matt Mikulik	Elling.	Mayor	mayor@cityofellinger.com	979 251 7912
Tami Walker	City of Schulenburg	City Admin.	t.walker@schulenburgtx.org	979-743-4126
David Gilbreath	LGPD	Chief of Police	chief@cityoflg.com	979-968-5806

APPENDIX E: MEETING DOCUMENTATION

Jeff Harvey	Fayetteville ISD	Superintendent	jwharvey@fayettevilleisd.net	979-378-4242
James Rebecek	Fayette water supply	G.M	james.rebecek@fayettewsc.com	979-968-6475
Terry Brenek	Schulenburg PD	Chief	t.brenek@schulenburgtx.org	979 743 2677
Cassie Austin	Fayette County	Court Administrator	cassie.austin@co.fayette.tx.us	979.968.6469
Angela Hahn	Fayette County	EMC/Grants		979-968-8531
Blake Watson	Fayette County	Legal	blake.watson@cofayette.tx.us	979-968-8402
Cindy Havelka	Fayette County	Auditor	cindy.havelka@co.fayette.tx.us	979-968-3055
Drew Brossmann	Fayette County Comm. Pct #4		drew.brossmann@co.fayette.tx.us	979-250-1356
Josh Vandever	Fayette County EMS		josh.vandever@co.fayette.tx.us	979-639-1397

FAYETTE COUNTY HAZARD MITIGATION PLAN
Risk Assessment Workshop
1721 N Von Minden Road, La Grange, TX
January 4, 2023, @ 2:00 pm

Name	Jurisdiction	Title	Email	Phone
✓ Lori Steffek	Fayette Co WCID-Monument Hill	Manager	lori@monumenthillwater.com	(979)966-9383
Gene Kruppa	Fayette Water Supply	Board President	kruppag123@yahoo.com	(979) 702-1333
Mike Strout	Fayetteville	Mayor	mayor.fayetteville@cvtx.com	713-598-6331
Craig Morean	Fayetteville	EMC	craigm350@aol.com	832-692-6034
Cari Harper	Fayette WSC	Office manager	cari.harper@fayettewsc.com	979-968-6475
Larry Bartosh	Ellinger VFD	Chief	larrybartosh@hotmail.com	979-702-0641

APPENDIX E: MEETING DOCUMENTATION

FAYETTE COUNTY HAZARD MITIGATION PLAN
Risk Assessment Workshop
1721 N Von Minden Road, La Grange, TX
January 4, 2023, @ 2:00 pm

Name	Jurisdiction	Title	Email	Phone
Paul Zapalac	JP4	Judge	paul.zapalac@co.fayette.tx.us	979-250-3188
Charles Zapalac	JP3	Judge	charles.zapalac@co.fayette.tx.us	(979) 702-0311
WADE EILERS	~~MAYOR~~ CARMINE CITY	MAYOR	CITYOFCARMINE.COM	979-278-3273
RICK TODD	FLATONIA PREC 3	VICE PRESIDENT	[illegible]@gmail.com	832 566 7576

FAYETTE COUNTY HAZARD MITIGATION PLAN
Risk Assessment ~~Public~~ Meeting workshop
1721 N Von Minden Road, La Grange, TX
January 4, 2023, @ ~~5:30 pm~~ 2:00 pm

Name	Jurisdiction	Title	Email	Phone
Sonya Bishop	City of Flatonia	City manager	manager@ci.flatonia.tx.us	361-865-3548
Tamela Launer	City of Flatonia	City secretary	citysecretary@ci.flatonia.tx.us	361-772-2578

1

Figure E-3. Fayette County Mitigation Strategy Workshop, February 9, 2023

COUNTY OF FAYETTE · STATE OF TEXAS

H2O PARTNERS

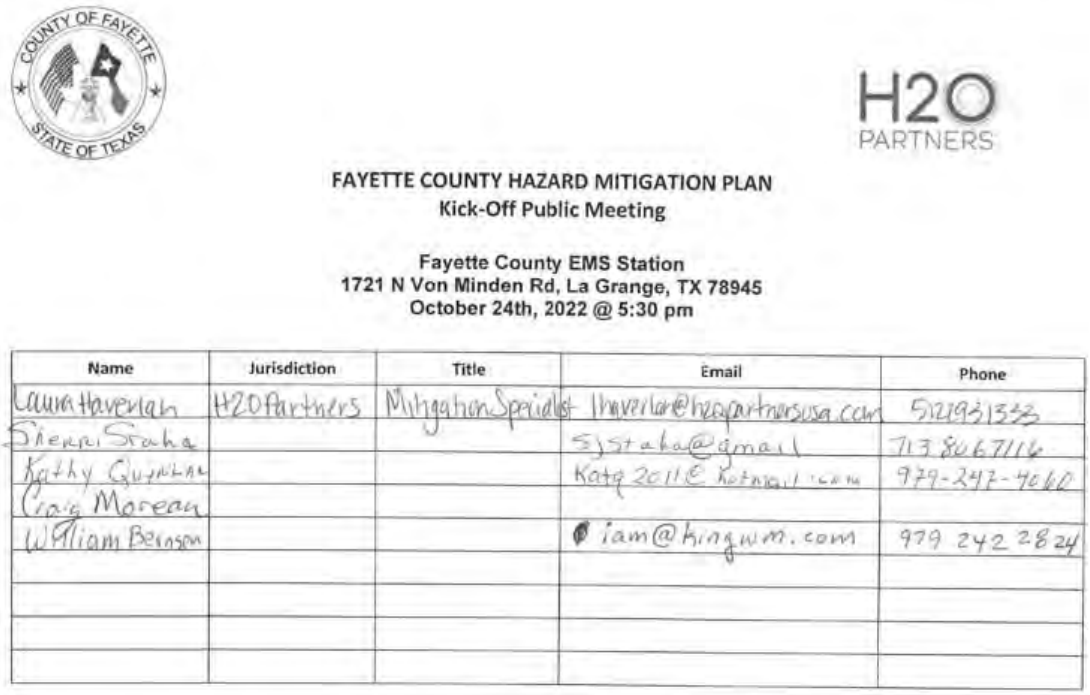
FAYETTE COUNTY HAZARD MITIGATION PLAN
Mitigation Strategy Workshop
Fayette County EMS Station
1721 N Von Minden Rd, La Grange, TX 78945
February 9th, 2023 @ 3:30 pm

Name	Jurisdiction	Title	Email	Phone
Matt Mikulenka	Ellinger	Mayor	[illegible]	[illegible]
Mark Mayberry	TDEM	CLO	mark.mayberry@tdem.texas.gov	512-227-6329
Jan Dockery	Mayor La Grange	Mayor	[illegible]@cityoflg.com	979-540-0266
Gene Krupp	County / FLISD		kruppeg123@[illegible].com	(979)702-133[illegible]
Mike Strauss	Fayetteville	Mayor	mayor.fayetteville@[illegible]	713-598-633[illegible]
[illegible]	Ɗolonia)	[illegible]	[illegible]@gmail.com	361-772-3857
Frank Menefee	La Grange	EMC	fmenefee@cityoflg.com	979-968-5805
Jamie Moreau	Pct 2	Justice of the Peace		979-378-2573
Gregg Lobar	Lee County	EMC	[illegible]	979-716-0272

PUBLIC MEETING DOCUMENTATION

As discussed in Section 2, public meetings were held in Fayette County. Documentation in the form of sign-in sheets for each of the meetings follows.

Figure E-4. Public Meeting, October 24, 2022



FAYETTE COUNTY HAZARD MITIGATION PLAN
Kick-Off Public Meeting

Fayette County EMS Station
1721 N Von Minden Rd, La Grange, TX 78945
October 24th, 2022 @ 5:30 pm

Name	Jurisdiction	Title	Email	Phone
Laura Haverlah	H2O Partners	Mitigation Specialist	lhaverlah@h2opartnersusa.com	5129931333
Sierra Staha			sjstaha@gmail	713 806 7116
Kathy Guynes			Katg2011@hotmail.com	979-247-4060
Craig Moreau				
William Bernsen			iam@kingwm.com	979 242 2824

Figure E-5. Public Meeting, January 4, 2023

FAYETTE COUNTY HAZARD MITIGATION PLAN
Risk Assessment Public Meeting
1721 N Von Minden Road, La Grange, TX
January 4, 2023, @ 5:30 pm

Name	Jurisdiction	Title	Email	Phone
Larry Jackson *	Citizen	Citizen	larry77488@yahoo.com	979-553-0881
Hannah Garlick	Citizen/City of La G	EDC Manager	hgarlick@cityofly.com	979-968-3017
Blake Watson	Fayette County	Assistant County Attorney	Blake.watson@co.fayette.tx.us	979-968-8402
William Bernsen	Fayette Co	Citizen	~~bernsen~~ bot@kingwm.com	
Andy Behlen	Fayette Co	Reporter	andy@fayettecountytx.com	979-743-5326

*Also president, Fayette Co. Disaster Recovery Team.

2 please send presentation to William Bernsen via email

Figure E-6. Public Meeting, February 9, 2023

FAYETTE COUNTY HAZARD MITIGATION PLAN
Mitigation Strategy Public Meeting
Fayette County EMS Station
1721 N Von Minden Rd, La Grange, TX 78945
February 9th, 2023 @ 5:00 pm

Name	Jurisdiction	Title	Email	Phone
Ed Kovar	Fayetteville	N/A	[illegible]kovar@[illegible]	~~378~~ [illegible] 249-6740
William Bernsen	~~Plum~~	—	—	—
[illegible]	Lee County	EMC	[illegible]@co.lee.tx.us	979-716-0272
Bradley Clocke	Fayette WSC FCWCID#1	Project Eng	bradley@[illegible]engineering.com	979-702-1316

PUBLIC NOTICES

Public notices to announce Fayette County's participation in the Plan Update development process were posted on their website along with participating jurisdictions, on social media sources including Facebook and Twitter, through the local media, and/or posting the information on bulletin boards in public facilities.

Figure E-7. Fayette County Public Notice, County Facebook

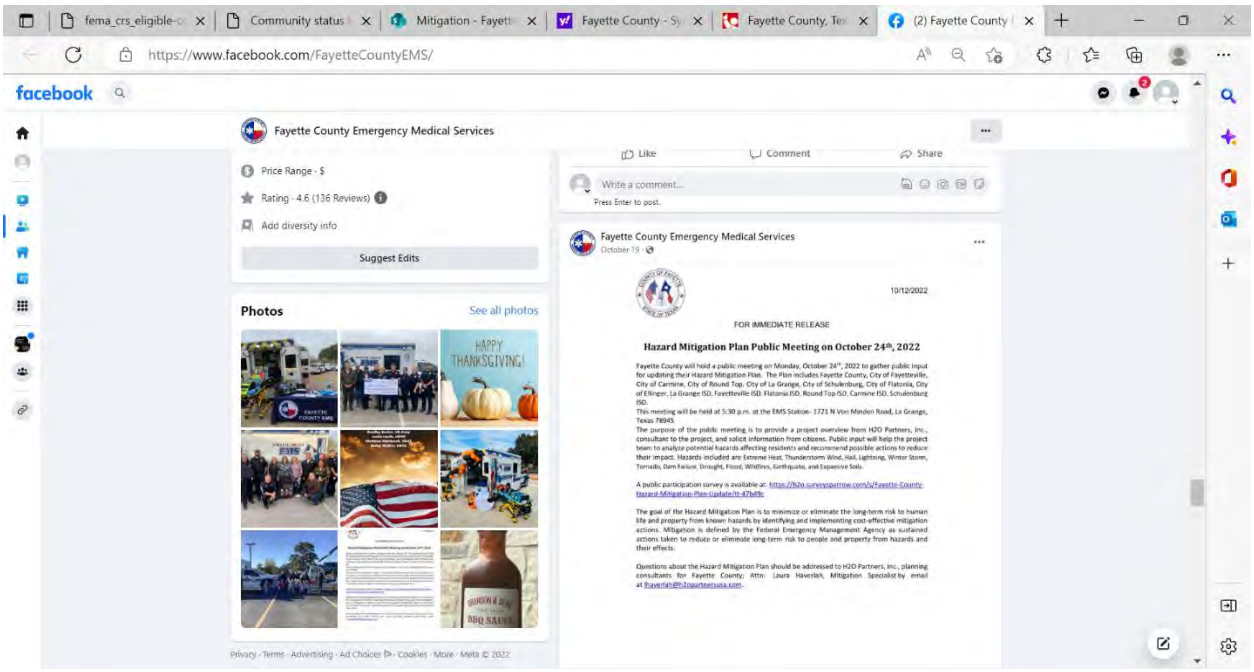


Figure E-8. City of La Grange County Public Notice, City Website

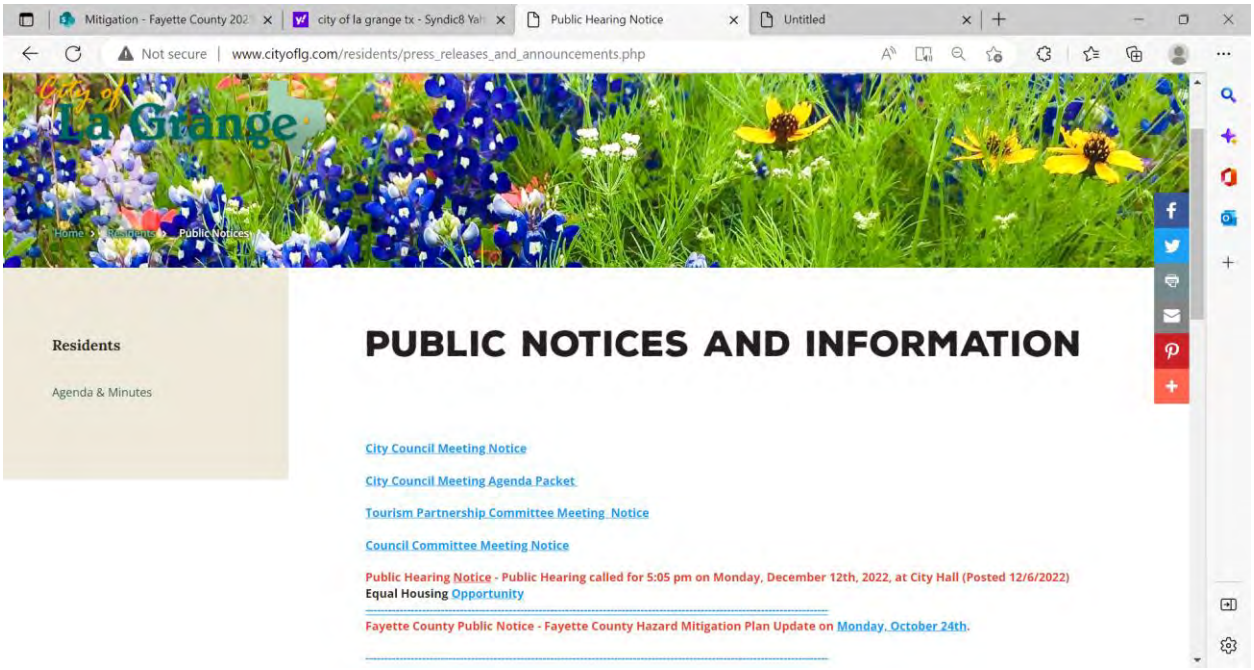


Figure E-9. Fayette County Public Notice, County Website

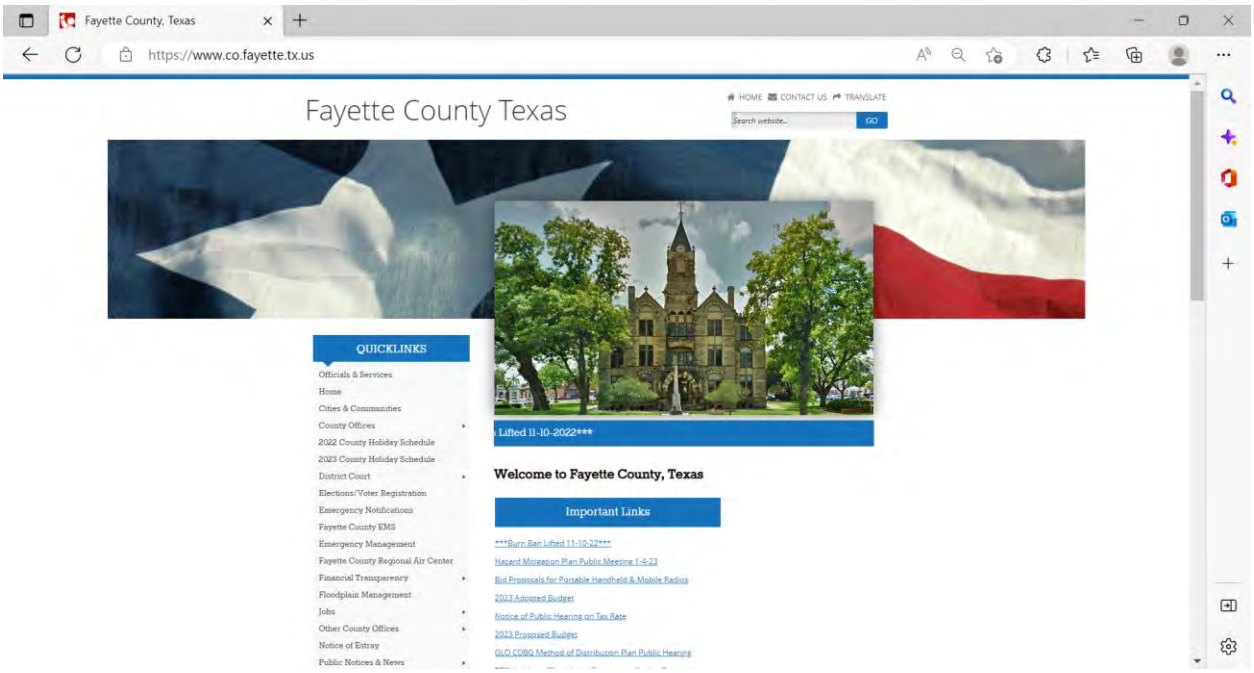


Figure E-10. Fayette County Public Notice, County EMS Facebook

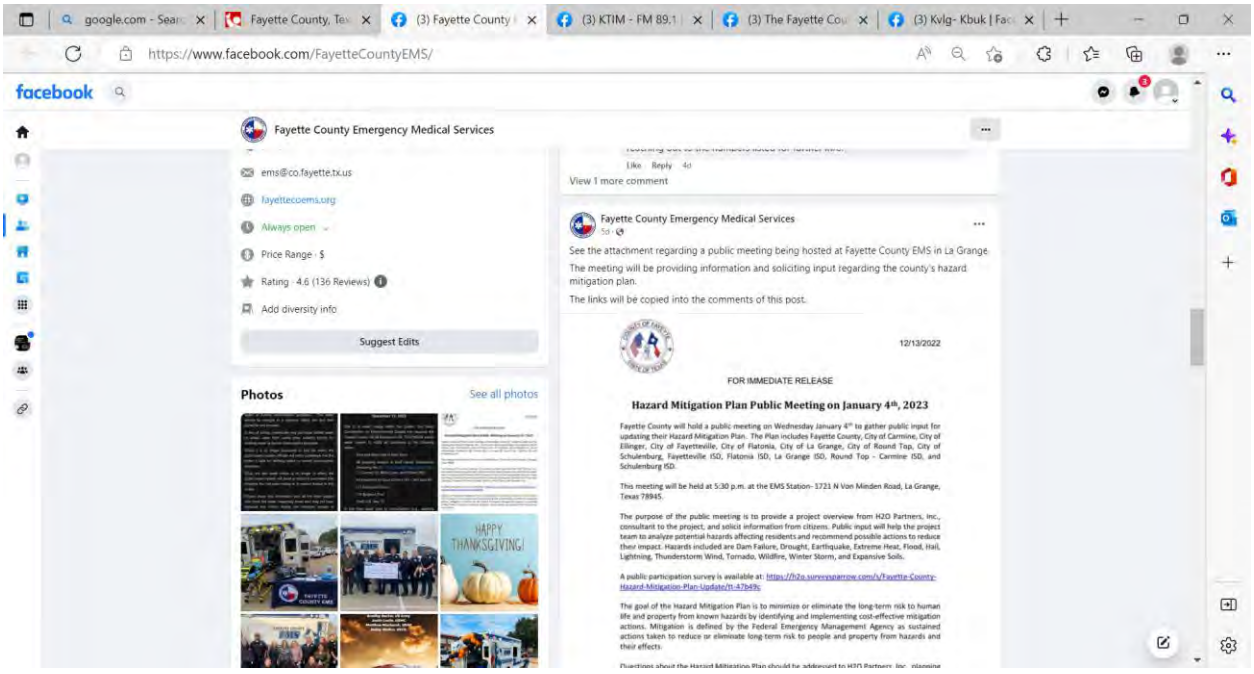


Figure E-11. City of Ellinger Public Notice, City Website

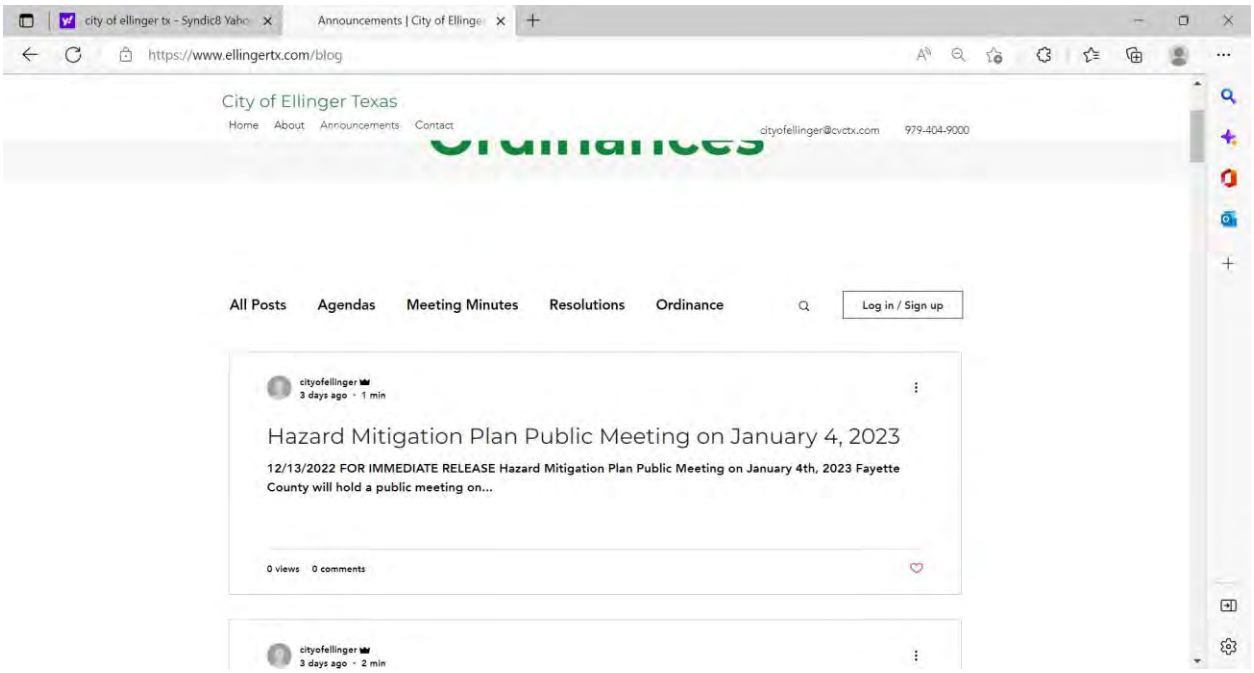


Figure E-12. City of Fayetteville Public Notice, City Website

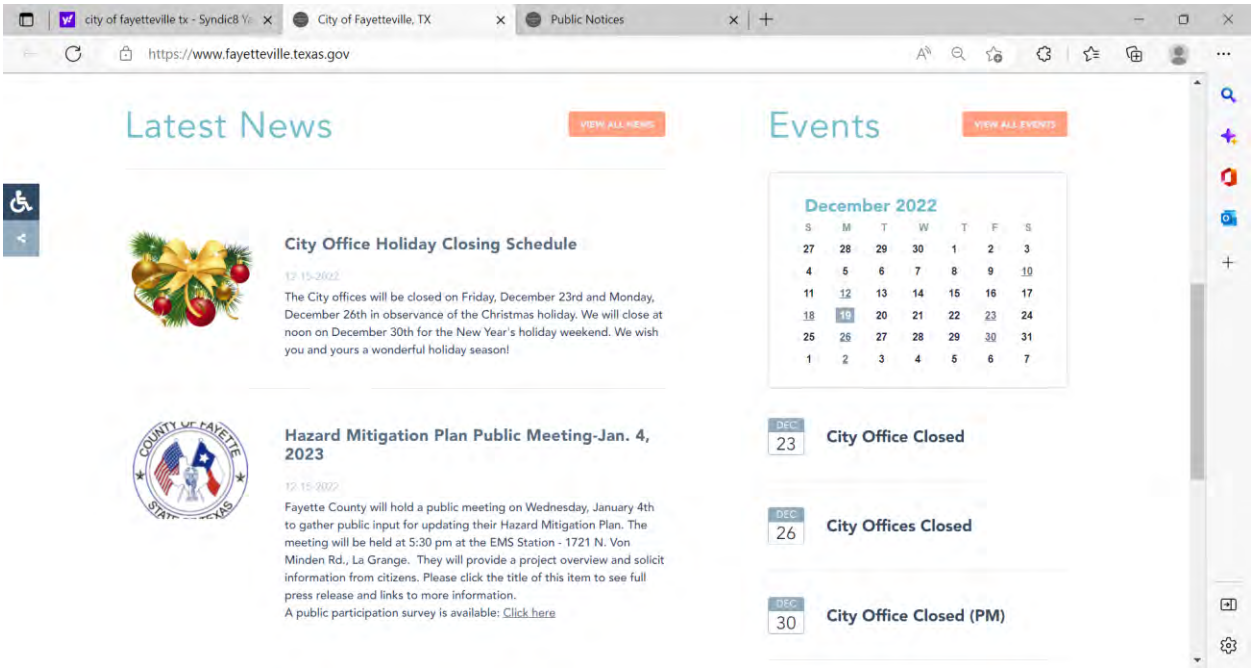


Figure E-13. City of La Grange Public Notice, City Website

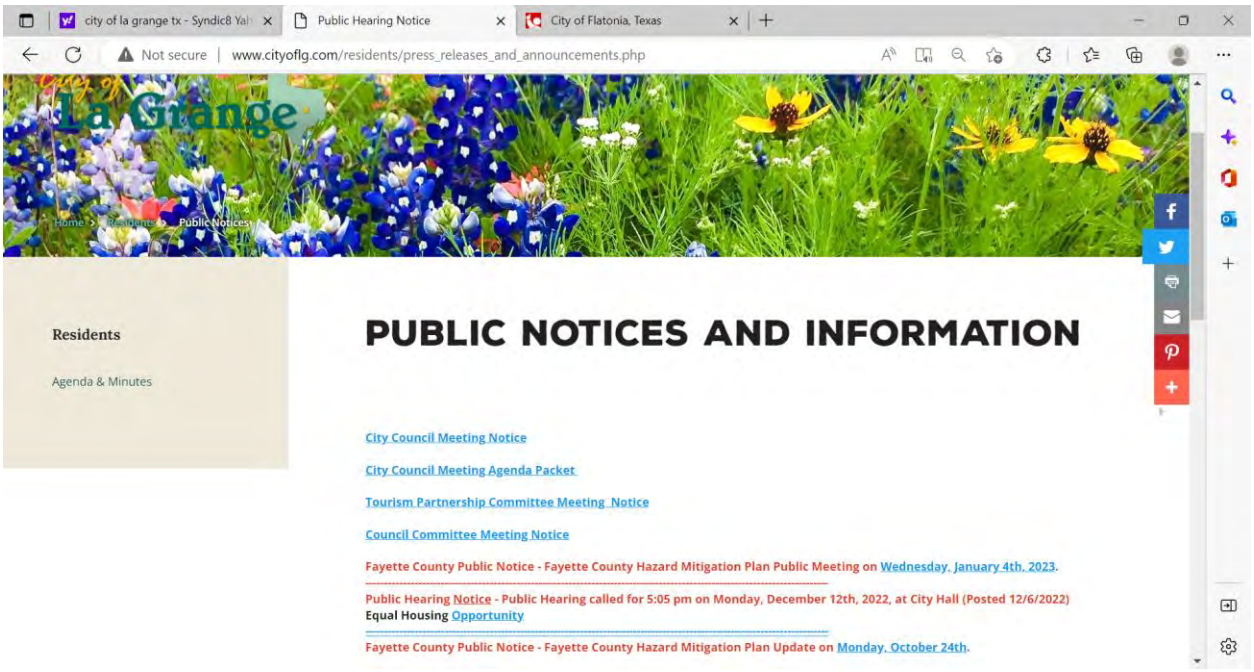


Figure E-14. City of La Grange Public Notice, City Bulletin

Figure E-15. City of Round Top Public Notice, City Website

Figure E-16. Fayetteville ISD Public Notice, ISD Website

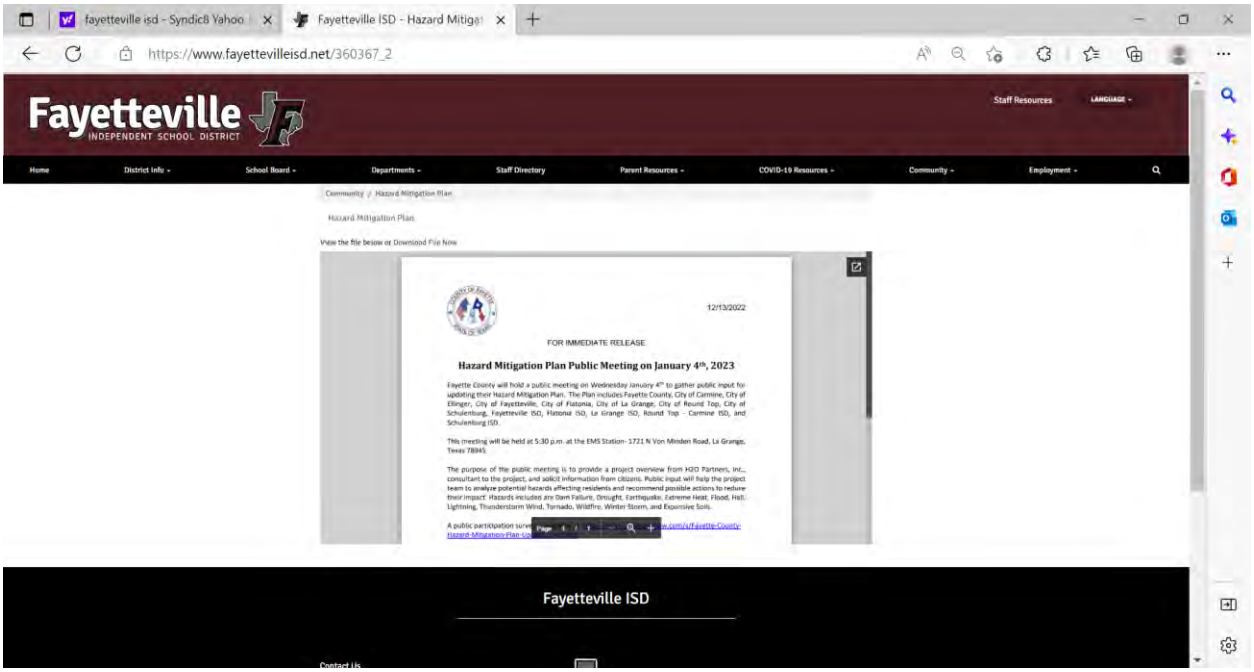


Figure E-17. Fayette County Public Notice, County Website

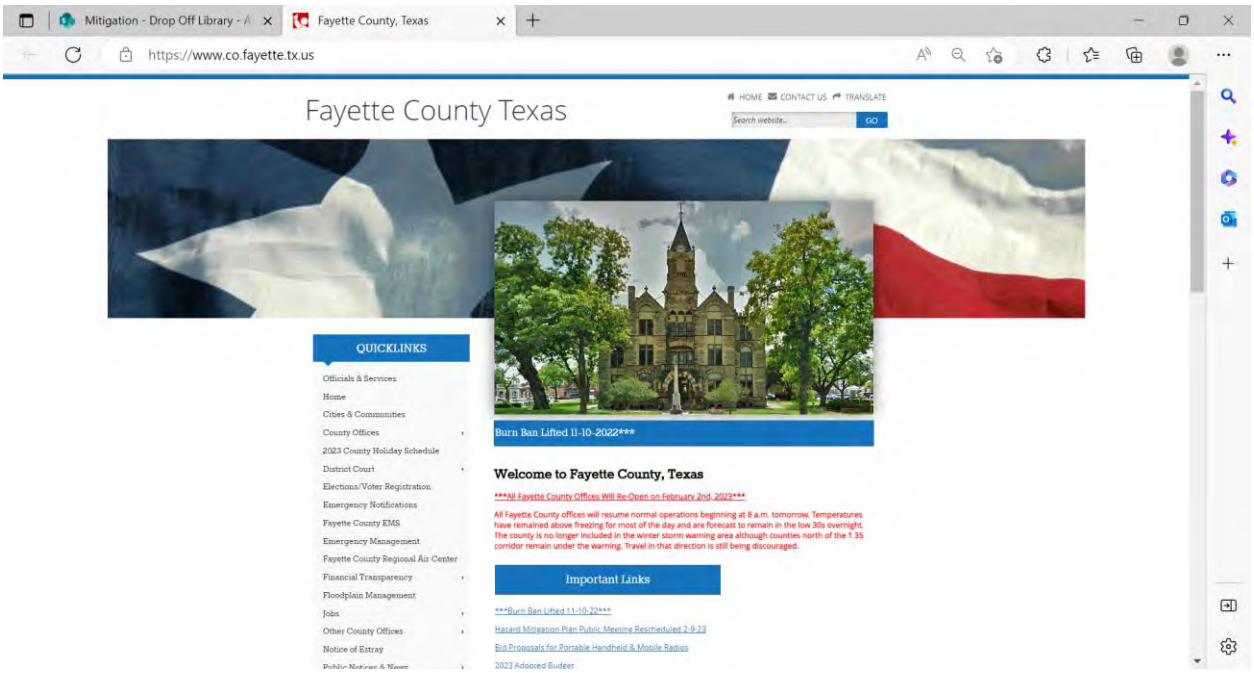


Figure E-18. City of Ellinger Public Notice, City Website

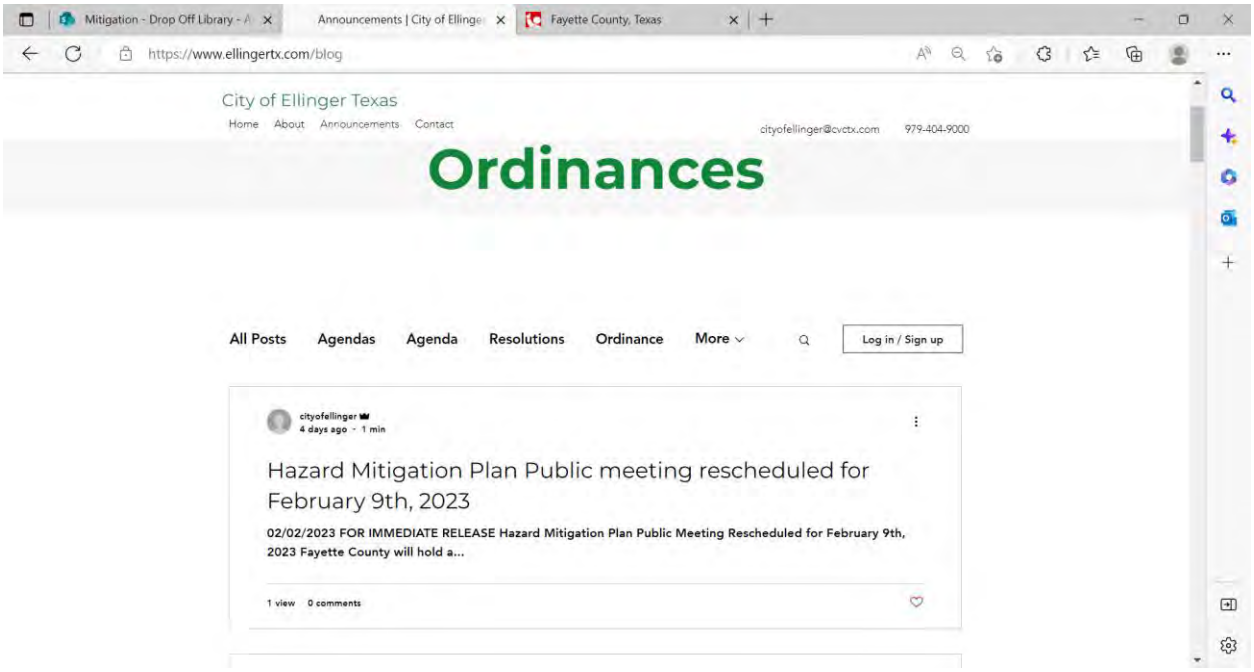


Figure E-19. City of Fayetteville Public Notice, City Website

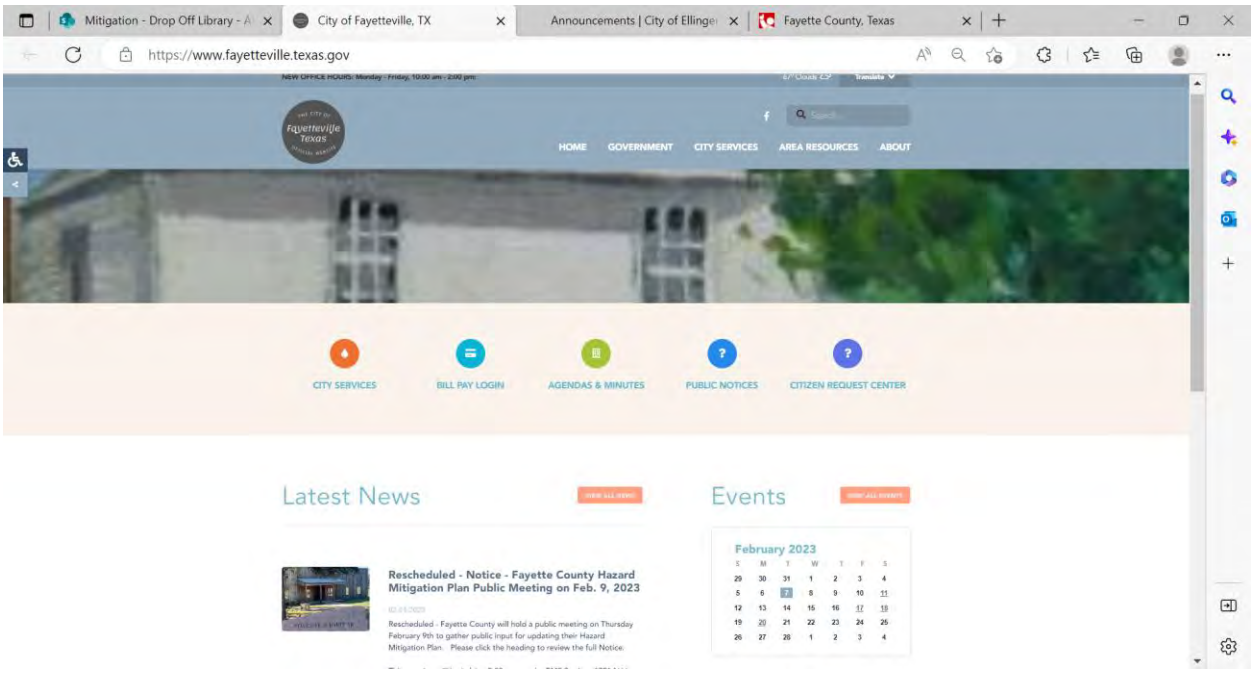
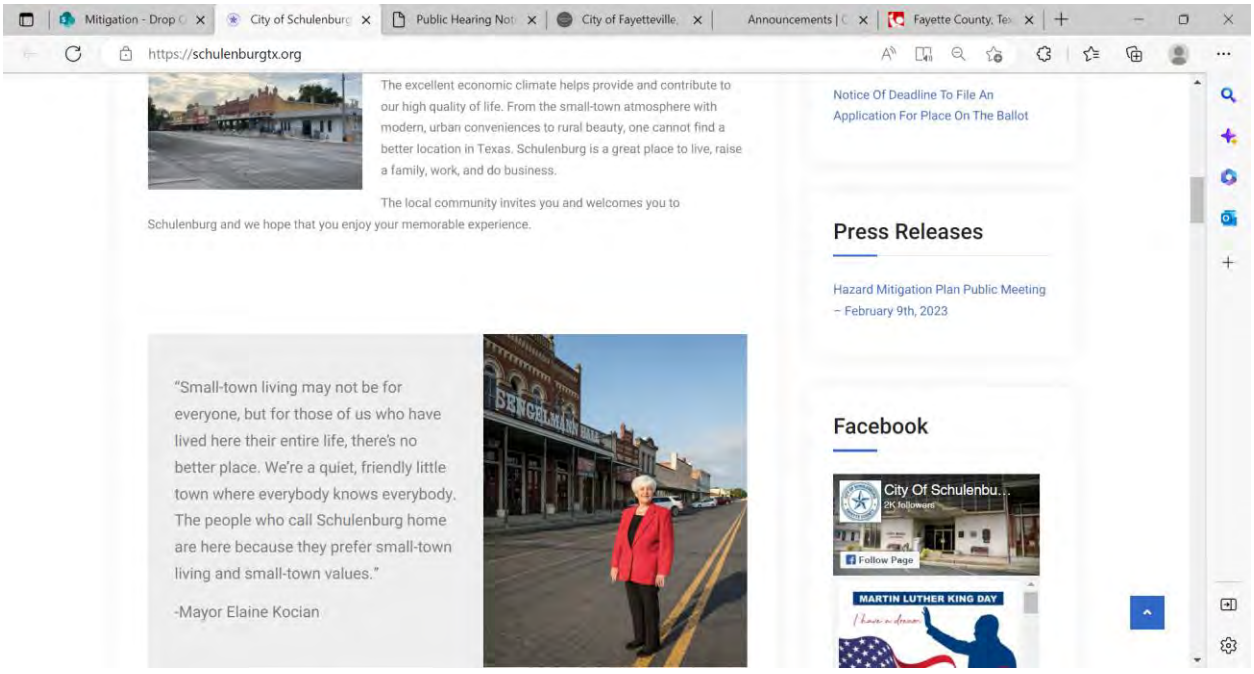


Figure E-20. City of Schulenburg Public Notice, City Website



APPENDIX F
CAPABILITY ASSESSMENT

APPENDIX F: CAPABILITY ASSESSMENT

Overview 1
Community Capability Assessments 2

OVERVIEW

Appendix F is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

A Community Capability Assessment is an integral component of the Hazard Mitigation Planning Process. It is an invaluable tool in assessing a community's existing planning and regulatory capabilities to support implementation of mitigation strategy objectives.

Beginning on Page 2, a completed Capability Assessment Checklist provides information on existing policies, plans, and regulations in place for Planning Team members at the local level or that may be provided by the County on an as-needed basis. ***Participation is denoted with an "x" on the Checklist.***

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY ASSESSMENTS

COMMUNITY CAPABILITY CHECKLIST	*Fayette County*	*City of Carmine*	*City of Ellinger*	*City of Fayetteville*	*City of Flatonia*	*City of La Grange*	*City of Round Top*
Plans							
Capital Improvements Plan			X		X	X	
Community Wildfire Protection Plan			X				
Comprehensive / Master Plan / Land Use Plan			X		X	X	
Continuity of Operations	X		X	X			
Emergency Operations Plan	X		X	X	X	X	
Evacuation Plan	X		X	X		X	
Hazard Mitigation Plan	X	X	X	X	X	X	X
Stormwater Management Plan			X		X		
Policies / Ordinances							
Building Codes		X		X	X	X	
Fire Code			X		X	X	
Floodplain Ordinance	X	X		X	X	X	X
Stormwater Ordinance			X		X	X	
Subdivision Regulations	X	X	X	X	X	X	X
Wildfire Ordinance	X		X	X	X	X	
Zoning Ordinance/Land Use Restrictions				X	X	X	X
Programs							
Floodplain Maps/Flood Insurance Studies	X	X		X	X	X	
Hydrologic/Hydraulic Studies	X					X	
Mutual Aid Agreement	X		X	X	X	X	

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	*Fayette County*	*City of Carmine*	*City of Ellinger*	*City of Fayetteville*	*City of Flatonia*	*City of La Grange*	*City of Round Top*
National Flood Insurance Program Participant	X	X		X	X	X	X
NFIP Community Rating System Participant							
Property Acquisition Program	X			X		X	
Public Education/Awareness Programs	X		X	X		X	
Storm Drainage Systems Maintenance Program	X		X	X	X	X	
Stream Maintenance Program	X				X	X	
Warning Systems/Services (reverse 911, outdoor warning sirens)	X		X	X	X	X	
Staff / Departments							
Building Code Official	X	X		X		X	X
Emergency Manager	X			X		X	
Engineers				X	X	X	
Environmental Conservation Specialist	X						
Floodplain Administrator	X	X		X	X	X	X
Geographic Information System (GIS) Coordinator	X			X			
Personnel with Hazard Knowledge	X			X	X	X	
Planners						X	
Public Information Official	X			X		X	X
Resource Development/Grant Writer	X					X	

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	*City of Schulenburg*	*Fayetteville ISD*	*Flatonia ISD*	*La Grange ISD*	*Round Top-Carmine ISD*	*Schulenburg ISD*
Plans						
Capital Improvements Plan		X	X		X	
Community Wildfire Protection Plan			X			
Comprehensive / Master Plan / Land Use Plan	X				X	
Continuity of Operations		X	X	X	X	
Emergency Operations Plan	X	X	X	X	X	X
Evacuation Plan	X	X	X	X	X	X
Hazard Mitigation Plan	X	X	X	X	X	X
Stormwater Management Plan	X					
Policies / Ordinances						
Building Codes	X	X		X	X	
Fire Code	X	X		X	X	
Floodplain Ordinance	X					
Stormwater Ordinance	X					
Subdivision Regulations	X					
Wildfire Ordinance						
Zoning Ordinance/Land Use Restrictions	X				X	
Programs						
Floodplain Maps/Flood Insurance Studies	X			X		
Hydrologic/Hydraulic Studies						
Mutual Aid Agreement						
National Flood Insurance Program Participant	X					

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	*City of Schulenburg*	*Fayetteville ISD*	*Flatonia ISD*	*La Grange ISD*	*Round Top-Carmine ISD*	*Schulenburg ISD*
NFIP Community Rating System Participant						
Property Acquisition Program						
Public Education/Awareness Programs	X	X				
Storm Drainage Systems Maintenance Program	X					
Stream Maintenance Program						
Warning Systems/Services (reverse 911, outdoor warning sirens)	X	X		X		
Staff / Departments						
Building Code Official	X				X	
Emergency Manager	X	X	X	X	X	X
Engineers	X		X			
Environmental Conservation Specialist						
Floodplain Administrator	X		X			
Geographic Information System (GIS) Coordinator			X			
Personnel with Hazard Knowledge		X	X	X	X	X
Planners		X			X	
Public Information Official	X	X	X		X	X
Resource Development/Grant Writer	X	X	X		X	

APPENDIX G
STATE AND FEDERAL FUNDING OPPORTUNITIES

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Overview 1

OVERVIEW

Texas utilizes state funds to improve statewide hazard mitigation capabilities and advance their hazard mitigation goals to help identify, understand, and manage various risks associated with natural hazards. State funds also provide funding for state facility and infrastructure upgrades, hazard mapping, mitigation planning, and other mitigation programmatic activities. Table G-1 describes a variety of loan and grant programs offered by state agencies for which mitigation activities may be eligible.

Table G-1. Summary of State Funded Mitigation Programs

AGENCY	FUNDING PROGRAM
Texas A&M Forest Service (TAMFS)	• Community Fire Protection Program • Community Wildfire Defense Grant • Fire-Adapted Communities Program (FAC) • Firewise USA Program • Mitigation Project Support Fund • Forest Land Enhancement Program • Forest Legacy Program • Prescribed Fire Grants • Resilient Landscapes Program • Rural Fire Assistance Grant • State Fire Assistance for Mitigation (SFAM) - Mechanical Fuels Grants • SFAM Vegetative Fuel Break Grant • Texas Longleaf Conservation Assistance Program • Urban Tree Canopy Project (UTC)
Texas Commission on Environmental Quality (TCEQ)	• Clean Water Act Section 319 Grants • Nonpoint Source Grant Program • High Hazard Potential Dam Program (HHPD) • U.S.-Mexico Border Water Infrastructure Program
Texas Department of Agriculture (TDA)	• Agricultural Management Assistance (AMA) • Agricultural Water Enhancement Program (AWEP) • Community Development Block Grant • Community Development Block Grant for Rural Texas • Conservation Innovation Grants (CIG) • Environmental Quality Incentives Program (EQUIP)
Texas Department of Housing and Community Affairs (TDHCA)	• Texas HOME Disaster Relief
Texas Department of State Health Services (TXDSHS)	• Hospital Preparedness Program (HPP) Cooperative Agreement • Public Health Emergency Preparedness (PHEP) Cooperative Agreement

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

AGENCY	FUNDING PROGRAM
Texas Department of Transportation (TXDOT)	• Bridge Preventative Maintenance Program • Emergency Relief (ER) Program • Highway Bridge Replacement and Rehabilitation Program • Safe Rest Stops Program • Transportation Enhancement Program
Texas Division of Emergency Management (TDEM)	• Building Resilient Infrastructure & Communities (BRIC) • Emergency Management Performance Grant (EMPG) • Fire Management Assistance Grants (FMAG) • Hazard Mitigation Planning Grants Program (HMGP) • Homeland Security Grant Program (HSGP) • Individual Assistance (IA) • National Earthquake Hazard Reduction Program (NEHRP) • Public Assistance (PA) Section 406 Funds • Fire Management Assistance Grants (FMAG)
Texas Economic Development & Tourism (EDT)	• Economic Development Administration Grants and Investments
Texas General Land Office (TXGLO)	• Beach Grants • Beach Maintenance Reimbursement Fund • Coastal Erosion Planning and Response Act (CEPRA) • Coastal and Estuarine Land Conservation Program (CELCP) • Coastal Management Program (CMP) • Community Development Block Grant – Disaster Recovery (CDBG-DR) • Community Development Block Grant – Mitigation (CDBG-MIT) • Gulf of Mexico Energy Security Act (GOMESA) • Hazard Mitigation Grant Program Supplemental -LHMPP
Texas Parks and Wildlife Department (TPWD)	• Nation Resources Damage Assessment (NRDA) • National Wildlife Wetland Refuge System • North American Wetland Conservation Fund • Partners for Fish and Wildlife • Texas Farm and Ranch Lands Conservation Program (TFRLCP) • Wildlife Habitat Incentive Program (WHIP)
Texas State Soil and Water Conservation Board (TSSWCB)	• Clean Water Act Section 319 Grants • Nonpoint Source Grant Program

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

AGENCY	FUNDING PROGRAM
Texas Water Development Board (TWDB)	• Agricultural Water Conservation Grants • Agricultural Water Conservation Loans • Clean Water State Revolving Fund (SWSRF) • Community Assistance Program (CAP) • Drinking Water State Revolving Fund (DWSRF) • Economically Distressed Areas Program • Emergency Community Water Assistance Grants • Flood Infrastructure Fund (FIF) • Flood Mitigation Assistance (FMA) Program • Flood Protection Planning Program • Groundwater Conservation District Loan Program • Planning Assistance to States • Regional Facility Planning Grant Program • Regional Water Planning Group Grants • Research and Planning Fund and Fund Development program • Risk MAP Program • Rural Development Grants • Rural Water Assistance Fund • Silver Jackets • Small Flood Control Projects (USACE Section 205) • State Participation Program – Regional Water and Wastewater Facilities • State Water Implementation Fund for Texas (SWIFT) • State Water Resources Research Act Program • Texas Infrastructure Resiliency Fund (TIRF) • Water Research Grant Program • Water SMART - Drought Response Program • Texas Water Development Fund (DFund)

In addition to State funded programs, many local jurisdictions benefit from federal mitigation funding opportunities. FEMA'S Hazard Mitigation Assistance is a primary source for the implementation of mitigation projects throughout the Nation. Table G-2 described additional Federal, State, Local, and Non-Profit mitigation funding sources specifically within the State of Texas.

Table G-2. Federal, State, Local and Non-Profit Mitigation Funding Sources in Texas

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Agricultural Management Assistance (AMA)	Federal	USDA, NRCS	TDA	Provides financial and technical assistance to agricultural producers to voluntarily address issues such as water management, water quality, and erosion control by incorporating conservation methods into their farming operations.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Agricultural Water Enhancement Program (AWEP)	Federal	USDA, NRCS	TDA	Voluntary conservation initiative that provides financial and technical assistance to agricultural producers to implement water enhancement activities on agricultural land to conserve surface and ground water and improve water quality.
Agricultural Water Conservation Grants	State	TWDB	TWDB	Provided to state agencies and political subdivisions for projects that support the implementation of conservation of water management strategies identified in state and regional water plans. Yearly applications. Up to $1.2 million available annually. Grant categories vary from year to year.
Agricultural Water Conservation Loans	State	TWDB	TWDB	Agricultural water conservation loans to use either for improvements on facilities or as loan to individuals. Low-interest, fixed rates. Up to 10-year repayment terms. U.S. Iron and Steel requirements apply to certain projects. Eligible Loan applicants include political subdivisions.
AmeriCorps - Corporation for National & Community Service (CNCS)	Federal	AmeriCorps	N/A	Provides funding for volunteers to serve communities, including disaster prevention. AmeriCorps/Vista has assisted local communities with wildfire mitigation projects.
American Recovery and Reinvestment Act (ARRA)	Federal	DOT Federal Transit Administration	TDA	Nicknamed the Recovery Act was a stimulus package enacted by the 111th U.S. Congress and signed into law by President Barack Obama in February 2009. Developed in response to the Great Recession, the primary objective of this federal statute was to save existing jobs and create new ones as soon as possible. Other objectives were to provide temporary relief programs for those most affected by the recession and invest in infrastructure, education, health, and renewable energy.
Assistance to Firefighters program - Fire Prevention & Safety (FP&S) **Grants**	Federal	FEMA, AFG		Fire Prevention & Safety (FP&S) Grants support projects that enhance the safety of the public and firefighters from fire and related hazards.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Beach Grants	Federal	EPA	TXGLO	EPA awards grants under authority of the BEACH Act to eligible states, territories, and tribes with beaches on ocean and Great Lakes coasts to develop and implement programs to monitor their beaches and notify the public when it is not safe to swim.
Beach Maintenance Reimbursement Fund	State	GLO	TXGLO	Allocates approximately $750,000 per year to help communities keep their beaches maintained. Applications are distributed to eligible participants in early fall and are due within a specified amount of time, no less than 30 days. Contracts are renewable annually.
Bridge Preventative Maintenance Program	State	TXDOT	TXDOT	A planned, cost-effective treatment that preserves, improves, or delays future deterioration of the condition of a bridge. To be eligible for the BMIP a bridge must have a condition rating of 5 or 6 for at least one of the following: deck, superstructure, substructure, culvert, or channel. Safety and improvement to the physical conditions of the State's on-system bridges are TxDOT's main goals in the prioritization of the bridges using BMIP funds. The Bridge Division develops an initial list each FY of eligible bridges in each district and distribute to the districts for the annual program call.
Building Resilient Infrastructure & Communities (BRIC)	Federal	FEMA	TDEM	Pre-disaster/annual cycle addressing all natural hazards, emphasis on infrastructure & lifelines.
Clean Water Act Section 319 Grants	Federal	EPA	TCEQ and TSSWCB	Provides grants for a wide variety of activities related to non-point source pollution runoff mitigation.
Clean Water State Revolving Fund (CWSRF)	Federal	EPA	TWDB	Providing low-cost financing for a wide range of wastewater, stormwater, reuse, and other pollution control projects.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Coastal Erosion Planning and Response Act (CEPRA)	State	GLO	TXGLO	Since 2000, the Texas General Land Office's Coastal Erosion Planning and Response Program has received more than $62 million in state funding and more than $62 million in matching funds, completing more than 200 coastal erosion projects and studies. The application process for non-emergency project funding requests opens every even year in February and closes in early June of that same year.
Coastal and Estuarine Land Conservation Program (CELCP)	Federal	NOAA	TXGLO	When NOAA provides funding for CELCP, the GLO provides coastal communities an opportunity to apply for up to three projects per year, with federal grants for any single project not to exceed $3 million.
Coastal Management Program (CMP)	Federal	NOAA	TXGLO	Texas receives approximately $2 million annually in grants from National Oceanic and Atmospheric Administration (NOAA) and 90% of the funds are passed through to local governments and entities to address environmental needs and promote sustainable economic development along the coast. Projects must improve the management of the state's coastal resources and ensure long-term ecological and economic productivity. Section 306 administrative funds can be used for non- construction, coastal planning and education, and research. Section 306A improvement funds can be utilized for construction and land acquisition projects and preservation and restoration. CMP funding categories include Coastal Natural Hazards Response, Critical Areas Enhancement, Public Access, Water/Sediment Quantity and Quality Improvements, Waterfront Revitalization and Ecotourism Development, Permit Streamlining/ Assistance, Governmental Coordination and Local Government Planning Assistance.
Community Assistance Program (CAP)	Federal	FEMA, NFIP	TWDB	Product-oriented financial assistance program directly related to the flood loss reduction objectives of the NFIP.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Community Development Block Grant	Federal	HUD	TDA	The primary objective is to develop viable communities by providing decent housing and suitable living environments and expanding economic opportunities principally for persons of low- to moderate- income. Eligible applicants are non-entitlement cities under 50,000 in population and non-entitlement counties that have a non-metropolitan population under 200,000 and are not eligible for direct CDBG funding from HUD may apply for funding through any of the Texas CDBG programs.
Community Development Block Grant for Rural Texas	State	TDA	TDA	TDA administers the Community Development Block Grant for Rural Texas. The primary objective of the CDBG is to develop viable communities by providing decent housing and suitable living environments and expanding economic opportunities principally for persons of low- to moderate-income. Eligible applicants are non-entitlement cities under 50,000 in population and non-entitlement counties that have a non-metropolitan population under 200,000 and are not eligible for direct CDBG funding from HUD may apply for funding through any of the Texas CDBG programs.
Community Development Block Grant – Disaster Recovery (CDBG-DR)	Federal	HUD	TXGLO	Often following a disaster, the state may receive a CDBG-DR Supplement intended for mitigation and disaster recovery projects in the affected areas. Funding can be used to acquire properties in hazard prone areas. Since CDBG funds lose their federal identify they can also be used to supplement state or local match requirements on other funds such as FEMA HMA grants. Funding also supports public facilities including water and wastewater.
Community Development Block Grant – Mitigation (CDBG-MIT)	Federal	HUD	TXGLO	Eligible grantees to use this assistance in areas impacted by recent disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses. In February of 2018, Congress appropriated $12 billion dollars in Community Development Block Grant (CDBG) funds specifically for mitigation activities for qualifying disasters in 2015, 2016, and 2017. HUD was able to allocate an additional $3.9 billion, bringing the amount available for mitigation to nearly $16 billion.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Community Fire Protection Program	Federal	USDA	TAMFS	Mitigation delivered via USDA Forest Service and Private Forestry Coop Fire Program.
Community Wildfire Defense Grant	Federal	USFS	TAMFS	Offers financial assistance to at-risk local communities with planning for and mitigating against the risk of catastrophic wildfire. This program is authorized in Public Law 117-58, the Infrastructure Investment and Jobs Act. Two primary objectives: The development and revision of Community Wildfire Protection Plans (CWPP), and the implementation of projects described in a CWPP that is less than ten years old. Prioritizes at-risk communities that are in an area identified as having high or very high wildfire hazard potential, are low-income, and/or have been impacted by a severe disaster. No minimum federal funding limit for projects.
Conservation Innovation Grants (CIG)	Federal	USDA, NRCS	TDA	Voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging federal investment in environmental enhancement and protection, in conjunction with agricultural production.
Drinking Water State Revolving Fund (DWSRF)	Federal	EPA	TWDB	Makes funds available to drinking water systems to finance infrastructure improvements. The program also emphasizes providing funds to small and disadvantaged communities and to programs that encourage pollution prevention as a tool for ensuring safe drinking water.
Economic Development Administration Grants and Investments	Federal	U.S. DOC, EDA	EDT	Invests and provides grants for community construction projects, including mitigation activities.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Economically Distressed Areas Program	State	TWDB	TWDB	Provides financial assistance for projects serving economically distressed areas where water or sewer services do not exist, or systems do not meet minimum state standards. Eligible EDAP applicants include cities, counties, water districts, nonprofit water supply corporations, and all other political subdivisions. The city or county where the project is located must adopt and enforce Model Subdivision Rules for the regulation of subdivisions prior to application for financial assistance. Projects must also be in an economically distressed area where the median household income is not greater than 75 percent of the median state household income.
Emergency Community Water Assistance Grants	Federal	USDA	TWDB	$150,000 to $500,000 available to rural communities with populations over 10,000 people with a median household income less than $65,900. Aids communities who have experienced a decline in quantity or quality of drinking water as a result of an emergency including drought.
Emergency Management Performance Grant (EMPG)	Federal	FEMA	TDEM	The EMPG program provides a yearly allocation of funding to support state and local emergency management programs. This has included providing some funding for local mitigation plans, mitigation-oriented studies, and related activities.
Emergency Relief (ER) **Program**	Federal	US DOT - FHWA	TXDOT	Provides funds for roads and bridges on Federal-aid highways that are damaged as a direct result of a natural disaster or catastrophic failure from an external cause.
Emergency Watershed Protection (EWP)	Federal	USDA, NRCS	TWDB	Provides funding and technical assistance for emergency measures such as floodplain easements in impaired watersheds. Funding available through the Simplified Acquisition Procedures (SAP) ranges from $25K to $100K. Funded through contracts between project sponsors and the NRCS. There are no grants. The NRCS pays 75% of the costs.
Environmental Quality Incentives Program (EQUIP)	Federal	USDA, NRCS	TDA	Provides funding and technical assistance to farmers and ranchers to promote agricultural production and environmental quality as compatible goals.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Fire-Adapted Communities Program (FAC)	Federal	FEMA, USFA	TAMFS	Collaborates to identify its wildfire risk and works collectively on actionable steps to reduce its risk of loss. This work protects property and increases the safety of firefighters and residents.
Fire Management Assistance Grants (FMAG)	Federal	FEMA	TDEM	Provides fire suppression support to states when loss of life and property are imminent. Wildfire mitigation is also eligible under emergency protection if life is in imminent danger.
Firewise USA Program	Federal	USDA, DOI, NASFF, NFPA	TAMFS	The national Firewise USA® recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level.
Flood Infrastructure Fund (FIF)	State	TWDB	TWDB	Enacted through Senate Bill 7 to address needs identified following the flood disasters of 2015, 2016, and 2017. Senate Bill 500 appropriated $793 million. The purpose is to provide loans and grants for flood activities and projects. Once the State Flood Plan is adopted, the account may only be used for projects included in the plan. The SWIFT Advisory Committee is the oversight entity.
Flood Mitigation Assistance Program (FMA)	Federal	FEMA	TWDB	Repetitive flood loss property reduction and projects that mitigate losses to NFIP insured properties.
Flood Protection Planning Program	State	TWDB	TWDB	Developed to evaluate solutions to flooding problems in the state of Texas. Planning activities eligible for this program may include:
Forest Land Enhancement Program	Federal	USDA, NRCS	TAMFS	Provides educational, technical, and financial assistance to help landowners implement sustainable forestry management objectives.
Forest Legacy Program	Federal	USFS	TAMFS	Program providing funding to protect private forest lands that are environmentally, economically, and socially critical. This program reduces development in the wildland-urban interface.
Hazard Mitigation Grant	Federal	FEMA	TDEM	Post-disaster multi-hazard mitigation funding for federally declared disasters. HMGP Post Fire funds are available for FMAG declarations.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Program (HMGP)				
Hazard Mitigation Grant Program Supplemental – Local Hazard Mitigation Plan Program (LHMPP)	Federal	FEMA	TXGLO	Local Hazard Mitigation Plan Program (LHMPP) assists eligible entities by providing grants to develop or update local hazard mitigation plans, or to provide cost share for hazard mitigation planning activities funded through other federal sources. Community Development Block Grant Mitigation (CDBG-MIT) funds allocated by the United States Department of Housing and Urban Development (HUD) and administered by the Texas General Land Office (GLO) fund these planning activities, and the Hazard Mitigation Plan development and approval oversight is administered by the Federal Emergency Management Agency (FEMA) and administered by the Texas Division of Emergency Management (TDEM Grant awards will range from $20,000 – $100,000.
High Hazard Potential Dam Program (HHPD)	Federal	FEMA	TCEQ	Pre-disaster/annual cycle, for non-federal high hazard dams rated Unsatisfactory. Local match is 35% for each of the four grant periods.
Highway Bridge Replacement and Rehabilitation Program	Federal	FHWA	TXDOT	Provides funding to enable states to improve the condition of highway bridges through replacement, rehabilitation, and systematic preventive maintenance. Also includes the National Historic Covered Bridge Preservation Program.
Homeland Security Grant Program (HSGP)	Federal	DHS	TDEM	Homeland security activities identified in the state and local strategic plans. Funding supports threat & hazard and risk identification for natural, technological, and human-caused hazards. Some prevention activities may be considered mitigation.
Hospital Preparedness Program (HPP) **Cooperative Agreement**	Federal	HHS	TXDSHS	HPP is the primary source of federal funding for health care system preparedness and response and, in collaboration with public health, prepares health care delivery systems to save lives through the development of health care coalitions (HCCs). Under the direction of the HPP providers, the HCCs develop plans and provide training, and coordinate regional exercises.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Hydrologic Research Grants	Federal	NOAA		Up to $125,000 to conduct joint research and development on pressing surface water hydrology issues common to national, regional, local operational offices. Eligible applicants are federally recognized agencies of state or local governments, quasi-public institutions such as water supply or power companies, hydrologic consultants and companies involved in using and developing hydrologic forecasts.
Groundwater Conservation District Loan Program	State	TWDB	TWDB	Provides short-term loans to finance the start-up costs of Groundwater Conservation Districts. Funding is available for any Groundwater District or Authority with the authority to regulate the spacing of water wells, the production from water wells, or both. The program is authorized under Texas Water Code Chap. 36, Subchapter. L, and governed by TWDB rules in 31 Tex. Admin. Code Chap. 363, Subchapter. H.
Gulf of Mexico Energy Security Act (GOMESA)	Federal	DOI	TXGLO	GOMESA significantly enhances oil and gas leasing activities and creates revenue sharing provisions for the oil- and gas-producing states of Alabama, Louisiana, Mississippi, and Texas, and their coastal political subdivisions (CPSs). GOMESA funds are used for coastal conservation, restoration, and hurricane protection. The second phase of GOMESA revenue sharing began in Fiscal Year 2017 and expands the definition of qualified Outer Continental Shelf revenues to include receipts from Gulf of Mexico leases subject to withdrawal or moratoria restrictions. A revenue-sharing cap of $500 million per year for the four Gulf producing states, their CPSs and the Land and Water Conservation Fund applies from fiscal years 2016 through 2055.
Individual Assistance (IA)	Federal	FEMA	TDEM	Following a disaster, funds can be used to mitigate hazards when repairing individual and family homes.
In-Lieu Fee Program Mitigation Projects	Federal	USACE	Community Applicants	Restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for Department of the Army permits.

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NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Mitigation Banks	Federal	USACE	Community Applicants	Mitigation Banks are sites approved by the Corps to sell compensatory mitigation credits for projects resulting in unavoidable impacts to waters of the U.S. When a permit is issued that requires compensatory mitigation, the permit will specify how many credits are required to be purchased at an approved mitigation bank.
National Earthquake Hazards Reduction Program (NEHRP)	Federal	FEMA	TDEM	Provides money to support enhanced earthquake risk assessments in local hazard mitigation plans and other earthquake hazard mitigation and preparedness activities.
Natural Resources Damage Assessment (NRDA)	Federal	EPA	TPWD	ERAs evaluate the likelihood that adverse ecological effects are occurring or may occur as a result of exposure to physical stressors (e.g., cleanup activities) or chemical stressors (e.g., release of hazardous substances) at a site.
National Weather Service (NWS)	Federal	NOAA - NWS		NWS offers storm spotter training, along with weather and flooding safety guides. They can also sometimes provide funding to support severe weather signage in parks or other public places.
National Wildlife Wetland Refuge System	Federal	USFWS	TPWD	Provides funding for the acquisition of lands into the federal wildlife refuge system.
Nonpoint Source Grant Program	Federal	EPA	TCEQ, TSSWCB	The federal Clean Water Act (CWA) requires States to develop a program to protect the quality of water resources from the adverse effects of nonpoint source (NPS) water pollution. TCEQ and TSSWCB administer federal grants for activities that prevent or reduce nonpoint source pollution (NPS).
North American Wetland Conservation Fund	Federal	USFWS	TPWD	Provides funding for wetland conservation projects.
NRCS Conservation Programs	Federal	USDA, NRCS	Community Applicants	Provides funding through several programs for the conservation of natural resources.

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NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Partners for Fish and Wildlife	Federal	USFWS	TPWD	Provides financial and technical assistance to landowners for wetland restoration projects in "Focus Areas" of the state.
Planning Assistance to States	Federal	USACE	TWDB	Aids states in planning for the development, utilization, and conservation of water and related land resources.
Pre-Disaster Mitigation Loan Program	Federal	SBA		Provides low-interest loans to small businesses for mitigation projects.
Prescribed Fire Grants	State	TAMFS	TAMFS	TAMFS's Mitigation & Prevention Department annually implements 4 prescribed fire grants intended to protect local communities and restore ecosystems. (1) SFAM Plains Prescribed Fire Grant – aids communities that have been or may be threatened by wildland fire by funding prescribed burning to reduce hazardous fuels in or around communities. Treatment areas will be located adjacent to priority communities in Texas that are at the highest risk for loss during a Southern Plains Wildfire Outbreak event. (2) The Community Protection Program Grant aids reducing the hazard of high-risk fuels on private lands through the use of prescribed burning. The treatment area will be within 10 miles of a National Forest boundary. The grant's goal is to protect high-risk communities and associated forest resources by reducing the risk of catastrophic wildfire on private and public lands. (3) The State Fire Assistance for Mitigation Central & East Texas Grant provides assistance to communities that have been or may be threatened by wildfire by funding prescribed burning to reduce hazardous fuels in and around communities. Treatment areas will be private property in the 43 Counties in Central and East Texas that have a Community Wildfire Protection Plan within the county. The goal is to protect high-risk communities and aid in ecosystem restoration by utilizing prescribed fire to consume excess vegetation before it contributes to catastrophic wildfire. Priority

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
				will be given to treatments sites that are within a CWPP, located near a Firewise community, located near homes based on Texas Wildfire Risk Assessment Portal and contain ecosystems that will benefit from prescribed fire. Neches River and Cypress Basin Watershed Restoration Program - Prescribed Fire Grant provides assistance to landowners in utilizing prescribed fire for ecological improvement to the Neches River and Cypress Basin watersheds. This program will benefit the public and natural resources through improvement of water quality and quantity, control of invasive species and enhancement of wildlife habitat. Treatment areas will be private property in the Neches River and Cypress Basin Watersheds. Priority will be given to prescribed burn treatments that promote native ecosystem restoration, are in priority watershed protection zones and near public land.
Public Assistance (PA) **Section 406 Funds**	Federal	FEMA	TDEM	Following a disaster, funds can be used to mitigate hazards when repairing damages to a public structure or infrastructure. Wildfire mitigation is also eligible under emergency protection if life is in imminent danger.
Public Health Emergency Preparedness (PHEP) **Cooperative Agreement**	Federal	CDC	TXDSHS	Helps health departments build and strengthen their abilities to effectively respond to a range of public health threats, including infectious diseases, natural disasters, and biological, chemical, nuclear, and radiological events. Preparedness activities funded by the PHEP cooperative agreement specifically target the development of emergency-ready public health departments that are flexible and adaptable.
Regional Facility Planning Grant Program	State	TWDB	TWDB	TWDB grants to political subdivisions of the State of Texas for studies and analyses to evaluate and determine the most feasible alternatives to meet regional water supply and wastewater facility needs, estimate the costs associated with implementing feasible regional water supply and wastewater facility alternatives, and identify institutional arrangements to provide regional water supply and wastewater services for areas in Texas.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Regional Water Planning Group Grants	State	TWDB	TWDB	Developed to guide and support planning of the state's water resources by administering and assisting in the development of the regional and state water plans. The department strives to improve the planning process each cycle by developing clear guidance for the program's stakeholders and utilizing best-available data, methodologies, and technical innovations.
Research and Planning Fund and Fund Development Program	State	TWDB	TWDB	Offers grants to eligible applicants for the development or revision of regional water plans. The proposed planning must be a plan, an amendment to an approved regional water plan developed by the regional water planning group for a regional water planning area pursuant to the Texas Water Code, §16.053 and Chapter 357, or other special studies approved by the TWDB which will enhance water planning efforts in the region. Activities eligible for funding are those related to the development, revision, or improvement of regional water plans including public meetings, hearings, and special studies.
Resilient Landscapes Program	Federal	USDA, USFS	TAMFS	The USFS is working with partners to restore healthy, resilient, fire-adapted ecosystems. Restoring ecosystems includes thinning crowded forests and using prescribed fire on two to three million acres each year, which can help prevent the buildup of flammable vegetation that feeds extreme wildfires.
Risk MAP Program	Federal	FEMA, NFIP	TWDB	Establishes or updates floodplain mapping and multi-hazard risk products.
Rural Development Grants	Federal	USDA-Rural Development	TWDB	Provides grants and loans for infrastructure and public safety development and enhancement in rural areas. Provides $100,000 or 75% of the total project, whichever is less.
Rural Fire Assistance Grant	Federal	NIFC	TAMFS	Funds fire mitigation activities in rural communities.
Rural Utilities Service (RUS)	Federal	USDA-Rural Development		RUS administers programs that provide much-needed infrastructure or infrastructure improvements to rural communities. These include water and waste treatment, electric power, and telecommunications services.

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NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Rural Water Assistance Fund	State	TWDB	TWDB	Designed to assist small rural utilities to obtain low-cost financing for water and wastewater projects. The RWAF offers tax-exempt equivalent interest rate loans with long-term finance options.
Safe Rest Stops Program	State	TXDOT	TXDOT	Texas has 21 major highways that serve as long distance travel corridors. Along each of these roadways, rest areas are an essential safety feature to reduce accidents caused by driver fatigue. These facilities give travelers a break from driving, and then return them to the road rested, refreshed and alert.
State Fire Assistance for Mitigation (SFAM) **- Mechanical Fuels Grants**	State	TAMFS	TAMFS	Provides financial assistance to reduce the hazard of high-risk fuels on private lands using hazardous fuel reduction. The grant's goal is protected high risk communities within the 32 high risk counties in Central Texas identified by Texas A&M Forest Service Mitigation and Prevention Department. Priority will be given to landowners that live with in the 32 high risk counties, are in a county or city that has an active Community Wildfire Protection plan or live with in a Firewise USA Site.
SFAM Vegetative Fuel Break Grant	State	TAMFS	TAMFS	Provides financial assistance for the creation of vegetative fuel breaks on private lands in Texas. Vegetative fuel breaks are trees and shrubs systematically planted adjacent to fields, homesteads, or feedlots to reduce or redirect the wind. Projects will be in the Texas High Plains. The goal of the grant is to protect high-risk communities by reducing the risk of catastrophic wildfire on private and public lands. Grant recipients will be reimbursed up to $2,500 for actual costs associated with creating a green, vegetative fuel break, consisting of a minimum of 3 rows of trees and 400 feet in length.
Silver Jackets	Federal	USACE	TWDB	Can provide funding for flood related studies, public awareness, risk analysis, and flood response plans. Construction of small flood control projects.
Small Flood Control Projects (USACE Section 205)	Federal	USACE	TWDB	Authorizes use of USACE to do feasibility and construction of small flood control projects.

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NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
State Participation Program – Regional Water and Wastewater Facilities	State	TWDB	TWDB	The State Participation Program enables the TWDB to provide funding and assume a temporary ownership interest in a regional water, wastewater, or flood control project when the local sponsors are unable to assume debt for an optimally sized facility. The program is intended to encourage the optimum regional development of projects by funding excess capacity for future use where the benefits can be documented, and where such development is unaffordable without state participation. The goal is to allow for the "right sizing" of projects in consideration of future needs.
State Water Implementation Fund for Texas (SWIFT)	State	TWDB	TWDB	Passed by the Legislature and approved by Texas voters through a constitutional amendment, the SWIFT program helps communities develop and optimize water supplies at cost-effective rates. The program provides low-interest loans, extended repayment terms, deferral of loan repayments, and incremental repurchase terms for projects with state ownership aspects.
State Water Resources Research Act Program	Federal	USGS	TWDB	USGS in cooperation with the National Institutes for Water Resources supports an annual call for proposals to focus on water problems and issues that are of a regional or interstate nature or relate to a specific program priority identified by the Secretary of the Interior and the Institutes.
Texas Farm and Ranch Lands Conservation Program (TFRLCP)	State	TPWD	TPWD	Maintains and enhances the ecological and agricultural productivity of these lands through Agricultural Conservation Easements. The TFRLCP supports responsible stewardship and conservation of working lands, water, fish and wildlife, and agricultural production through: • Generating interest and awareness in easement programs and other options for conserving working lands. • Leveraging available monies to fund as many high-quality projects as possible. Highlighting the ecological and economic value of working lands and the opportunities to conserve working lands for the future.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Texas HOME Disaster Relief	Federal	TDHCA	TDHCA	The Texas HOME Disaster Relief Program is a long-term housing program designed to help eligible organizations serve income eligible households impacted by disasters. Funds are available to assist with federal or state declared disasters, or other natural or man-made disasters that may occur. The Department's practice is to maintain a HOME Disaster Relief Fund balance of $1 million whenever possible. These funds can be accessed to support impacted households not located in communities that receive HOME funds directly from the U.S. Department of Housing and Urban Development (HUD).
Texas Longleaf Conservation Assistance Program	Federal	National Fish and Wildlife Foundation (NFWF)	TAMFS	Provides eligible landowners with financial and technical assistance for establishing, enhancing, and managing longleaf pine. Landowners with property within ten East Texas counties which include Angelina, Hardin, Jasper, Nacogdoches, Newton, Polk, San Augustine, Sabine, San Jacinto, Trinity, and Tyler are eligible to apply. Approved participants may receive up to 50% payment not to exceed a standard cap rate for implementing approved conservation practices. Approved conservation practices include prescribed burning, reforestation, site preparation, and forest stand improvement.
Texas Infrastructure Resiliency Fund (TIRF)	State	TWDB	TWDB	Enacted through Senate Bill 7 to address needs identified following the flood disasters of 2015, 2016, and 2017. Senate Bill 500 appropriated $685 million. Purpose is to provide loans, grants, and matching funds for flood projects through four separate accounts. Each account has different purposes. The oversight entity is the TIRF Advisory Board (SWIFT Advisory Committee and TDEM Director as non-voting member).
Texas Water Development Fund (DFund)	State	TWDB	TWDB	State funded loan program The DFund enables the Board to fund multiple eligible components in one loan to our borrowers, e.g., an application for funding of water and wastewater components can be processed in a single loan. Provide financial assistance for water supply projects, wastewater projects, and flood control projects

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
				(including structural and nonstructural flood protection improvements).
Transportation Enhancement Program	Federal	FHWA	TXDOT	Provides opportunities for non-traditional transportation related activities. Projects should go above and beyond standard transportation activities and be integrated into the surrounding environment in a sensitive and creative manner that contributes to the livelihood of the communities, promotes the quality of our environment, and enhances the aesthetics of our roadways. Projects undertaken with enhancement funds are eligible for reimbursement of up to 80 percent of allowable costs.
United States Geological Survey (USGS)	Federal	USGS		USGS issues competitive grants and cooperative agreements to support research in earthquake hazards, the physics of earthquakes, earthquake occurrence, and earthquake safety policy.
Urban Tree Canopy Project (UTC)	Federal	USDA, USFS	TAMFS	Urban tree canopy (UTC) is the layer of leaves, branches, and stems of trees that cover the ground when viewed from above. In urban areas, the UTC provides an important stormwater management function by intercepting rainfall that would otherwise run off of paved surfaces and be transported into local waters though the storm drainage system, picking up various pollutants along the way. UTC also reduces the urban heat island effect, reduces heating/cooling costs, lowers air temperatures, reduces air pollution, increases property values, provides wildlife habitat, and provides aesthetic and community benefits such as improved quality of life.
U.S.-Mexico Border Water Infrastructure Program	Federal	EPA	TCEQ	Provides grant assistance to U.S. and Mexican communities located within 60 miles of the border for the development and construction of high-priority drinking water and wastewater facilities. The program furthers EPA's mission of protecting human health and the environment by providing critical resources for what is often an area's first drinking water and basic sanitation services.
Water Research Grant Program	State	TWDB	TWDB	TWDB funds a variety of water planning and water research studies and projects intended to assist and support regional water planning efforts or to answer regional water planning questions.

APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Water Conservation Field Services Program	Federal	HUD	Texas A&M AgriLife	Provides several grants related to safe housing initiatives.
Water2025 Challenge Grant Program for Western States	Federal	Bureau of Reclamation	TWDB	Up to $25,000 for projects that improve water use efficiency and improve water management practices.
Watershed Processes and Water Resources	Federal	Bureau of Reclamation	TWDB	Up to $250,000 for projects that can be completed within 24 months and that reduce conflicts through water conservation, efficiency, and markets.
Watershed Processes and Water Resources – National Research Initiative Standard Research (Part T)	Federal	USDA	TWDB	$100,000 available. Sponsors research that addresses two areas: (1) understanding fundamental watershed processes; and (2) developing appropriate technology and management practices for improving the effective use of water (consumptive and non-consumptive) and protecting or improving water quality for agriculture and forestry production.
WaterSMART – Drought Response Program	Federal	USDA	TWDB	$500,000 available. Innovative research in understanding fundamental processes that affect the quality and quantity of water resources at diverse spatial and temporal scales, ways on improving water resource management in agriculture, forested, and rangeland watersheds, and developing appropriate technology to reach those goals.
Wildlife Habitat Incentive Program (WHIP)	Federal	USDA, NRCS	TPWD	Voluntary program for conservation-minded landowners who want to develop and improve wildlife habitat on agricultural land, nonindustrial private forest land, and tribal land.

RESOLUTION FOR FAYETTE COUNTY
APPROVAL OF HAZARD MITIGATION ACTION PLAN UPDATE

WHEREAS, natural hazards in Fayette County, Texas, historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, Fayette County sponsored a FEMA Hazard Mitigation Action Plan Update, and the Cities and Independent School Districts of Carmine, Ellinger, Fayetteville, Flatonia, La Grange, Round Top, Schulenburg, Fayetteville ISD, Flatonia ISD, La Grange ISD, Round Top-Carmine ISD and Schulenburg ISD participated in the Hazard Mitigation Plan Update; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a Hazard Mitigation Action Plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update Hazard Mitigation Action Plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the County of Fayette, through the hazard mitigation planning process, has assessed the County of El Paso's potential risks and hazards and is committed to planning for a sustainable future and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals, and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the planning area.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The County of Fayette will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The Fayette County Commissioner's Court has the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the Commissioner's Court for consideration; and
4. The County of Fayette agrees to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 28th day of Sept, 2023.

Dan Mueller
Fayette County Judge

Jason McBroom
Commissioner, Precinct 1

Luke Sternadel
Commissioner, Precinct 2

Harvey Berckenhoff
Commissioner, Precinct 3

Drew Brossmann
Commissioner, Precinct 4

ATTEST:

Brenda Fietsam, County Clerk and
Clerk of the Commissioners Court

FAYETTE COUNTY COMMISSIONERS COURT TEXAS

RESOLUTION FOR CITY OF CARMINE

APPROVAL OF HAZARD MITIGATION ACTION PLAN UPDATE

WHEREAS, natural hazards in the City of Carmine area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of Carmine has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of Carmine will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The City of Carmine vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of Carmine to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 10th day of October, 2023.

CITY OF CARMINE, TEXAS

Wade T. Eilers, Mayor

ATTEST:

Jacklyn Robbins, City Secretary

RESOLUTION FOR CITY OF ELLINGER

APPROVAL OF HAZARD MITIGATION ACTION PLAN UPDATE

WHEREAS, natural hazards in the City of Ellinger area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of Ellinger has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of Ellinger will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The City of Ellinger vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of Ellinger to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 25 day of Sept 2023.

(Mayor)

(Clerk)

RESOLUTION 2023-09-29-1

CITY OF FAYETTEVILLE

APPROVAL OF HAZARD MITIGATION ACTION PLAN UPDATE

WHEREAS, natural hazards in the City of Fayetteville area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of Fayetteville has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of Fayetteville will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The City of Fayetteville vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of Fayetteville to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 29th day of September, 2023.

(Mayor)

(Clerk)

RESOLUTION #2023.10.2

RESOLUTION FOR CITY OF FLATONIA

APPROVAL OF HAZARD MITIGATION ACTION PLAN UPDATE

WHEREAS, natural hazards in the City of Flatonia area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of Flatonia has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of Flatonia will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The City of Flatonia vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of Flatonia to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 4th day of October 2023.

Dennis Geesaman, Mayor

Jacqueline Ott, City Secretary

RESOLUTION FOR CITY OF LA GRANGE

APPROVAL OF HAZARD MITIGATION ACTION PLAN UPDATE

WHEREAS, natural hazards in the City of La Grange area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of La Grange has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of La Grange will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The City of La Grange vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of La Grange to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 23rd day of October, 2023.

Jan Rockey
(Mayor)

Janet Baye
(City Secretary)

RESOLUTION No. 2023-184

TOWN OF ROUND TOP

APPROVAL OF HAZARD MITIGATION ACTION PLAN UPDATE

WHEREAS natural hazards in the Town of Round Top area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and the Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the Town of Round Top has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals, and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The Town of Round Top will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The Town of Round Top vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The Town of Round Top to take such other action as may be reasonably necessary to carry out the Hazard Mitigation Action Plan Update objectives and

report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

PASSED AND APPROVED THIS 9TH DAY OF OCTOBER 2023.

Mark Massey, Mayor

ATTEST:

Sylvie Armstrong
Town Clerk

M/2		Yeas	Nays	N/V	Absent
	M. Massey	☐	☐	☑	☐
M	A. Bone	☑	☐	☐	☐
2	O. Massey	☑	☐	☐	☐
	L. Conine	☑	☐	☐	☐
	J. Burger	☑	☐	☐	☐
	J. Vincent	☑	☐	☐	☐

Passed / Failed

Sylvie Armstrong, Town Clerk Date Oct 9, 2023

RESOLUTION FOR CITY OF SCHULENBURG

APPROVAL OF HAZARD MITIGATION ACTION PLAN UPDATE

WHEREAS, natural hazards in the City of Schulenburg area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of Schulenburg has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of Schulenburg will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The City of Schulenburg vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of Schulenburg to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 2ND day of Oct., 2023.

(Mayor)

(Clerk)

RESOLUTION FOR FAYETTEVILLE INDEPENDENT SCHOOL DISTRICT

APPROVAL OF COUNTY HAZARD MITIGATION PLAN

WHEREAS, natural hazards in Fayette County, Texas, historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update Hazard Mitigation Action Plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the Fayetteville Independent School District has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Plan outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Plan is approved in its entirety;
2. The Fayetteville Independent School District will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The Fayetteville Independent School District vests with the Superintendent the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Plan will be reviewed at least annually; and that any needed adjustments will be presented to the Board of Directors consideration; and
4. The Fayetteville Independent School District agrees to take such other action as may be reasonably necessary to carry out the objectives of the Plan and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 9th day of October 2023.

Approval Signatures

Lisa Simpson, FISD Board President

FLATONIA INDEPENDENT SCHOOL DISTRICT

P.O. Box 189 • Flatonia, Texas 78941 • (361) 865-2941 • Fax (361) 865-2940

RESOLUTION FOR FLATONIA INDEPENDENT SCHOOL DISTRICT

APPROVAL OF COUNTY HAZARD MITIGATION PLAN

WHEREAS, natural hazards in Fayette County, Texas, historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update Hazard Mitigation Action Plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the Flatonia Independent School District has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Plan outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Plan is approved in its entirety;
2. The Flatonia Independent School District will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The Flatonia Independent School District vests with the Superintendent the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Plan will be reviewed at least annually; and that any needed adjustments will be presented to the Board of Directors consideration; and
4. The Flatonia Independent School District agrees to take such other action as may be reasonably necessary to carry out the objectives of the Plan and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 16th day of Oct, 2023.

Approval Signatures

T R, Tim Rowell, School Board President

LaVerne Dornak, LaVerne Dornak, School Board Secretary

Chris E. Sodek, Chris Sodek, Superintendent

RESOLUTION FOR LA GRANGE INDEPENDENT SCHOOL DISTRICT

APPROVAL OF COUNTY HAZARD MITIGATION PLAN

WHEREAS, natural hazards in Fayette County, Texas, historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update Hazard Mitigation Action Plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the La Grange Independent School District has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Plan outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Plan is approved in its entirety;
2. The La Grange Independent School District will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The La Grange Independent School District vests with the Superintendent the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Plan will be reviewed at least annually; and that any needed adjustments will be presented to the Board of Directors consideration; and
4. The La Grange Independent School District agrees to take such other action as may be reasonably necessary to carry out the objectives of the Plan and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 16th day of October 2023.

Approval Signatures

La Grange ISD School Board President

R T C

Round Top-Carmine Independent School District

P.O. Box 385, 378 Centennial Street
Carmine, Texas 78932
Phone 979-966-6118 FAX 979-966-6119

RESOLUTION FOR ROUND TOP-CARMINE INDEPENDENT SCHOOL DISTRICT APPROVAL OF COUNTY HAZARD MITIGATION PLAN

WHEREAS, natural hazards in Fayette County, Texas, historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

, FEMA requires that communities update Hazard Mitigation Action Plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the Round Top-Carmine Independent School District has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Plan outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Plan is approved in its entirety;
2. The Round Top-Carmine Independent School District will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strateies;
3. The Round Top-Carmine Independent School District vests with the Superintendent the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Plan will be reviewed at least annually; and that any needed adjustments will be presented to the Board of Directors consideration; and
4. The Round Top-Carmine Independent School District agrees to take such other action as may be reasonably necessary to carry out the objectives of the Plan and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 16th day of October, 2023.

Approval Signatures

RESOLUTION FOR SCHULENBURG INDEPENDENT SCHOOL DISTRICT

APPROVAL OF COUNTY HAZARD MITIGATION PLAN

WHEREAS, natural hazards in Fayette County, Texas, historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update Hazard Mitigation Action Plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the Schulenburg Independent School District has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Fayette County Hazard Mitigation Plan outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Fayette County Hazard Mitigation Plan is approved in its entirety;
2. The Schulenburg Independent School District will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The Schulenburg Independent School District vests with the Superintendent the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Plan will be reviewed at least annually; and that any needed adjustments will be presented to the Board of Directors consideration; and
4. The Schulenburg Independent School District agrees to take such other action as may be reasonably necessary to carry out the objectives of the Plan and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

ADOPTED this 13th day of Nov, 2023.

Approval Signatures

Michael Grisedge

Jillie Motomme