HAZARD MITIGATION ACTION PLAN





Developed by the City of Mount Pleasant Division of Emergency Management

XXXXX, XX, 2023

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PURPOSE

The City of Mount Pleasant's Hazard Mitigation Action Plan (HazMAP) is designed to meet the planning requirements for State, Tribal and Local Mitigation Plans found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 (44 CFR Part 201). Local governments are required to develop a hazard mitigation plan as a condition for receiving certain types of nonemergency disaster assistance, including funding for mitigation projects. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended, May 2019, provides the legal basis for state, local, and tribal governments to develop and submit a mitigation plan to reduce the impacts from identified natural hazards, risks, and vulnerabilities. Appendix B is reserved for the City Council Resolution, formally adopting the City of Mount Pleasant Hazard Mitigation Action Plan, which occurs after FEMA's conditional approval.

The City of Mount Pleasant for decades was included in the Titus County and Adhering Cities HazMAP. However, with the election of a new County Judge and Commissioner to the Titus County Commissioner's Court the county made the decision to separate from the City and have it's own plan and Emergency Management Coordinator. This City of Mount Pleasant has taken information that applied to the City from the County plan and have added other information which pertains to the City that was not included previously in the County Plan to create the City's HazMAP.

Organization

The City of Mount Pleasant Hazard Mitigation Action Plan is divided into nine sections. Each section is necessary to meet the planning requirements. The City of Mount Pleasant Hazard Mitigation Action Plan sections include:

- 1. **Introduction**: Describes the purpose and authority of the Hazard Mitigation Action Plan and its organization.
- 2. **Planning Process**: Provides a description of the planning process the City of Mount Pleasant followed to develop the Hazard Mitigation Action Plan.
- 3. **Community Profile**: Describes the profile of the City of Mount Pleasant and is a helpful tool in understanding how to best mitigate local hazards.
- 4. **Risk Overview**: Provides detail on the hazard identification analysis and risk assessment and shows how the Risk Summary (Table 4.5) was developed and hazard ranking.
- 5. **Hazard Profiles**: Contains the hazard profiles that pose the greatest risk to the City of Mount Pleasant. Each hazard profile contains the location, severity, previous occurrences, probability of future events, impacts and vulnerability of those hazards.
- 6. **Hazard Mitigation Strategy**: Outlines the City of Mount Pleasant's mitigation strategy, goals and objectives, reports progress on previous mitigation actions and addresses prioritizing mitigation actions.
- 7. Hazard Mitigation Actions: Outlines mitigation actions for the identified hazards.
- 8. **Plan Maintenance**: Describes the plan maintenance process for how the plan will be monitored, evaluated, incorporated and updated.
- 9. **Appendix**: Includes the appendix that provides additional information referenced in the plan.

PLANNING PROCESS

The City of Mount Pleasant's Hazard Mitigation Action Plan was developed based on guidelines published by FEMA and includes four phases depicted in Figure 2.1 below.

At the onset of the planning process, representatives from various city departments, school, utility company, private citizens and interested parties were invited to participate in the HazMAP efforts. These partners included local, regional, and state agencies, private residents, and community-based associations. Involving a variety of planning partners helped ensure a strong foundation for the Hazard Mitigation Action Plan.

Meetings were held with the Hazard Mitigation Planning Team, where risks were assessed, and mitigation goals and actions created. Local and regional contacts also provided information directly to the Planning Team, which was an important aspect to the planning process.





Source: Federal Emergency Management Agency

Planning Team

The Planning Team members were identified based on their expertise and authority to implement the mitigation actions. The following are the members of Mount Pleasant's Hazard Mitigation Action Planning Team:

- John Ankrum-Building Official
- Lanny Buck-Engineer
- David Gonzales-Director of Development Services
- Keith Boyd-Director of Public Works
- Anthony Rasor-Director of Utilities
- Mark Buhman-Police Chief
- Ricky Harris-Assistant City Manager/Director of Parks
- Larry McRae-Fire Department/Emergency Management
- Jenifer Harland-External Affairs Manager, Southwestern Electric Power Company
- Hayes Lesher-Director of Safety and Security Mount Pleasant ISD
- Wendell Eakins-Member of the Public

Mt. Pleasant Fire Chief Larry McRae is the chairman of the Team. Chief McRae has served on the Mt. Pleasant Fire Department since 1976, assuming the position of Fire Chief in 1984 and the Emergency Management Coordinator for the City in 2003 and the Emergency Management Coordinator for the county from 2005 until August 1, 2023. He holds many certifications that prepare him for his job as well as to serve in a leadership role with the team. He has responded to over 10,000 incidents in his career. Chief McRae is well versed in a variety of emergency response procedures as well as having a broad knowledge of the government agencies and departments within the city of Mt. Pleasant and Titus County. In addition to his local responsibilities, he serves as the Team Lead for one of the State's 6 All Hazard Incident Management Teams where he has been deployed to numerous hurricanes, floods, wildfires, etc. across the state to help mitigate those situations which provided valuable experience to apply to local responses. Due to his almost 50-year career in the fire service, all in Mount Pleasant, Chief McRae possesses a vast amount of local institutional knowledge which provided valuable data from a local level regarding hazards and response.

Kick Off and Subsequent Meetings

The kickoff meeting was held on August 31, 2023. The reason for having to establish a plan for the city was discussed as well as using the countywide plan as the basis for the city plan. This initial meeting was an opportunity to inform key department heads and Planning Team members about how the planning process pertained to their distinct roles and responsibilities. Progress of past mitigation activities were discussed, and the process a validating hazard that were included in the countywide plan for inclusion in the city plan as well as evaluating other hazards not included in the countywide plan that might need to be included in the city plan was conducted.

The Planning Team participated in additional meetings and did work outside of the group meetings. The Planning Team performed the following activities: identified hazards, conducted risk assessments, ranked hazards, developed a public outreach strategy, planned implementation of mitigation actions, assisted in research and gathering information to include in the plan and participated in the draft plan review. The Team will also monitor progress of the updated mitigation actions and will assist with plan updates as needed. The summary of planning meetings is outlined in Table 2.2 and meeting documentation is found in Appendix C.

| Table 2.2 | - Meeting | Summaries |
|-----------|-----------|-----------|
|-----------|-----------|-----------|

| Date | Purpose |
|--------------------|---|
| August 31, 2023 | Kickoff meeting Why the City is preparing their own plan. Discussion on hazards to City take from the Countywide Plan Discussion about the purpose of mitigation and planning process Reviewed Previous Mitigation Goal Progress and Implementation Hazard Mitigation Survey Explained |
| September 29, 2023 | Discuss any updates to the plan. Discuss the lack of attendance at public meetings. Discuss the timeline for plan approval. Discuss the results of the survey. Discuss the SCAN program planned for the future. |
| | • |

Mitigation Review and Development

During the initial kickoff meeting, the Planning Team gave progress reports on all mitigation actions listed in the 2013 Plan that pertained to the City of Mount Pleasant. The Planning Team discussed mitigation actions for the City and updated information, images, data and statistics that related to each mitigation action. Development of the mitigation actions for the 2023 HazMAP was ongoing throughout the planning process. An educational component was conducted at the August 31, 2023 team meeting to ensure Planning Team members were actively considering all mitigation actions for HazMAP. The City's Capital Improvement Plan,

Comprehensive Plan and department budgets were reviewed to determine possible mitigation actions. Planning Team members identified proposed actions, hazard(s) addressed, costs and benefits, the responsible parties, effects on new and existing structures, implementation schedules and potential funding sources. All Mitigation actions identified during the process were made available to the Planning Team for review. In addition, the draft Plan was made available for public review and comment on the City of Mount Pleasant's website, through the City Secretaries Office and through open public meetings. The Plan was also accessible via the internet and information on how to access it was provided on the City's website as well as a flyer inserted in water bills sent to all city water customers.

Review of Existing Plans, Plan Integration and Implementation

A variety of existing studies, plans, reports, and technical information were reviewed as part of the planning process. Sources of the information included FEMA, TDEM, and the City of Mount Pleasant.

Other documents, including those from the National Oceanic and Atmospheric Administration (NOAA) that includes the National Climatic Data Center (NCDC), provided previous hazard occurrence data and descriptions of events in the area. Materials from FEMA and TDEM were reviewed for guidance on plan development requirements and utilized in the development of the Plan at all stages. Internally, the City of Mount Pleasant's Capital Improvement Plan, Comprehensive Plan and Operating Budget were reviewed to identify what mitigating activities the City of Mount Pleasant has currently budgeted to complete.

The annual budget review is an important tool in controlling and executing mitigation goals and objectives. It is this phase where identified mitigation actions may be locally funded. Each action has been assigned to a specific department that is responsible for tracking and implementing the mitigation actions explained in Section 7. A funding source and implementation timeline are included for department use. The timelines will be impacted and partially directed by the City's comprehensive planning process, Capital Improvement Plan, budgetary constraints, community needs, and any additional funding sources obtained including grant fund.

Capability Assessment

The Planning Team identified current capabilities for completing and implementing hazard mitigation actions. Members verified all planning/regulatory, administrative/technical, financial, and educational capabilities were included in the document for all City of Mount Pleasant departments. The Regulatory and Capabilities Tool Assessment (Figure 2.4) describes policies, programs, resources, codes, and ordinances to accomplish hazard mitigation through the listed departments.

| Regulatory Tools (Ordinances, Codes, Plans) | Additional Information |
|--|--|
| Comprehensive / Master Plan | Mount Pleasant 2050 Comprehensive Plan |
| Local Emergency Operations Plans | City of Mount Pleasant Emergency Operations Plan |
| Building Code | Adopted 2018 International Building Code |
| Fire Department ISO Rating | ISO Rating 3 |

Figure 2.4 – Regulatory and Capabilities Tool Assessment

Expanding and Improving

The City of Mount Pleasant is progressive and forward thinking, continually expanding and improving existing policies and programs for the wellbeing of the community. New Federal regulations and best practices are adopted through various ordinances to strengthen current policies. The City Council and City Manager address the budget, policies, regulations, and codes, hire staff, approve plans, and determine the direction of the city overall. The ability to implement and approve mitigation actions, expand existing mitigation actions, and integrate mitigation into existing policies and programs is a function of this group.

Stakeholder and Public Involvement

Stakeholders provide an essential service in hazard mitigation planning. Therefore, throughout the planning process, local government, members of community groups and local businesses were encouraged to participate in surveys and public meetings. In addition to the public outreach campaign, the City of Mount Pleasant sought input on the HazMAP from its neighboring jurisdictions. Table 2.3 below lists the individuals contacted and method of contact. All input received was implemented into the plan.

| Organization | Name and Title | Contact Method |
|------------------|------------------------------------|-------------------|
| Camp County | David Abernathy-Mayor of Pittsburg | Email |
| Morris County | Brandon Singletary, EMC | Email |
| Red River County | Rocky Tolison, EMC | Email |
| Franklin County | Tim Dail, EMC | Email |
| Titus County | Jerry Ward, EMC | Email |

Table 2.3

Input from individual residents representing the whole community provided the Planning Team with a greater understanding of local concerns and increases the likelihood of successfully implementing mitigation actions. The City of Mount Pleasant incorporated several methods to engage the public throughout the planning process, prior to official Plan approval and adoption. These methods included a public survey, posting information to the city's website, designated point of contact for HazMAP questions and comments, open public meetings, open access to plan for review during all city business hours during the planning process and inclusion of the public on the Planning Team.

An informational flyer was developed explaining how to participate with the plan review and complete the survey. This flyer was inserted into the month of October water bills and mailed to every Mount Pleasant water customer. This provided information to each household on multiple ways to provide hazard mitigation input. A QR code was placed on the flyer that allowed citizens to scan the code to be automatically redirected to the survey. In addition to mailing flyers, the survey was circulated to a wide audience through all available channels that included:

- Distribution of a QR code that provides access to the survey and mitigation information electronically via City of Mount Pleasant's website and Facebook page.
- Paper copies were made available at City Hall, Central Fire Station and library in English and Spanish providing a manual process for feedback and input.
- Residents were also able to request a paper copy of the survey from the HazMAP point of contact.

The survey included 3 questions and was available in English and Spanish. ____ surveys were completed.

The purpose of the survey was to obtain public input during the planning process to determine

which hazard they and been affected by while in Mount Pleasant and to provide their opinion on which the hazard presented the highest and second highest threat to the City.

Public meetings were held on September 11, 2023 and September 18, 2023 to provide the public the ability to meet with team members to further discuss their thoughts/opinions on the hazards, however, no one from the public attended the meetings.

| HAZARD | RANKING |
|---------------------------------------|---------|
| Flash Flooding | TBD |
| Tornado | TBD |
| Severe Winter Weather/Extreme Cold | TBD |
| Severe Thunderstorm/High Winds | TBD |
| Power Outages | TBD |
| Infrastructure/Communications Failure | TBD |
| Extreme Heat | TBD |
| Drought | TBD |

Throughout the process of creating the Hazard Mitigation Action Plan, updates were made to the City of Mount Pleasant website (<u>www.mpcity.net</u>). Public outreach documentation is located in Appendix D.

COMMUNITY PROFILE

Mount Pleasant is the county seat and largest city in Titus County Texas. It is located sixty-one miles southwest of Texarkana and 118 miles east of Dallas at the junction of Interstate 30, U.S. Highway 271, U.S. Hwy 67 and State Highway 49. As of the 2021 census, Mount Pleasant's population was 16,079.

The planning area for this Hazard Mitigation Action Plan includes the City of Mount Pleasant incorporated area which is shown on the map in Appendix A. The City of Mount Pleasant is primarily located in south central area of Titus County in Northeast Texas. The area covered by the City is 15.6 square miles, which is approximately 3.9% of the entire area of Titus County.

Planning Area

The Hazard Mitigation Action Planning Area is the entire City of Mount Pleasant.

Population

The City of Mount Pleasant continues to grow each year. The City of Mount Pleasant is the second largest city in Titus County. Table 3.1 represents the City of Mount Pleasant's population change from 1990 to July 2021.

| Table 3.1 – City of Mount | Pleasant Population |
|---------------------------|---------------------|
|---------------------------|---------------------|

| Year | 1990 | 2000 | 2010 | 2015 | 2021 |
|------------|--------|--------|--------|--------|--------|
| Population | 12.497 | 14,180 | 15,564 | 16,114 | 16,079 |

Source: United States Census Bureau, 2021 Decennial Census

Community Features and Considerations

The Titus County Appraisal District Estimated Values Report for the City of Mount Pleasant will be used to establish an accurate inventory of the types of buildings within the City of Mount Pleasant. Table 3.2 shows the number of parcels, estimated market value, and taxable value for commercial property, business personal property, residential property, and the combined totals for all three separate categories.

Table 3.2 Certified Estimated Values Report (EVR)July 2023 for tax year 2023

| Type of Building | Parcels | Market Value | Taxable Value |
|-------------------------------|---------|-----------------|-----------------|
| Commercial | 859 | \$339,571,990 | \$339,570,671 |
| Business Personal Property | 734 | \$120,063,266 | 108,997,336 |
| Residential | 4,469 | \$829,357,967 | \$580,541,866 |
| Grand Total | 6,062 | \$1,288,993,223 | \$1,029,109,873 |

Source: Titus County Appraisal District

Transportation

The City of Mount Pleasant offers many transportation opportunities. Active transportation options include Interstate 30, railroads, highways, and an airport.

There are four highways and thoroughfares that serve the City of Mount Pleasant: Interstate 30, US Highways 271,49, and 67.

The Union Pacific Railroad passes through Mount Pleasant on a north/south axis.

Lifeline Utility Systems

The City of Mount Pleasant owns and operates a state-of-the-art wastewater treatment facility. The City is in process of a \$40 million expansion project for the facility which will add an additional 2.1 million gallons per day increasing the total capacity of the facility to 5 million gallons per day.

Mount Pleasant also operates two water treatment facilities. One is located on Interstate 30, within the city, with a 12 million gallon a day capacity and the Lake Bob Sandlin facility located on County Road 2300 with a 5 million gallon per day capacity for a total capacity of 17 million gallons a day.

Economic Elements

The labor force within the City of Mount Pleasant stands at 7,974 according to the City of Mount Pleasant's Economic Development Corporation. The unemployment rate for the City as of June 2023 is 4.5%. The Pilgrim's Pride is the largest employer within the City, employing 2,450. The top ten major employers are listed in Table 3.3.

Table 3.3 Top Ten Major Employers

| Employer | Number of Employees |
|-------------------------------|---------------------|
| Pilgrims | 2,450 |
| Priefert Mfg. | 942 |
| Mount Pleasant ISD | 862 |
| Titus Regional Medical Center | 640 |
| Diamond C Trailer | 530 |
| Big-Tex Trailers | 520 |
| Walmart | 246 |
| Newl Weds Foods | 219 |
| City of Mount Pleasant | 165 |
| Guaranty Bank & Trust | 139 |

Source: City of Mount Pleasant Economic Development Corporation

Future Development Considerations

The City of Mount Pleasant is legally required to have and maintain a comprehensive plan. Mount Pleasant's first comprehensive plan was developed in the early 2000's. A second plan was developed in July 2022 and will be periodically updated. The current comprehensive plan addresses the community's future through 2050. This HazMAP has been revised to reflect not only infrastructure and residence development, which has been minimal but also reflects the changes in hazards that now greatly affect the City. No significant changes in development have occurred in the past ten years in Mount Pleasant. Therefore, the vulnerability to all hazards is unchanged.

The future land use map from the City's Comprehensive plan is in Appendix A.

RISK OVERVIEW

Hazard Identification and Analysis

This section begins the risk assessment. The purpose of this section is to provide background information for the hazard identification and risk analysis process. Section five provides a hazard profile for each of the Planning Team's identified hazards for the City of Mount Pleasant. Each hazard profile includes a description of the hazard, location, severity, previous occurrences, probability of those hazards occurring in the future, impacts and summary of vulnerability to each hazard.

The 18 FEMA Natural Hazards listed in the National Risk Index were evaluated for Mount Pleasant. Avalanche, Costal Flooding, Tsunami, and Volcanic Activity are not risks for Mount Pleasant. Landslides, Earthquakes, Hurricanes and Riverine Flooding have a very low to relatively low risk to Mount Pleasant and were not deemed enough of a risk to Mount Pleasant to be included in this plan. Hail and lightning occur as part of Severe Thunderstorms, so they are not listed as separate hazards.

Based on this analysis and historical occurrences that have impacted Mount Pleasant as well as what was included in the Countywide Plan in which Mount Pleasant was a part of in the past, the Team identified 8 natural and human-caused hazards that pose risk to Mount Pleasant, Texas. Those hazards are listed below.

| Flash Flooding | Power Outage |
|------------------------------------|---------------------------------------|
| Tornado | Infrastructure/Communications Failure |
| Severe Winter Weather/Extreme Cold | Extreme Heat |
| Severe Thunderstorm/High Winds | Drought |

Because the City of Mount Pleasant has limited funding, the Planning Team prioritized the hazards that have the greatest risk and impact to the City. As additional funding becomes available, the Planning Team will reassess the list of hazards.

The Planning Team evaluated hazards identified in the countywide plan in 2013 and determined which of the hazards pose a threat to the City and would be included in the City's plan as well as determining what other hazards, if any, would pose a threat to the City that would need to be included in the City's Plan.

DRAFT #4

Acknowledgement: Climate Change

Climate change includes both global warming and its impacts on Earth's weather patterns. Climate change has the potential to impact citizens due to increased flooding, extreme heat, more disease, and economic loss. With increasing global surface temperatures, the possibility of more droughts and increased intensity of storms will likely occur. Mitigation strategies include retrofitting buildings to make them more energy efficient; adopting renewable energy sources like solar, wind and small hydro; helping cities develop more sustainable transport such as bus rapid transit, electric vehicles, and biofuels; and promoting more sustainable uses of land and forests.

Hazard Ranking

Listed are the 8 hazards that were identified from the result of the hazard assessment. These are the hazards that will be addressed in the Hazard Mitigation Action Plan. FEMA "recognizes that a comprehensive strategy to mitigate the nation's hazards cannot address natural hazards alone" and "that natural events can trigger technological disasters." Technological hazards are distinct from natural hazards primarily in that they originate from human activity.

- Flash Flooding
- Tornado
- Severe Winter Weather/Extreme Cold
- Severe Thunderstorms/High Winds
- Power Outages
- Infrastructure/Communications Failure
- Extreme Heat
- Drought

The Planning Team estimated the potential impact each hazard would have on our community. These areas include Location, Probability, Human Impact, Business Impact, Preparedness, Internal Repose and External Response.

Each Planning Team member was asked to base their responses on their experience. Definitions of the parameters were provided for each impact type and level. These definitions are also located in Table 4.3

- The Public was asked which hazard they had been impacted by while in Mount Pleasant. They were also asked which hazard they thought was the highest and second highest threat to their neighborhood. The result of the survey is shown in Table 4.1
- The Community Risk and Impact Assessment also assessed the Severity of Impact, Table 4.3, each hazard may have on the City of Mount Pleasant and further prioritized the hazards to develop relevant mitigation actions.

DRAFT #4

• The Public Ranking represented in the Risk Summary table, Table 4.1, was derived from the results of the public survey.

The combined analysis is shown in the Hazard Risk Summary in Table 4.4 (Frequency, Severity of Impact, Risk Score, Risk Ranking and Public Ranking of highest and second highest impact)

| Hazard | Impacted while in Mount Pleasant | Highest impact to Mount Pleasant | 2 nd Highest Impact To Mount Pleasant |
|---|-------------------------------------|-------------------------------------|---|
| Tornado | TBD | TBD | TBD |
| Flash Flooding | TBD | TBD | TBD |
| Severe Winter Weather/Extreme Cold | TBD | TBD | TBD |
| Severe Thunderstorm/ High Winds | TBD | TBD | TBD |
| Power Outages | TBD | TBD | TBD |
| Infrastructure/ Communications Failure | TBD | TBD | TBD |
| Extreme Heat | TBD | TBD | TBD |
| Drought | TBD | TBD | TBD |
| Other | TBD | TBD | TBD |

Table 4.1

| Frequency | Probability Definition |
|------------------|---|
| Highly Likely | Event is probable in the next year. |
| Likely | Event is probable in the next 3 years. |
| Occasional | Event is probable in the next 6 years. |
| Unlikely | Event is probable in the next 10 years. |

Table 4.3 - Severity of Impact

| Substantial | Multiple deaths or complete shutdown of critical facilities and services for 1 week or more or more than 50% of property or residents impacted. |
|-------------|---|
| Major | Multiple injuries and/or illness or complete shutdown of critical facilities/services for at least one or more days but less than a week or more than 25% of property or residents impacted. |
| Minor | Injuries and/or illnesses do not result in permanent disability or critical facilities and services modified or more than 10% of property or residents impacted. |
| Limited | Injuries and/or illnesses that are treatable with fires aid and or; minor quality of life lost or no shutdown of critical facilities and services less than 5% of property or residents impacted. |

| Hazard | Frequency | Severity of Impact | Risk Ranking | Public Ranking |
|---|---------------|-----------------------|-----------------|-------------------|
| Tornado | Highly Likely | Substantial | High | TBD |
| Power Outages | Highly Likely | Major | High | TBD |
| Severe Winter Weather/Extreme Cold | Highly Likely | Major | High | TBD |
| Communications Failure/Infrastructure Failure | Highly Likely | Major | High | TBD |
| Severe Thunderstorms/Damaging Winds | Highly Likely | Major | High | TBD |
| Drought | Likely | Limited | Low | TBD |
| Flash Flood | Highly Likely | Limited | Low | TBD |
| Extreme Heat | Likely | Minor | Low | TBD |

Table 4.4 - Hazard Risk Summary

HAZARD PROFILES FLASH FLOODING

Hazard Description

Floods are the most prevalent hazard in the United States. A flood is defined as two or more acres of dry land or two or more properties that are covered by water temporarily. The type of flooding we have in Mount Pleasant is Flash Flooding. Four types of floods that do not affect Mount Pleasant are river, inland, coastal floods, and storm surges.

A river flood occurs when water levels rise over the top of riverbanks due to excessive rain or persistent thunderstorms over the same area for extended periods.

Inland flooding occurs when moderate precipitation accumulates over several days where intense precipitation falls over a short period.

A flash flood is caused by heavy or excessive rainfall in a short period, generally less than six hours. Flash floods are usually characterized by raging torrents after heavy rains that rip through riverbeds and urban streets. They can occur within minutes or a few hours of excessive rainfall. They can also occur when no rain has fallen in the area or after a levee or dam has failed. Figure 5.1 shows one of 5 locations in Mount Pleasant where flash flooding covers the roadways and, in some cases, makes them impassable. This location is at the intersection of South Edwards and Alabama streets. Flash floods are particularly dangerous for motorists. They do not understand the danger of driving into the water. It also impacts 1st Responders who, in many instances, must rescue the people who drive into the water. Home sites, parking lots, buildings, and roadways all decrease the surface area of soil on the Earth's surface available for water infiltration into the soil.





Mount Pleasant has a flood plain map shown in Appendix A and a designated representative to monitor new construction to prevent anyone from developing in low areas. The city is taking positive steps to remain in compliance such as debris removal from creeks and streams that block water flow which increases flooding and enforcement of building codes.

Location

Historically, several streets in the city flood but it is for a relatively short period of time. If future trends occur as they have in the past, these streets will continue to flood.

- 1. Intersection of South Edwards & Alabama
- 2. 800 Block of West First Street
- 3. White & Lide Streets in Dellwood Park (both locations have gates that can be closed.)
- 4. Ferguson Road in front of Super One Shopping Center



5. Railroad underpass on South Madison

Severity

The magnitude of observed or forecast flooding is conveyed using flood severity categories. These flood severity categories include minor flooding, moderate flooding, and major flooding. Each category has a definition based on property damage and public threat. Minor damage is defined as minimal or no property damage, but possibly some public threat or inconvenience. Moderate damage is defined as some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations are necessary. Major damage is defined as extensive inundation of structures and roads with significant evacuations of people and/or transfer of property to higher elevations. The impact of floods varies locally. Rising flood waters can destroy structures and endanger lives. A few streets in the city are subject to flooding in heavy rain. Rainfall from 2 to 4 inches in a given hour can cause flash flooding. Flash flooding can be magnified when the ground is already saturated with moisture. Based on historical evidence it is possible for limited flooding to take place within the city.

Table 5 1

| | | | Tab | 16 2.1 | 6 | | | | | | |
|----------------------|----------------|------------|------------|--------|-------------|-------------|-----|------------|-----|------------|------------|
| Location | County/Zone | <u>St.</u> | Date | Time | <u>I.Z.</u> | <u>Type</u> | Mag | <u>Dth</u> | lnj | <u>PrD</u> | <u>CrD</u> |
| Totals: | | | | | | | | 0 | 0 | 130.00K | 0.00K |
| TALCO | TITUS CO. | ΤX | 05/13/1996 | 08:50 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| KNOX (ZONE) | KNOX (ZONE) | ΤX | 09/17/1996 | 23:55 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| BAYLOR (ZONE) | BAYLOR (ZONE) | ΤX | 09/17/1996 | 23:55 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 11/24/1996 | 09:08 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | TX | 02/20/1997 | 20:00 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 05/04/2000 | 02:00 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 02/16/2001 | 06:30 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 02/27/2001 | 21:45 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | TX | 12/16/2001 | 08:40 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 12/16/2001 | 21:15 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤХ | 06/05/2004 | 23:30 | CST | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| TALCO | TITUS CO. | ΤХ | 01/13/2007 | 17:30 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| TALCO | TITUS CO. | TX | 06/20/2007 | 15:15 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤХ | 07/31/2007 | 11:28 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤХ | 07/31/2007 | 11:40 | CST-6 | Flash Flood | | 0 | 0 | 30.00K | 0.00K |
| WILKERSON | TITUS CO. | TX | 05/14/2008 | 00:00 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| BIG SPRING | ANDREWS (ZONE) | ΤX | 10/05/2008 | 19:22 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | TX | 05/03/2009 | 02:20 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 07/29/2009 | 17:00 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| TALCO | TITUS CO. | ТΧ | 10/13/2009 | 13:22 | CST-6 | Flash Flood | | 0 | 0 | 100.00K | 0.00K |
| TALCO | TITUS CO. | TX | 10/22/2009 | 05:35 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 06/10/2010 | 17:30 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT MUNI ARP | TITUS CO. | ТΧ | 12/13/2015 | 07:00 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| ADBRA | TITUS CO. | TX | 12/13/2015 | 07:38 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| TALCO | TITUS CO. | TX | 12/27/2015 | 11:00 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| TALCO | TITUS CO. | ΤX | 12/27/2015 | 13:46 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 05/08/2019 | 14:27 | CST-6 | Flash Flood | | 0 | 0 | 0.00K | 0.00K |
| Totals: | | | | | | | | 0 | 0 | 130.00K | 0.00K |

Past Occurrence

Probability for Future

Flash floods are possible at any time during the storm season. These types of floods occur often during that period. According to the NOAA weather service in Shreveport, LA, a flash flood is defined as flooding that occurs within 6 hours after or during a rain.

Vulnerability

The probability of a flash flood and the inability to accommodate the existing drainage on some streets is a constant problem. Over 2 to 3 inches of rain per hour is considered heavy rain for the city. Some seepage into homes or other structures could occur during a heavy downpour, but there are no records of repetitive flood properties in the city.

Impact on Community

Table 5.1 shows previous flood occurrence data from the NCDC. Fifteen flood events have been reported in Mount Pleasant between 5/1996 and 5/2019. Most of the impact on the community is flooded streets. Only White and Lide streets in the Dellwood park area have gates that can be closed and locked to keep people from driving into the water. As for other locations, by the time the street crews can be notified and retrieve barricades to block the roads at the flooded locations, the flood waters have receded.

Summary

The City of Mount Pleasant experiences flooded streets due to flash flooding. Barricades and cones are on hand to warn drivers of flooded areas. There are no repetitive flood properties in the city. The city has streets that frequently flood after heavy rains. Educational programs like "Turn Around, Don't Drown" will help citizens become more informed about the dangers of flooded roadways. Alternate routes for emergency vehicles are identified and are known to first responders.

National Flood Insurance Program Overview

Summary

Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Participation in the NFIP is voluntary.

Flood insurance is designed to provide an alternative to disaster assistance and reduce the costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by nearly \$1 billion a year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80 percent less damage annually than those not built in compliance.

Local Participation in the NFIP

Based on FEMA records, the City of Mount Pleasant enrolled in the NFIP Emergency Program on February 1, 1974, and the Regular Program on December 16, 1980.

TORNADO

Hazard Description

A tornado is defined as a rapidly rotating vortex or funnel of air extending groundward from a cumulonimbus cloud. Most of the time, vortices remain suspended in the atmosphere. Spawned by powerful thunderstorms, tornadoes can cause fatalities and devastate neighborhoods in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with winds that can reach 300 miles per hour. Tornado season is generally March through August, although tornadoes can occur at any time of the year. They tend to occur in the afternoons and evenings: over 80 percent of all tornadoes strike between noon and midnight. There are 10 states in the US with the most tornadoes. Texas is ranked number 1 with an average of 120 per year According to the National Weather Service, Titus County is issued an average of 6-9 tornado watches and 3-5 tornado warnings per year however, many of the tornado warnings do not include the City of Mount Pleasant.

Location

Due to the unpredictable nature of tornadoes, it is impossible to determine the exact area of future tornado occurrences. The entire planning area, the City of Mount Pleasant, is equally vulnerable to tornadoes.

Severity

The severity of a tornado can be determined by the Enhanced Fujita Scale. The Enhanced Fujita Scale rates tornadoes within the United States by estimating the amount of damage they cause. Table 5.2 provides a better understanding of the possible magnitude of tornado events. The table correlates the Enhanced Fujita Rating with the wind speed and severity of damage tornados may cause. There have been several tornados that have caused damage and fatalities in the rural areas of Titus County. However, there have not been any inside the City causing significant damage or fatalities.

The impact of a tornado can cause major problems with infrastructure. Power lines are often down creating power outages and the possibility of electrocution from live downed wires. Fires can occur from electrical shorts and ruptured gas lines.

Communications in the area may be disabled, with both land telephone lines and cell service blackouts. Falling trees often block roads and cause major structural damage to houses and businesses. Depending on the severity of a tornado, businesses could lose needed revenue if their services or customer availability is disrupted. Employees might suffer from layoffs or terminations. Titus Regional Medical Center could be overrun with injuries and casualties.

Efficient coordination of emergency services including police, fire departments, public works and utility company repair support would play a vital role in lessening impact and reducing

injury. Alternate routes to reach schools and housing might need to be established due to debris and fallen trees.

A direct hit of F2 or higher could be devastating.



Figure 5.3 NOAA's Storm Prediction Center (2022)

Figure 5.4 Tornado Probability



The **Enhanced Fujita Scale**, or **EF Scale**, shown below, is the scale for rating the strength of tornadoes in the United States estimated via the damage they cause. Implemented in place of the Fujita scale, it was used starting February 1, 2007. The scale has the same basic design as the original Fujita scale, six categories from zero to five representing increasing degrees of damage. It was revised to reflect better examinations of tornado damage surveys, to align wind speeds more closely with associated storm damage. The new scale considers how most structures are designed and is thought to be a much more accurate representation of the surface wind speeds in the most violent tornadoes.

| Table | 5.2 |
|-------|-----|
|-------|-----|

| Enhanced Fujita (EF) Scale | | | | | | | | | |
|----------------------------|------------------|--|--|--|--|--|--|--|--|
| Enhanced Fujita Category | Wind Speed (mph) | Potential Damage | | | | | | | |
| EFO | 65-85 | Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow- rooted troos pushed over | | | | | | | |
| EF1 | 86-110 | Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken | | | | | | | |
| EF2 | 111-135 | Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated: cars lifted off | | | | | | | |
| EF3 | 136-165 | Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some dictance | | | | | | | |
| EF4 | 166-200 | Devastating damage. Well- constructed houses and whole frame houses completely leveled; cars thrown and small missiles | | | | | | | |
| | >200 | Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd.); high-rise buildings have significant structural deformation; | | | | | | | |

Past Occurrences

As shown in Table 5.3, from1957 to 2020 there have been 26 tornados in Titus County, however only 3 of those impacted the City of Mount Pleasant and the impact was minor. Figure 5.4A shows a tornado forming just north of I-30 on FM 1402 on April 2, 2023. Figure 5.5 shows the paths of the tornados.



| Location | County/Zone | <u>St.</u> | <u>Date</u> | Time | <u>IZ.</u> | <u>Type</u> | Mag | <u>Dth</u> | <u>Inj</u> | <u>PrD</u> | <u>CrD</u> |
|-------------|-------------|------------|-------------|-------|------------|-------------|-----|------------|------------|------------|------------|
| Totals: | | | | | | | | 2 | 13 | 1.270M | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 05/23/1957 | 15:30 | CST | Tornado | F0 | 0 | 0 | 2.50K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 05/20/1960 | 06:45 | CST | Tornado | F0 | 0 | 0 | 25.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 03/26/1961 | 16:30 | CST | Tornado | F3 | 0 | 2 | 2.50K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 03/26/1961 | 19:55 | CST | Tornado | F3 | 0 | 0 | 25.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 03/26/1961 | 20:30 | CST | Tornado | F3 | 0 | 9 | 250.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 05/03/1968 | 17:20 | CST | Tornado | F0 | 0 | 0 | 0.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 03/03/1970 | 06:55 | CST | Tornado | F2 | 0 | 0 | 0.25K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 06/03/1973 | 23:55 | CST | Tornado | F2 | 0 | 0 | 25.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 03/19/1979 | 20:30 | CST | Tornado | F2 | 0 | 0 | 25.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 10/18/1984 | 19:00 | CST | Tornado | F2 | 1 | 2 | 250.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 02/05/1986 | 16:50 | CST | Tornado | F1 | 0 | 0 | 0.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 06/07/1989 | 15:26 | CST | Tornado | F2 | 0 | 0 | 0.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 05/16/1990 | 19:30 | CST | Tornado | F1 | 0 | 0 | 0.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 05/16/1990 | 20:00 | CST | Tornado | F1 | 0 | 0 | 0.00K | 0.00K |
| TITUS CO. | TITUS CO. | ΤX | 10/07/1992 | 19:00 | CST | Tornado | F0 | 0 | 0 | 25.00K | 0.00K |
| Talco | TITUS CO. | ΤX | 04/19/1995 | 16:46 | CST | Tornado | F0 | 0 | 0 | 0.00K | 0.00K |
| Talco | TITUS CO. | ΤX | 12/15/1995 | 16:00 | CST | Tornado | F0 | 0 | 0 | 5.00K | 0.00K |
| TALCO | TITUS CO. | ΤX | 03/05/1996 | 18:19 | CST | Tornado | F0 | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 01/11/1998 | 15:59 | CST | Tornado | F1 | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 01/11/1998 | 16:04 | CST | Tornado | F1 | 0 | 0 | 0.00K | 0.00K |
| WINFIELD | TITUS CO. | ΤX | 05/04/1999 | 13:08 | CST | Tornado | F3 | 1 | 0 | 330.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ΤX | 04/23/2000 | 14:53 | CST | Tornado | F2 | 0 | 0 | 145.00K | 0.00K |
| TALCO | TITUS CO. | ΤX | 06/10/2009 | 20:25 | CST-6 | Tornado | EF0 | 0 | 0 | 0.00K | 0.00K |
| COOKVILLE | TITUS CO. | ΤX | 10/24/2010 | 17:47 | CST-6 | Tornado | EF0 | 0 | 0 | 0.00K | 0.00K |
| ADBRA | TITUS CO. | ΤX | 04/13/2015 | 12:54 | CST-6 | Tornado | EF2 | 0 | 0 | 100.00K | 0.00K |
| WINFIELD | TITUS CO. | ΤX | 05/25/2020 | 16:05 | CST-6 | Tornado | EF1 | 0 | 0 | 60.00K | 0.00K |
| Totals: | | | | | | | | 2 | 13 | 1.270M | 0.00K |

Table 5.3



Figure 5.5

Probability of Future Events

Tornadoes are most frequent in the months of March-August. While tornadoes can occur at any time during the day or night, they tend to form during the late afternoon and into the evening. By definition this falls within the occasional category. The expected tornado size would range between 25 to 1000 yards wide, with a path from one to 10 miles long. Most tornadoes are expected to touchdown for relatively short periods of time in a bounce type pattern. The occurrence of a tornado touchdown on an annual basis is considered occasional. This number could increase due to climate change.

Impact on Community

A future event is obviously capable of doing substantial damage to the community. The city is the largest concentration of population in Titus County with an estimated 16,079 residents as of the 2020 census, not to mention the several thousand additional people who come to shop, and/or work in the city as well as the many people passing through on the different roads and highways transferring the City. This makes warning time critical. A large population of residents would have little time to react to such an event. A tornado of medium severity (EF-2 or EF-3) would be capable of doing great damage in the City.

Summary of Vulnerability

The City of Mount. Pleasant would experience substantial damages from tornadoes. Many of the businesses are prefab structures and a lot of the housing in some sections of the city is older, wood frame dwellings. Even EF 2 winds would cause major damage. The school systems have emergency plans in place to protect the children. EMS, LE and the fire department have planned evacuation procedures if needed. It is conceivable that a targeted tornado strike could result in a 50 to 75% property loss. Upgrades in building codes and safe room construction are important life savers in communities.

SEVERE WINTER WEATHER/EXTREME COLD

Hazard Description

Severe winter weather/extreme cold can be a variety of precipitation that forms at low temperatures such as heavy snowfall, sleet or ice. Many winter depressions give rise to exceptionally heavy rain and widespread flooding. Conditions worsen if the precipitation is frozen.

Location

Due to the unpredictable nature of winter storms, it is impossible to determine the exact area of their future occurrences. The entire planning area, City of Mount Pleasant, is equally subject to severe winter weather/extreme cold.

Severity

Table 5.4 shows the National Weather Service Wind Chill Temperature (WCT) index. It uses advances in science, technology, and computer modeling to provide an accurate, understandable, and useful formula for calculating the dangers from winter winds and freezing temperatures. The index:

- Calculates wind speed at an average height of five feet
- Incorporates heat transfer theory which is heat loss from the body to its surroundings during cold windy days
- Lowers the calm wind threshold to 3 mph.
- Uses a consistent standard for skin tissue resistance.
- Assumes no impact from the sun (i.e., clear night sky).

The lowest temperature recorded in Mount Pleasant was -12 degrees in 1951. Although temperatures are increasing, severe winter weather/extreme cold remains a threat to Mount Pleasant and it is possible that temperatures could reach record lows again in the future.



Table 5.4 National Weather Service Wind Chill Temperature (WCT) Index

Previous Occurrences

Several major severe winter weather events have impacted Mount Pleasant in years past.. Most recently, a cold front moved into the Mount Pleasant area beginning February 11, 2021 where the temperature was below freezing for 14 days in a row. With this cold air in place, lingering precipitation fell as sleet and freezing rain across much of the state, including Mount Pleasant. Freezing drizzle occurred across much of the region, which led to a thin coating of nearly invisible ice on many roadways. School districts were closed for the duration of the event as well as city government, except for emergency services, Solid waste services had to be cancelled or postponed also.

December 13 and 24-25, 2000- Two major winter storms blanketed Northeast Texas, including Mount Pleasant, with up to six inches of ice from each storm. Thousands of motorists were stranded and over 200,000 people, including those in Mount Pleasant, lost electric power for several day.

Probability of Future Events

Severe winter weather within Titus County occurs several times a year, although the severity of impact varies. Previous historical data in Tables 5.5 & 5.6, shows 31 severe winter weather events have occurred within Titus County/Mount Pleasant since 2006. Calculations from this data suggest that a severe winter weather event will impact Mount Pleasant up to 3 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking, it is highly likely for a severe winter weather/extreme cold event to occur within the next year.

Impact on Community

City of Mount Pleasant residents are generally unfamiliar with snow, ice and freezing temperatures. When temperatures fall below freezing this kill tender vegetation, such as flowering plants and citrus fruit crops. Wet snow and ice rapidly accumulate on trees with leaves, causing the branches to snap under the load. Motorists are unaccustomed to driving on slick roads and accidents increase exponentially. Some buildings are poorly insulated or lack heat altogether, forcing residents to live in freezing temperatures. While snowstorms are not frequent in Texas, ice storms create dangerous driving conditions causing an increase in accidents. Pipes freeze and leave residents without water and damage to their homes. Power lines and trees snap due to the weight of the ice on them leaving residents unable to run the heater in their homes. Because more than half of residents are impacted by large severe winter weather, the Planning Team has determined that impacts are substantial.

The biggest concern with severe winter weather is the previously stated nature of residents being unaccustomed to it. Although Mount Pleasant is impacted by some form of severe winter weather several times a year, large incidents are not as frequent. This brings up safety concerns, as some are not educated on how to properly deal with large amounts of snow and ice.

| Location | County/Zone | <u>St.</u> | Date | <u>Time</u> | <u>T.Z.</u> | <u>Type</u> | Mag | <u>Dth</u> | <u>Inj</u> | <u>PrD</u> | <u>CrD</u> |
|---------------------|--------------|------------|------------|-------------|-------------|----------------|-----|------------|------------|------------|------------|
| Totals: | | | | | | | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/19/2006 | 17:00 | CST | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 03/07/2008 | 09:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 01/28/2009 | 03:12 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 03/21/2010 | 00:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/09/2011 | 04:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 01/15/2013 | 06:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 11/24/2013 | 16:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 12/06/2013 | 00:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/07/2014 | 12:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/11/2014 | 15:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 01/11/2015 | 00:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 01/06/2017 | 10:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/11/2018 | 12:30 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 01/10/2021 | 14:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/11/2021 | 04:31 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 01/15/2022 | 19:26 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/03/2022 | 00:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/23/2022 | 03:24 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 01/30/2023 | 18:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 02/01/2023 | 00:00 | CST-6 | Winter Weather | | 0 | 0 | 0.00K | 0.00K |
| Totals: | | | | | | | | 0 | 0 | 0.00K | 0.00K |

Table 5.5 Winter Weather Historical Data National Climatic Data Center

Table 5.6 Winter Storm Historical DataNational Climatic Data Center

| Location | County/Zone | <u>St.</u> | Date | <u>Time</u> | <u>T.Z.</u> | <u>Type</u> | <u>Mag</u> | <u>Dth</u> | <u>Inj</u> | <u>PrD</u> | <u>CrD</u> |
|---------------------|--------------|------------|------------|-------------|-------------|--------------|------------|------------|------------|------------|------------|
| Totals: | | | | | | | | 0 | 0 | 933.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 01/09/2011 | 07:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 01/09/2011 | 07:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 02/03/2011 | 22:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 12/25/2012 | 16:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TΧ | 03/02/2014 | 15:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/23/2015 | 08:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 02/25/2015 | 01:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 03/04/2015 | 22:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 01/15/2018 | 22:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | ΤX | 02/14/2021 | 00:00 | CST-6 | Winter Storm | | 0 | 0 | 0.00K | 0.00K |
| <u>TITUS (ZONE)</u> | TITUS (ZONE) | TX | 02/16/2021 | 18:00 | CST-6 | Winter Storm | | 0 | 0 | 933.00K | 0.00K |
| Totals: | | | | | | | | 0 | 0 | 933.00K | 0.00K |

Summary of Vulnerability

A Severe Winter Weather/Extreme event brings its own set of woes to Mount Pleasant. Tree line canopies become very vulnerable to damage when limbs snap and break from accumulated ice. Valuable landscapes can take years to recover from a severe winter storm such as the one experienced in Northeast Texas in 2000. Falling trees and limbs block emergency exits and roadways, electrical outages reduce comfortable living space to refrigerator temperatures that can endanger lives, particularly of the very young and the elderly. Fires are an ever-present danger, as people use unsafe means to cook or stay warm. Generators to protect wastewater pumps from malfunction, emergency havens for the public, reliable emergency equipment, highly trained volunteers, and informed citizenry become critical to avoid preventable disease, injury and death.

SEVERE THUNDERSTORMS/DAMAGING WINDS

Description of Hazard

The National Weather Service defines a severe thunderstorm as a storm that has winds of at least 58 mph (50 knots), and/or hail at least 1" in diameter. Severe thunderstorms also can be capable of producing a tornado. Structural wind damage may imply the occurrence of a severe thunderstorm. Straight-line winds are often responsible for wind damage associated with a severe thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. Downbursts or microbursts are examples of damaging straight-line winds. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour. Lightning is a characteristic of thunderstorms. Lightning is a giant spark of electricity in the atmosphere between clouds, the air, or the ground. Air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. When the opposite charges build up, the insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning.

Location

The greatest severe thunderstorm threat in the United States extends from Texas to southern Minnesota. No place in the United States is completely safe from the threat of severe thunderstorms. Due to the unpredictable nature of severe thunderstorms, it is impossible to determine the exact area of their future occurrences. The entire planning area, the City of Mount Pleasant, is equally subject to severe thunderstorms.

Severity

Table 5.7 shows the level of categorical risk of thunderstorms in Day 1-3 Convective Outlooks derived from probability forecasts of tornadoes, damaging winds and large hail. Table 5.8 shows The Beaufort Wind Scale. The Beaufort Wind Scale is representative of the damage from high winds this community may sustain. The Beaufort Wind Scale allows planners in the community to assess historical data and mitigate for future events.
| Table 5.7 |
|-----------|
|-----------|



| Beaufort Number | Wind Speed (miles/hour) | Wind Speed (km/hour) | Wind Speed (knots) | Description | Wind Effects on Land |
|--------------------|----------------------------|-------------------------|-----------------------|--------------------|--|
| 0 | <1 | <1 | <1 | Calm | Calm. Smoke rises vertically. |
| 1 | 1-3 | 1-5 | 1-3 | Light Air | Wind motion visible in smoke. |
| 2 | 4-7 | 6-11 | 4-6 | Light Breeze | Wind felt on exposed skin. Leaves rustle. |
| 3 | 8-12 | 12-19 | 7-12 | Gentle Breeze | Leaves and smaller twigs in constant motion. |
| 4 | 13-18 | 20-28 | 11-16 | Moderate Breeze | Dust and loose paper are raised. Small branches begin to move. |
| 5 | 19-24 | 29-38 | 17-21 | Fresh Breeze | Small trees begin to sway. |
| 6 | 25-31 | 39-49 | 22-27 | Strong Breeze | Large branches are in motion. Whistling is heard in overhead wires. Umbrella use is difficult. |
| 7 | 32-38 | 50-61 | 28-33 | Near Gale | Whole trees in motion. Some difficulty experienced walking into the wind. |
| 8 | 39-46 | 62-74 | 34-40 | Gale | Twigs and small branches break from trees. Cars veer on road. |
| 9 | 47-54 | 75-88 | 41-47 | Strong Gale | Larger branches break from trees. Light structural damage. |
| 10 | 55-63 | 89-102 | 48-55 | Storm | Trees broken and uprooted. Considerable structural damage. |
| 11 | 64-72 | 103-117 | 56-63 | Violent Storm | Widespread damage to structures and vegetation. |
| 12 | > 73 | >117 | > 64 | Hurricane | Considerable and widespread damage to structures and vegetation. Violence. |

Table 5.8 - Beaufort Wind Scale

Previous Occurrences

The National Climatic Data Center reports that between 2013 and 2022, 33 severe thunderstorms/damaging wind events occurred in Titus County. 18 of the storms affected the City of Mount Pleasant.

At 12:26 AM on the morning of June 16, 2023 a severe thunderstorm passed



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through the City of Mount Pleasant. A wind gust of 69 MPH was recorded at the Mount Pleasant Regional Airport. This caused damage to trees and power lines with some damage to structures in the City. The strength of winds caused damage to power poles like what is seen after a hurricane makes landfall along the coast. The amount of damage to the power system caused widespread power outages across the city for almost a week. Examples are shown in Figures 5. 5.8





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Table 5.9 Severe Thunderstorms/Damaging Wind Events2013-2022

| Location | County/Zone | <u>St.</u> | Date | <u>Time</u> | <u>I.Z.</u> | <u>Type</u> | Mag | <u>Dth</u> | <u>lnj</u> | <u>PrD</u> | <u>CrD</u> |
|-----------------|-------------|------------|------------|-------------|-------------|-------------------|------------|------------|------------|------------|------------|
| Totals: | | | | | | | | 0 | 0 | 25.00K | 0.00K |
| TALCO | TITUS CO. | ТΧ | 03/31/2013 | 07:31 | CST-6 | Thunderstorm Wind | 54 kts. EG | 0 | 0 | 0.00K | 0.00K |
| <u>KILFOYLE</u> | TITUS CO. | ТΧ | 03/31/2013 | 08:15 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 10.00K | 0.00K |
| COOKVILLE | TITUS CO. | ТΧ | 03/31/2013 | 08:15 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 5.00K | 0.00K |
| GREEN HILL | TITUS CO. | ТΧ | 04/03/2014 | 21:05 | CST-6 | Thunderstorm Wind | 61 kts. EG | 0 | 0 | 0.00K | 0.00K |
| WINFIELD | TITUS CO. | ТΧ | 06/09/2014 | 07:00 | CST-6 | Thunderstorm Wind | 54 kts. EG | 0 | 0 | 10.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 07/23/2014 | 17:30 | CST-6 | Thunderstorm Wind | 54 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 10/02/2014 | 17:10 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 10/06/2014 | 04:10 | CST-6 | Thunderstorm Wind | 55 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 04/01/2015 | 19:50 | CST-6 | Thunderstorm Wind | 54 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 04/01/2015 | 19:50 | CST-6 | Thunderstorm Wind | 53 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 04/01/2015 | 19:50 | CST-6 | Thunderstorm Wind | 54 kts. EG | 0 | 0 | 0.00K | 0.00K |
| TALCO | TITUS CO. | ТΧ | 05/09/2015 | 17:22 | CST-6 | Thunderstorm Wind | 52 kts. EG | 0 | 0 | 0.00K | 0.00K |
| COOKVILLE | TITUS CO. | ТΧ | 03/24/2016 | 00:05 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 01/21/2018 | 21:00 | CST-6 | Thunderstorm Wind | 61 kts. EG | 0 | 0 | 0.00K | 0.00K |
| ADBRA | TITUS CO. | ТΧ | 01/21/2018 | 21:00 | CST-6 | Thunderstorm Wind | 61 kts. EG | 0 | 0 | 0.00K | 0.00K |
| GREEN HILL | TITUS CO. | ТΧ | 01/21/2018 | 21:00 | CST-6 | Thunderstorm Wind | 61 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 03/10/2018 | 22:44 | CST-6 | Thunderstorm Wind | 61 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 04/06/2018 | 16:18 | CST-6 | Thunderstorm Wind | 52 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 12/01/2018 | 00:10 | CST-6 | Thunderstorm Wind | 52 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 06/23/2019 | 19:50 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| ROEDER | TITUS CO. | ТΧ | 05/24/2020 | 15:30 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| ADBRA | TITUS CO. | ТΧ | 05/24/2020 | 15:42 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 05/24/2020 | 15:45 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| COOKVILLE | TITUS CO. | ТΧ | 05/24/2020 | 15:45 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| GREEN HILL | TITUS CO. | ТΧ | 05/24/2020 | 15:51 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 03/17/2021 | 06:07 | CST-6 | Thunderstorm Wind | 65 kts. EG | 0 | 0 | 0.00K | 0.00K |
| <u>ARGO</u> | TITUS CO. | ТΧ | 03/17/2021 | 06:10 | CST-6 | Thunderstorm Wind | 65 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 03/17/2021 | 06:10 | CST-6 | Thunderstorm Wind | 65 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 03/17/2021 | 06:10 | CST-6 | Thunderstorm Wind | 65 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 05/03/2021 | 22:48 | CST-6 | Thunderstorm Wind | 56 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 04/13/2022 | 09:22 | CST-6 | Thunderstorm Wind | 61 kts. EG | 0 | 0 | 0.00K | 0.00K |
| MT PLEASANT | TITUS CO. | ТΧ | 08/05/2022 | 15:30 | CST-6 | Thunderstorm Wind | 65 kts. EG | 0 | 0 | 0.00K | 0.00K |
| Totals: | | | | | | | | 0 | 0 | 25.00K | 0.00K |

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Figure 5.9 - Annual Severe Thunderstorm Report Summary - 2021

Probability of Future Events

Calculations from historical data suggest that a severe thunderstorm will impact Mount Pleasant several times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking, it is highly likely that severe thunderstorms will occur in the next year.

Impact on Community

The most common impacts of severe thunderstorms are power outages and private property damage consisting of roof and vehicle damage from wind and hail. Because severe thunderstorms are such a common occurrence, residents are prepared and practiced in mitigating damage. Public education is also a focus through many different channels: The National Weather Service, media outlets and several City departments push severe thunderstorm messaging year-round. The City of Mount Pleasant and Southwestern Electric Power Company (SWEPCO) both have tree- trimming programs to help mitigate effects of severe thunderstorms. SWEPCO trims trees and other vegetation away from power lines to provide safe and reliable electric service. Because of this proactive vegetation management program, SWEPCO customers experience fewer outages.

Summary of Vulnerability

The entire planning area is equally vulnerable to severe thunderstorms/damaging winds. All structures and populations within the City are equally vulnerable to the effects of severe thunderstorms/damaging winds. The high likelihood of severe thunderstorm is a concern but because the City of Mount Pleasant is so accustomed to severe thunderstorms/damaging winds and have current mitigation programs the impacts are major.

DROUGHT

Hazard Description

Drought is a period 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, usually a season or more in length. Droughts can be classified as meteorological, hydrologic, agricultural and socioeconomic.

- **Meteorological drought** is an interval of time, generally about months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate moisture supply.
- Agricultural drought occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought usually occurs after or during meteorological drought, but before hydrological drought and can affect livestock and other dry land agricultural operations.
- **Hydrological drought** refers to the deficiencies in surface and subsurface water supplies. It is measured as stream flow, snow pack, and as lake, reservoir and groundwater levels. There is usually a delay between lack of rain or snow and less measurable water in streams, lakes, and reservoirs. Therefore, hydrological measurement tends to lag behind other drought indicators.
- **Socio-economic drought** occurs when physical water shortages start to affect the health, well-being and quality of life of people, or when the drought starts to affect the supply and demand of an economic product.

Droughts are one of the most complex 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 environment is enormous, often killing crops, grazing land, edible plants and trees.

Location

Due to the unpredictable nature of a drought, it is impossible to determine the exact area of their future occurrences. The entire planning area, the City of Mount Pleasant, is equally subject to drought.

Severity

The Severity of drought periods is measured using the U.S. Drought Monitor (USDM) (Table 5.10). The USDM was developed by Mark Svoboda in 1999 and is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric

Administration. The USDM uses a process that synthesizes multiple indices, outlooks and local impacts, into an assessment that best represents current drought conditions and reflects observed precipitation. The outcome of each Drought Monitor map is a consensus of federal, state and academic scientists. Historically, the City of Mount Pleasant has already experienced exceptional (D4) drought conditions. Due to increasing temperatures, Mount Pleasant could fall into the D4 drought category for much longer periods.

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

Table 5.10 Drought Severity Classification and Map

Previous Occurrences

Figure 5.11



As shown on Table 5.11 from the National Climatic Data Center for the years 1996-2022, Titus County, Texas has experienced numerous drought events during that time period. The City of Mount Pleasant experienced the same events.

Probability of Future Events

Drought events are not expected to occur every year but are prevalent enough to be a concern. With changes in climate and the continuing warming of the earth, more frequent and severe droughts can be expected in the future. Therefore, according to Table 4.3 Hazard Frequency Ranking, it is likely a drought will occur in the next three years.

Impact on Community

The impact of a drought within the City of Mount Pleasant is expected to be minor. This considers the large water supply available to the community. The major damage associated with droughts are typically on crops and livestock. However, Mount Pleasant contains very little agricultural land or livestock to cause major financial disruptions.

The Water Conservation Plan and Drought Contingency Response Plan have been put into place in the City of Mount Pleasant to negate the effects of drought. The Plans contain trigger points for implementation and actions to be enforced for different levels of drought. The Plans are located on the City's website where details of the Plans can be found.

Summary of Vulnerability

We can expect more droughts in the future. The drought of 2011 dealt a severe blow to the economy of Texas. East Texas experienced record-breaking temperatures and a lack of rain that killed thousands of trees in the region. Experiencing more years of low rainfall could kill many more trees that were weakened by the 2011 drought as well as the other droughts since then. Climate change may bring more droughts to the area that last longer and cause more damage.

Table 5.11 Drought in Titus/Mount Pleasant 1996-2022

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| Location | County/Zone | <u>St</u> | Date | Time | <u>12.</u> | Type | Mag | Dth | <u>Inj</u> | <u>PrD</u> | <u>CrD</u> |
|--------------|--------------|-----------|------------|-------|------------|---------|-----|-----|------------|------------|------------|
| Totals: | | | | | | | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 05/01/1996 | 00:00 | CST | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 06/01/1998 | 00:00 | CST | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 07/01/1998 | 00:00 | CST | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 08/01/2005 | 00:00 | CST | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 12/01/2005 | 00:00 | CST | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 01/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 02/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 03/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 04/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 05/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 06/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 07/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 08/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 09/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 10/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 11/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 12/01/2011 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤХ | 01/01/2012 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 02/01/2012 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 03/01/2012 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 12/01/2012 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 01/01/2013 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 07/01/2013 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 08/01/2013 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 09/01/2013 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 08/11/2015 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 09/01/2015 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 10/01/2015 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 08/02/2016 | 06:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 10/25/2016 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 11/01/2016 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 12/01/2016 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 11/22/2017 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | тх | 12/01/2017 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 07/26/2018 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 08/01/2018 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | тх | 09/01/2018 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 11/02/2021 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ТΧ | 12/01/2021 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | тх | 01/01/2022 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | тх | 02/01/2022 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | тх | 03/01/2022 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | тх | 07/14/2022 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | тх | 08/01/2022 | 00:00 | CST-6 | Drought | | 0 | 0 | 0.00K | 0.00K |
| Totals: | | | | | | | | 0 | 0 | 0.00K | 0.00K |

EXTREME HEAT

Hazard Description

Extreme heat is characterized by a combination of exceptionally high temperatures and humidity. When these conditions persist over a period, it is called a heat wave. Although heat can damage buildings and facilities, it presents a more significant threat to the safety and welfare of residents.

Location

Due to the unpredictable nature of extreme heat, it is impossible to determine the exact area of their future occurrences. The entire planning area, the City of Mount Pleasant, is equally subject to extreme heat.

Severity

The danger of extreme heat is gauged by using the Extreme Heat Index (Figure 5.12). The Heat Index, as seen below, displays the relative danger in regard to Air Temperature and Relative Humidity. The record high temperature was recorded in Mount Pleasant at 118 in 1936. With increasing temperatures, it is expected that by the end of this century, the average number of days where temperatures are above 95° will likely increase by as much as 14 times.



Previous Occurrence

According to the National Climatic Data Center, 9 extreme heat events have been reported in Titus County, Texas between 6/2011 and 7/2.

However, during August 2023, 21 heat advisories and 24 excessive heat warnings have been issued by the NWS for Titus County/City of Mount Pleasant.

| Location | County/Zone | <u>St.</u> | <u>Date</u> | Time | <u>IZ.</u> | Туре | Mag | <u>Dth</u> | <u>Inj</u> | <u>PrD</u> | <u>CrD</u> |
|--------------|--------------|------------|-------------|-------|------------|----------------|-----|------------|------------|------------|------------|
| Totals: | | | | | | | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 06/01/2011 | 00:00 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 07/01/2011 | 00:00 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 08/01/2011 | 00:00 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 09/01/2011 | 00:00 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 09/11/2011 | 00:00 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 07/12/2020 | 18:00 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 08/29/2020 | 10:45 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 07/09/2022 | 11:00 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| TITUS (ZONE) | TITUS (ZONE) | ΤX | 07/19/2022 | 11:00 | CST-6 | Excessive Heat | | 0 | 0 | 0.00K | 0.00K |
| Totals: | | | | | | | | 0 | 0 | 0.00K | 0.00K |

Table 5.13 Excessive Heat 2011-2022

Probability of Future Events

Temperatures remain warm throughout the summer months and are relatively warmer throughout the year than other areas of the country. The occurrence of extreme heat events is likely within the area given the humidity levels and high summer temperatures. Previous historical data in Table 5.13 shows extreme heat events have occurred in Titus County since 2011. Calculations from this data suggest that an extreme heat event will impact Titus County at least 25 times a year. Therefore, according to Table 4.3 Hazard Frequency Ranking, it is likely for an extreme heat event to occur within the next 3 years.

However, based on the number of Heat Advisories and Excessive Heat Warnings issued by the NWS for Mount Pleasant in 2023, it would suggest a significant number of heat related events will occur each year in the future.

According to the Southeast Report released by the Risky Business Project, average temperatures are likely to increase across Texas due to climate change. The prospectus states dangerous levels of extreme heat are projected to threaten lives dramatically reduce labor productivity and increase energy demand and cost. The study predicts over the next 5 to 25 years, extreme heat will likely cause as many as 2,570 additional deaths per year.



Figure 5.13 Future Average Summer Temperatures in Texas

Impact on Community

The risks associated with extreme heat include: sunburn, dehydration, heatstroke, heat exhaustion, heat syncope, heat cramps and in severe cases death. The most at risk populations are outdoor laborers, the elderly, children, and the disabled who frequently live on low or fixed incomes and do not run air conditioning on a regular basis. These populations are sometimes isolated, with no immediate family or friends to look after for their well-being. The Planning Team has determined that because of available cooling centers and programs in place to mitigate extreme heat the impacts of this hazard are limited.

Summary of Vulnerability

The entire planning area is equally vulnerable to extreme heat events. For now, extreme heat is considered a low risk to the City of Mount Pleasant. Because extreme heat is a common occurrence, residents are prepared and practiced in mitigating damage. The City of Mount Pleasant also has many faith-based groups that offer cooling centers during these times of extreme heat as well as those offered by the City. Although heat events are very common to the area, they cause little damage to structures. The main concern with an extreme heat event is that it leads to other hazards, such as drought. The City of Mount Pleasant is accustomed to long periods of hot weather as local summer temperatures often reach one hundred degrees

Fahrenheit or more. Summers are hot, with temperatures approaching those of desert and semidesert locations of similar latitude. The most vulnerable populations to extreme heat include the elderly, transients, and those in homes without adequate cooling capabilities.

POWER OUTAGE

Hazard Description

Power outage is defined as any interruption or loss of electrical service caused by disruption of power transmission, which may be the result of an accident, sabotage, natural hazards or equipment failure.

Location

Power outages in the City of Mount Pleasant are usually localized and are normally the result of a natural hazard involving high winds and/or ice accumulating on power lines. However, we have had several power outages due to animals getting into substations as well as some caused by motor vehicle accidents involving utility poles. The entire planning area, the City of Mount Pleasant, is equally subject to power outages. The vast majority of Mount Pleasant is provided power by Southwestern Electric Power Company (SWEPCO).

Severity

Power outages can range in duration and in the severity of impacts, from minor loss of communication systems at a facility, to loss of water and electricity. Power outages and interruptions usually occur because of severe thunderstorms, high winds, tornadoes, ice accumulation on lines, or heavy demand on the electrical grid. Outages can also be caused by faulty equipment, human error, and animals. Individuals who rely on power for health and/or life safety, such as those on life support systems, could be placed in jeopardy in the event of a power outage.

Previous Occurrences

In February 2021, a severe winter weather event impacted most of the state. Due to power generators going offline across Texas and extremely high demand, power outages were increasing across the state. 1.1 million ONCOR customers were impacted by power outages due to this event in North Texas. However, during the February 2021 event Mount Pleasant and many other entities in Northeast Texas did not lose power because our electricity is provided by SWEPCO who is on the SPP gride not the ERCOT grid.

On June 16, 2023, a high wind event caused extensive damage to electrical poles and lines causing a significant power outage for a large area of the City which lasted a number of days.

Probability of Future Events

There are several hazards that occur often in Mount Pleasant that result in power outages.

Therefore, according to Table 4.3 Hazard Frequency Ranking, it is highly likely for a power outage to occur within the next year.

Impact on Community

Because power outages average a short duration the overall impact to the community is major. The greatest impact to the City of Mount Pleasant occurs during summer and/or winter residents are unable to use air conditioning or heating systems. This cascading event may then cause impacts from extreme heat or cold as previously described.

Summary of Vulnerability

The entire planning area is equally vulnerable to power outages. The probability of a power outage of less than half an hour occurring in Mount Pleasant within the next year is highly likely and would cause substantial impacts to the community. As the days get warmer, temperatures rise as discussed in the extreme heat section, demand for energy on the grid will increase, therefore increasing the vulnerability of the power providers that serve Mount Pleasant.

INFRASTURCTURE AND COMMUNICATIONS FAILURE

Hazard Description

Infrastructure is the basic facilities and services needed for a community. The City of Mount Pleasant infrastructure includes roads, wastewater treatment plants, water and wastewater pipes, electrical lines, bridges, an airport, railroads, and schools. Infrastructure also includes telecommunications equipment, which if impacted may cause a communications failure. A communications failure is the interruption or loss of communications systems including transmission lines, communications satellites, and associated hardware and software necessary for the communications system to function. It can include telecommunications, radio, and information technology failures. A communications failure may be the result of an equipment failure, a human act (deliberate or accidental) or the result of another hazard event.

Location

Because of the large array of possible infrastructure and communications failures, it is impossible to map the location they would occur. The entire planning area, the City of Mount Pleasant, is equally subject to infrastructure and communications failures.

Severity

When an infrastructure/communications failure occurs, it can have a wide range of effects on a community. Deteriorating infrastructure is a problem all of America is facing. Every four years, the American Society of Civil Engineers Committee on America's Infrastructure provides a comprehensive assessment of the nation's 16 major infrastructure categories grading A to F. The components that are considered when grading include: capacity, condition, funding, future need, operation and maintenance, public safety, and resilience.

Previous Occurrences

In 1992 an excessive amount of caustic soda was introduced into the water supply at the water treatment facility. This was prior to automation of the system that adds caustic soda during the treatment process. Many people received chemical burns from using the contaminated water in their homes. The water system was shut down for days until the lines could be flushed and testing showed acceptable levels of caustic soda in the water.

In 1993 the city experienced two incidents where the city was without water for days. The first one involved a blowout of the raw line water in the basement of the water treatment plant which filled the basement with water and submerged all the electric pump motors and electrical panels in about 15 feet of water. The city was without water for days while the line was repaired along with all the electrical components. Once the repairs were completed the water system had to be

flushed and testing conducted until the water samples passed testing.

The second incident in 1993 was caused by a contractor working for TxDOT rupturing the raw water line feeding the water treatment plant where the pipe crossed their right of way. Again, this caused the city to be without water for days and flushing and testing had to be conducted.

During the power outage/wind event in June 2023 the cellular system failed for several hours causing a disruption in communications.

On Monday July 11, 2023, in midafternoon contractors working for Verizon wireless, shut down their system to switch out equipment. This was done with no prior notice to customers or emergency services. The system was completely down for hours and was nonfunctioning intermittently for most of the week.

Probability of Future Events

The occurrence of an infrastructure/communications failure is largely impossible to predict. The likelihood of a large-scale extended communications failure is high. Additionally, small-scale failures with a short duration is not abnormal. Therefore, according to Table 4.3 Hazard Frequency Ranking the Planning Team has concluded that an infrastructure/communications failure is highly likely to occur in the City of Mount Pleasant in the next 3 years.

Impact on Community

Nearly every aspect of modern life is dependent on digital infrastructure. Critical infrastructure services, such as emergency services, utility services, water services and telecommunications can be impacted by a communications or infrastructure failure. Failures can result in a 911 or emergency warning system failure, a delay of response times by emergency service providers, and has the potential to impact the entire community.

Tornados, ice storms and high winds typically damage the infrastructure of a community, including roads, bridges, power lines and plants. It can take a significant amount of time to repair these facilities and infrastructure, depending on the nature of the damage and the resources available that can be dedicated.

Summary of Vulnerability

The entire planning area is equally vulnerable to infrastructure and communications failures. This type of failure will occasionally occur to some extent within the next six years. This type of hazard has historically caused substantial impacts to the City of Mount Pleasant.

LOCAL HAZARDS MITIGATION GOALS AND OBJECTIVES

The City of Mount Pleasant has identified mitigation goals to help direct mitigation planning efforts within the community. These mitigation goals have changed based on the updated Hazard Assessment, Community Impact and Risk Assessment and Capabilities Assessment. Since the City will have its own Hazard Mitigation Action Plan, hazards in the countywide plan the City was included in past were evaluated and those that were determined to pose a risk to the City were included in this plan. Additional hazards were evaluated and determined to be a risk to City and were also included in this plan. These goals identify areas to which specific mitigation actions should be directed. They were developed to reduce or avoid vulnerabilities to identified hazards. Implementation of the following goals and objectives will help the community to reduce or eliminate the loss of life and property from the identified hazards.

Goal 1: Protect residents from the impacts of natural, technological, and man-made disasters.

- Objective 1.1 Reduce or eliminate hazards that may cause injuries, loss of life or severe risk.
- Objective 1.2- Ensure 1st Responders and others responding during a disaster have full capabilities to respond.

Goal 2: Protect property, new and existing structures, from the impacts of natural, technological, and man-made disasters.

- Objective 2.1 Reduce or eliminate hazards that cause property damage/repetitive loss.
- Objective 2.2 Ensure compliance with the National Flood Insurance Program.
- Objective 2.3 Implement training activities and regulations that provide the community with a more hazard resistant infrastructure.

Goal 3: Enhance public education, awareness, and support for hazard mitigation.

- Objective 3.1 Provide guidance to local businesses to lessen the economic impact when hazards occur.
- Objective 3.2 Provide strategies for the public to apply mitigation within their own household.
- Objective 3.3 Encourage public involvement in the emergency management process.
- Objective 3.4 Identify agencies, personnel, and resources available or needed to implement pre-disaster mitigation activities and initiatives.
- Objective 3.5 Continue to assess and understand hazards to the community.

Mitigation Action Report

Table 6.1 is a summary of project progress for hazard mitigation actions that are considered hazards to the City from the previous FEMA approved HazMAP Countywide plan. The HazMAP's previously identified hazards assisted departments to isolate projects and funding to focus on for the past.

| Mitigation Action | Description | Status | | | |
|--|---|----------|--|--|--|
| Debris Removal | Limbs, leaves, trash, etc. in the drainage creeks and channels tend to increase flooding due to reducing the flow of water. Keeping these clear of debris will decrease the chance of flooding. | On-going | | | |
| Change the building codes for new structures to reflect the most current standards | Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities and other property more resistant to natural hazards. | Complete | | | |
| Make public aware of the need to prepare for natural occurring hazards by giving out information at public events. | Develop and implement education and outreach program to increase public awareness of the risks associated natural occurring hazards. | On-going | | | |
| Purchase generators for water and sewage facilities. | Provide generators for the facilities in order to continue operations in the event of a power failure. | On-going | | | |

Table 6.1 - Mitigation Action Report

HAZARD MITIGATION ACTIONS

The City of Mount Pleasant Hazard Mitigation Planning Team identified the following mitigation actions in order to reduce the impact of local hazards. Each mitigation action was developed in conjunction with local mitigation goals and objectives. The mitigation actions identified below are organized by hazard. The actions are described along with the benefits of each action, the estimated cost, the organization responsible for completing the action, the effect on new and existing structures, timeline, and the potential funding sources.

Flash Flooding Mitigation

Debris Removal

Description: Limbs, leaves, trash, etc. in the drainage creeks and channels tend to increase flooding due to reducing the flow of water. Keeping these clear of debris will decrease the chance of flooding.

Hazard(s) Addressed: Flash flooding.

Goals and Objectives addressed: 1.1, 2.1

Lead Office: Streets

Funding Source: Utility fund

New Structures: None

Effect on Existing Structures: None

Timeline for Completion: Ongoing

Cost (Estimated): 0

Cost Effectiveness and Risk Reduction: Keeping the creeks/channels clear of debris reduces the chances of the roads flooding which allow for traffic to continue for flow. It will also reduce the number of times emergency services has to respond to stranded motorist who has driven into the flooded area.

Enforce building codes to prevent structures building in flood zones.

Description: There are a few lots that were allowed to be plotted in the flood plain in years past. However, for structures to be built on these lots the foundation must be at least 1 foot above the 100-year flood elevation. Going forward no lots will be plotted in the flood plain.

Hazard(s) Addressed: Flash-flooding.

Goals and Objectives addressed: 1.1, 2.1, 2.2,

Lead Office: Building Official

Funding Source: N/A

New Structures: Will not allow building structures in a flood plain.

Effect on Existing Structures: None

Timeline for Completion: On-going

Cost (Estimated): 0

Cost Effectiveness and Risk Reduction: This will keep insurance companies for having to

continue to pay repetitive claims on structures in a flood plain.

Tornado and Severe Thunderstorm/High Wind Mitigation

| Enforce Wind-Related Building Codes | | | | | |
|--|--|--|--|--|--|
| Description: Mitigate wind related hazards by enforcing new building codes in order to | | | | | |
| enhance tornado and wind resistance structures. | | | | | |
| Hazard(s) Addressed: Tornado, Severe Thunderstorm/Damaging Winds | | | | | |
| Goals and Objectives addressed: 1.1 | | | | | |
| Lead Office: Building Official | | | | | |
| Funding Source: General Fund | | | | | |
| New Structures: Built to standard. | | | | | |
| Effect on Existing Structures: none | | | | | |
| Timeline for Completion: Ongoing | | | | | |
| Cost (Estimated): 0 | | | | | |
| Cost Effectiveness and Risk Reduction: Having structures built to standards to reduce | | | | | |
| damage caused by damaging winds/tornados will reduce the risk of structure being | | | | | |

damage caused by damaging winds/tornados will reduce the risk of structure being damaged to a point where it displaces the occupants and has to repaired or demolished and rebuilt which can have a major impact on the residents and the city.

Remove dead or rotting trees and branches that could fall and cause injury or damage.

Description: Have program in the City parks department to remove trees and branches that could fall and cause damage during a tornado or high winds. Provide information to the public on the need to remove dead/rotting trees and branches on their property to reduce the chance of structural damage or physical injury.

Hazard(s) Addressed: Tornado, Severe Thunderstorm/Damaging Winds, Severe Winter Weather/Extreme Cold, Power Outage

Goals and Objectives addressed: 1.1, 1.2, 2.1, 2.3, 3.2,3.5

Lead Office: Parks/Emergency Management

Funding Source: General Fund

New Structures: Reduce the risk of damage due to flying debris.

Effect on Existing Structures: Reduce the risk of damage due to flying debris.

Timeline for Completion: Ongoing

Cost (Estimated): 0

Cost Effectiveness and Risk Reduction: Removal of rotting/dead trees and branches can reduce the chance of damage to structures which will reduce the number of insurance claims filed. It will also reduce the risk of structures being damaged to the extent it would displace the occupants. It will also reduce the chance of power lines being damaged causing a loss of power to locations. This will be done based on the availability of manpower and the importance of other on-going projects.

Drought Mitigation Actions

Design a Utility Bill Insert for Drought Awareness

Description: Design a utility bill insert to inform citizens about ways to mitigate drought impacts and place in the water bills annually.

Hazard(s) Addressed: Drought

Goals and Objectives addressed: 1.1, 2.1, 3.2, 3.4, 3.5

Lead Office: Utilities/Emergency Management

Funding Source: General Fund

New Structures: Provide information on ways to protect the slab during drought.

Effect on Existing Structures: Provide information on ways to protect the slab during drought.

Timeline for Completion: On-going

Cost (Estimated): 0

Cost Effectiveness and Risk Reduction: This will provide information for new home builders as well those owning existing homes on how to prevent the effects of drought on their home's foundation.

Implement Drought Contingency plan

Description: Implement the City's drought contingency plan when needed to mitigate effects of the drought.

Hazard(s) Addressed: Drought

Goals and Objectives addressed: 1.1, 2.3, 3.2, 3.4, 3.5

Lead Office: Utilities

Funding Source: Utility Fund

New Structures: none

Effect on Existing Structures: none

Timeline for Completion: on-going

Cost (Estimated): 0

Cost Effectiveness and Risk Reduction: By implementing the drought contingency plan the effects of a drought on the water supply will be reduced.

Extreme Heat

Provide Information to the Public on the Hazards Associated with Extreme Heat

Description: Develop information on hazards associated with extreme heat and how to mitigate those and post on our social media sites as provide it to the local media

Hazard(s) Addressed: Extreme Heat

Goals and Objectives addressed:

Lead Office: Emergency Management

Funding Source: General Fund

New Structures: None

Effect on Existing Structures: None

Timeline for Completion: Ongoing

Cost (Estimated): 0

Cost Effectiveness and Risk Reduction: Providing information to the public can help reduce the chances of them being affected by hazards associated with extreme which could keep them from having to seek medical attention which could be costly as well as in some cases life threatening.

Open the Civic Center and Community Center as Cooling Center for the Public

Description: Provide a location for citizens that may not have air conditioning somewhere to go to cool off.

Hazard(s) Addressed: Extreme Heat

Goals and Objectives addressed: 1.1, 1.2

Lead Office: Emergency Management

Funding Source: General Fund

New Structures: None

Effect on Existing Structures: None

Timeline for Completion: Ongoing

Cost (Estimated): 0

Cost Effectiveness and Risk Reduction: By providing a place for people that may not have access to an air-conditioned space a place to go could reduce the chance of having to seek medical attention which in some cases could be life threatening.

Severe Winter Weather/Extreme Cold, Power Outages, Infrastructure/Communications Failure

Provide Comprehensive Public Education Program Description: Provide a comprehensive Whole Community and all hazards disaster preparedness and mitigation program to residents. See Appendix E for an example of community educational materials available to the residents. Hazard(s) Addressed: All Goals and Objectives addressed: 1.1, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5

Lead Office: Emergency Management

Funding Source: General Fund

New Structures: None

Effect on Existing Structures: None

Timeline for Completion: Ongoing

Cost (Estimated): \$500

Cost Effectiveness and Risk Reduction: Losses in the community translate into the loss of resources for residents as they try to recover, and the loss of taxes and services to local government as the try to manage the recovery.

Acquire Generator for Pilgrims Community Center

Description: Acquire a generator to provide power for the community center.

Hazard(s) Addressed: Extreme Heat

Goals and Objectives addressed: 1.1

Lead Office: Parks

Funding Source: Hazard Mitigation Grant and/or general fund

New Structures: None

Effect on Existing Structures: Would provide power to center.

Timeline for Completion: 3-5 years

Cost (Estimated): \$90,000

Cost Effectiveness and Risk Reduction: In the event of a power outage, extreme heat or a disaster, the cent could be used as a cooling center and/or shelter for people displaced by the storm. The cooling center could prevent some people from having to seek medical attention which is some cases could be life threatening.

Fleet Services Continuity of Operations

Description: Acquisition of a generator for the Public Works Service Center

Hazard(s) Addressed: All

Goals and Objectives addressed: 1.1, 1.2

Lead Office: Fleet Services

Funding Source: Hazard mitigation grant and/or Utility Fund

New Structures: None

Effect on Existing Structures: Would provide power to the facility so, it could operate efficiently and safely during a disaster/power outage.

Timeline for Completion: 5 years

Cost (Estimated): \$90,000

Cost Effectiveness and Risk Reduction: Fleet services is an essential function of the city. The service center needs to be able function efficiently and safely during a power outage/disaster in order for the city to continue to provide services to the citizens.

Upgrade 2-way Radio Communications

Description: Purchase new batteries for existing portable radios, replace portable radios that are at end of life and install mobile radios in key vehicles and facilities.

Hazard(s) Addressed: Communications Failure

Goals and Objectives addressed: 1.2

Lead Office: Public Works

Funding Source: General Fund

New Structures: None

Effect on Existing Structures: None

Timeline for Completion: 2-years

Cost (Estimated): \$2,000

Cost Effectiveness and Risk Reduction: Cell phones have become the go to for communications instead of the 2-way radio system, mainly in public works. However, when the cell service goes down, which it has recently, there is no way to coordinate a response during a disaster. A functioning and capable 2-way radio system is critical for communications when the cell service is down.

| Acquire Portable Fuel Tanks |
|---|
| Description: Acquire portable diesel and gasoline fuel tanks. |
| Hazard(s) Addressed: Power Outage |
| Goals and Objectives addressed: 1.2 |
| Lead Office: Emergency Management |
| Funding Source: Hazard Mitigation grant and/or General Fund |
| New Structures: None |
| Effect on Existing Structures: None |
| Timeline for Completion: 2 years |
| Cost (Estimated): \$15,000 |
| Cost Effectiveness and Risk Reduction: During a power outage the fuel pumps used for |
| fueling vehicles do not have a power backup. The fuel vendor has the ability to pump the |
| fuel from the underground tanks into a delivery truck but no way to put into the vehicles. |
| With the tanks the fuel vendor can fill those from the delivery truck and the vehicles can be |
| filled from the portable fuel tanks. This is critical to continue to provide service during a |

Benefit-Cost Review and Prioritizing Mitigation Actions

power outage/disaster.

The City of Mount Pleasant Planning Team prioritized mitigation activities using the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) Method, per Federal Emergency Management Agency (FEMA) recommendations. STAPLEE is a benefit-cost review tool and includes considerations for Social, Technical, Administrative, Political, Legal, Environmental, and Economic issues. Each of these items is assigned a positive or negative value. Projects that score the highest are considered the most effective, and their funding most justified. A lower score indicates that several obstacles exist that would prevent the proposed project from being completed. Most mitigation strategies have at least one obstacle and, very frequently, this obstacle is economic. Part of putting the mitigation strategies in a prioritized list is being able to justify the need for a project should funding become available. The STAPLEE Table can be found in Appendix F.

PLAN MAINTNEANCE

This section documents the formal process that Mount Pleasant will utilize to ensure that the mitigation action plan remains active. This includes a schedule for monitoring and evaluating the Plan annually beginning at the time of FEMA's Final Approval and producing a plan revision every five years.

Incorporation Into Existing Plans

The City will integrate public participation throughout the plan maintenance process. This section will also explain how City government intends to incorporate the mitigation strategies outlined in the plan into existing mechanisms such as Capital Improvement Plans, Comprehensive Plan, and Building Codes. The City will have the opportunity to implement recommended mitigation actions items through existing programs and procedures by Resolutions.

City Building Official is responsible for administering the building codes in local municipalities. After the adoption of the mitigation plan, they will work with the Building Officials Association of Texas (BOAT) to make sure that minimum standards are enforced. The City will incorporate the mitigation plan recommendations into their budgeting processes. The City will incorporate the mitigation recommendations using the building codes through Ordinances.

Monitoring and Implementation

The Mount Pleasant City Council will be responsible for adopting the Mount Pleasant Mitigation Action Plan. This governing body has the authority to make public policy regarding natural hazards. The Mount Pleasant Mitigation Plan will be submitted to the Texas Department of Emergency Management for review and upon their approval, TDEM will then submit the plan to the Federal Emergency Management Agency (FEMA) for review and final approval. The review will address the federal criteria outlined in FEMA Interim Final Rule 44 CFR Part 201. Once accepted by FEMA, Mount Pleasant will formally adopt it and gain eligibility for Hazard Mitigation Grant Program funds.

Coordinating Committee

The Mount Pleasant Hazard Mitigation Committee will be responsible for coordinating implementation of plan action items and undertaking the formal review process. The City has formed a Hazard Mitigation Committee that consists of members from the various city departments, school, utilities and the public.

The Mount Pleasant HMAP will be incorporated into a variety of new and existing planning mechanisms including: grant applications, human resource manuals, ordinances, building codes and budgets. Each team member will communicate new ideas and issues found within the plan to the Hazard Mitigation Coordinator. The City will consider how to best incorporate the plans together. This includes incorporating the mitigation plan into the local comprehensive plan as they are developed and existing emergency response plans.

Formal Review/Updating Process

The Mount Pleasant Hazard Mitigation Action Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The evaluation process will include a definite schedule and timeline and will identify the local agencies and organizations participating in plan evaluation. The Emergency Management Coordinator will be responsible for contacting the Hazard Mitigation Committee members and organizing the annual meeting. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the plan.

The committee will review the goals and actions items to determine their relevance to changing situations in the city, as well as changes in State or Federal policy, to ensure they are addressing current and expected conditions. They will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any new available data. A written record of the annual meeting, along with any project reports, will be accomplished and kept on file in the City Secretary's office. Every five years the updated plan will be submitted to FEMA.

Copies of the Plan will be kept at Mount Pleasant city hall. The existence and location of these copies will be publicized in the local newspaper. The Mount Pleasant City Secretary will be responsible for keeping track of public comments on the Plan.

Continued Public Involvement

A public meeting will be held after each annual evaluation or when deemed necessary by the Hazard Mitigation Committee or Emergency Management Coordinator. The meetings will provide the public an opportunity to express concerns and opinions about the Plan. The public will be notified about the opportunity to participate through city hall postings, city webpage and local media.

| Table | 8.1 |
|-------|-----|
|-------|-----|

| Maintenance | Local Planning | Responsible Person | Schedule | Plan |
|---------------------------------|---|--|---|--|
| Implementation | City Budget | City Manager | Annually | Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs |
| Implementation | Emergency Operations Plan Updates | Emergency Management Coordinator | Reviewed annually, update as needed | EOP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards |
| Monitoring Evaluation | Comprehensive Plan | Planning and Development | Annually | Evaluate plan and determine the need to make changes to incorporate mitigation actions. |
| Monitoring Evaluation Update | HazMAP | HazMAP Planning Team | Annually in January | Evaluate each mitigation action using the Department Update form. Determine changes in hazards, risk and impact. |
| Monitoring Evaluation | HazMAP | Planning Committee | Annually after Planning Team Summarizes | Assess progress in mitigation activities implemented by the plan and decide how improvements could be made to the overall mitigation. strategy. |

APPENDIX

Appendix A



City of Mount Pleasant Future Development and Flood Plain Map

Appendix B

RESOLUTION

WHEREAS, the City of Mt. Pleasant recognize its vulnerability and the many potential hazards shared by all residents; and

WHEREAS; the City of Mt. Pleasant has recognized the need to prepare a Mitigation Action Plan; and

WHEREAS, the City of Mt. Pleasant has decided to prepare a Mitigation Action Plan.

THEREFORE BE IT RESOLVED that the City of Mt. Pleasant adopts and approves said Mitigation Action Plan; and

BE IT FURTHER RESOLVED that the Mayor of Mt. Pleasant appoint a Hazard Mitigation Coordinator to coordinate all aspects of the Mitigation Action Plan including its review and maintenance in accordance with this resolution.

 RESOLVED THIS______DAY OF______, 2023

Mayor, City of Mount Pleasant, Texas

ATTEST_____City Secretary

Appendix C Documentation of Planning Meetings

HAZARD MITIGATION ACTION PLAN PLANNING COMMITTEE MEETING AUGUST 31, 2023

| NAME | AGENCY |
|------------------|------------------------|
| KEHD BOLD | M.R. Publics WORKS |
| Wendell Eakins | Public Representative |
| David Genzeles | City of Mt. Pleasant |
| JOHN ANKRUM | CITY OF MP. |
| Marke Buhman | City of MP |
| Hayos A. Leshor | MRISD. Admin |
| Jennifer Harland | SWEPM |
| Anthony Rosor | City |
| Langu Buck | 1 / 1850 |
| LARRY MCRAE | FIRE / GMERGENCY MAND. |
| ~ / | |
| | |
| | |
| | |

Appendix D

Public Outreach Methods

| From: | Larry McRae | | |
|--|--|--|--|
| Sent: | Wednesday, September 6, 2023 3:01 PM | | |
| To: Abernathy, David (david.abernathy4100@gmail.com); Brandon Singletary river.tx.us; jward@co.titus.tx.us; tdial@co.franklin.tx.us | | | |
| Cc: | Larry McRae | | |
| Subject: | City of Mount Pleasant Hazards Mitigation Action Plan | | |
| Attachments: | 2023 Hazard Mitigation Plan.pdf | | |
| seek input from neighbo | oring jurisdictions. Please provide any input by September 25. | | |
| seek input from neighbo Thanks Larry | oring jurisdictions. Please provide any input by September 25. | | |
| seek input from neighbo Thanks Larry Larry McRae | oring jurisdictions. Please provide any input by September 25. | | |
| seek input from neighbo Thanks Larry Larry McRae Fire Chief/Emergency M | oring jurisdictions. Please provide any input by September 25. | | |
| seek input from neighbo Thanks Larry Larry McRae Fire Chief/Emergency M City of Mt. Pleasant. Tex | oring jurisdictions. Please provide any input by September 25. | | |
| seek input from neighbo Thanks Larry Larry McRae Fire Chief/Emergency M City of Mt. Pleasant, Tex Region 1 All Hazard Inci | oring jurisdictions. Please provide any input by September 25. lanagement Coordinator kas 75455 dent Management Team Lead | | |
| seek input from neighbo Thanks Larry Larry McRae Fire Chief/Emergency M City of Mt. Pleasant, Tey Region 1 All Hazard Incio Work 903-575-4144 | oring jurisdictions. Please provide any input by September 25. lanagement Coordinator kas 75455 dent Management Team Lead | | |
| seek input from neighbo Thanks Larry Larry McRae Fire Chief/Emergency M City of Mt. Pleasant, Tex Region 1 All Hazard Incio Work 903-575-4144 FAX 903-577-1828 | oring jurisdictions. Please provide any input by September 25. lanagement Coordinator cas 75455 dent Management Team Lead | | |



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Managers do things right, Leaders do the right thing....there IS a difference. Be a leader!

------ Original message ------From: Miranda Oglesby <<u>miranda@tribnow.com</u>> Date: 9/8/23 1:14 PM (GMT-06:00) To: Candias Webster <<u>cwebster@mpcity.org</u>> Subject: Re: Public hearing FD

CAUTION: [EXTERNAL EMAIL]

Here is a proof of this ad:

Notice of Public Meeting

The City of Mount Pleasant Hazard Mitigation Team will hold a public meeting on September 11, 2023 and September 18, 2023 at 6 PM in the City Council Chambers located at 501 North Madison. The purpose of the meeting is to get input from the public on the City's Hazard Mitigation Action Plan. The purpose of the Hazard Mitigation Action Plan is to implement actions to help reduce the loss of life and property due to the impacts of disasters.

On Sep 8, 2023, at 12:15 PM, Candias Webster <<u>cwebster@mpcity.org</u>> wrote:

| н | AZARD MITIGATION ACTION PLAN PUBLIC MEETING SEPTEMBER 11, 2023 | LS. |
|----------------|--|-----------------|
| NAME | REPRESENTING | ADDRESS @ |
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| at 500 N. Madison |
| AND GOO N. MADISON |
| 905W6th |
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El Plan de Mitigación de Riesgos de la Ciudad ha sido actualizado. tu opinión nos ayudara A tener un mejor plan para

mantenga a Mount Pleasant a salvo.

Por favor escanee el código QR o visite el enlace a continuación, para completar una encuesta de 3 preguntas.



mpcity.net/emergency

También puede obtener copias de la encuesta en el ayuntamiento de la ciudad, Biblioteca Pública y Estación Central de Bomberos en la calle Ferguson.

LA PLANIFICACION PARA LA MITIGACIÓN DE RIESGOS PUEDE REDUCIR PÉRDIDAS DE VIDAS Y PROPIEDADES AL MINIMIZAR EL IMPACTO DE LOS DESASTRES.

Appendix-E

Public Education Program Summary and Resources

Public education and awareness is often the most important mechanism by which communities can strengthen resilience, and, as result, minimize the impact of emergencies and disasters. Mitigation efforts directly impact how quickly and completely citizens can recover from all types of disasters regardless of the cause. The more prepared residents are to survive on their own, the more government agencies can focus their attention and resources on life safety, incident stabilization and recovery from critical infrastructure impacts. The City of Mount Pleasant Public Education Program includes a multifaceted approach to outreach including the following resources:

- 1. Preparedness Presentation
 - a. City Staff provide disaster and emergency preparedness and mitigation outreach and education presentations for any organization, class, school, group, facility, neighborhood, etc. within Mount Pleasant. Presentations are customized to meet the needs and interests of specific audiences.
 - b. Requests for a presentation can be done by contacting the Mount Pleasant Fire Department at <u>mpfd@mpcity.org</u> or by calling 903-575-4144.
- 2. Public Education Materials
 - a. Mount Pleasant is developing a SCAN program, *Safe Citizen Action Network*, similar to the one Heath, Texas has in place. The QR code below will open the site in order to view the information that will be contained there.
 - b.
- 3. Social Media
 - a. Information will be periodically placed on the Mount Pleasant webpage and Facebook page as well as the Police and Fire Department Facebook pages.



Appendix F STAPLEE Table

City of Mount Pleasant STAPLEE Action Evaluation and Prioritization Table

| | Social | | Technical | | Administrative | | | Political | | | Legal | | | Economic | | | | Environmental | | | | | |
|--|-------------------------|-----------------------------|-------------------------|-----------------------|----------------------|----------|------------------------|----------------------------|-------------------|----------------|----------------|-----------------|-----------------------------|------------------------------|-------------------|----------------|----------------------------------|-----------------------------|----------------------------|---------------------------------|----------------------------------|---|-------------------------------|
| Mitigation Actions | Community Acceptance | Effecton Segment of Poup | Technically Feasible | Long-Term Solution | Secondary Impacts | Staffing | Funding Allocations | Maintenance/ Operations | Political Support | Local Champion | Public Support | State Authority | Existing Local Authority | Potential Legal Challenge | Benefit of Action | Cost of Action | Contributes to Economic Goals | Outside Funding Required | Effect on Land and Wate | Effect on Endangered Species | Effect on HAZMAT/ Waste Sites | Consistent with Community Environmental Goals | Total Prioritization Score |
| 01. Public Education | + | + | + | + | + | + | + | + | + | N | + | + | + | N | + | + | Ν | N | + | + | + | + | 18 |
| 02. Debris Removal | + | + | + | + | + | - | + | + | + | N | + | N | + | + | + | + | N | Ν | + | N | N | N | 13 |
| 03. Prevent Building in Flood Zones | + | + | + | + | + | + | + | + | + | N | + | + | + | N | + | + | + | Ν | + | Ν | N | + | 17 |
| 04. Enforce Wind Related Building Codes | + | + | + | + | + | + | + | + | + | N | + | + | + | N | + | + | + | Ν | + | N | N | + | 17 |
| 05. Up Grade 2-way radio system | + | + | + | + | + | N | - | + | + | N | + | + | + | N | + | + | N | - | N | Ν | Ν | N | 10 |
| 06. Fleet Services COOP | + | + | + | + | + | - | - | + | + | N | + | N | + | N | + | + | N | - | N | Ν | N | N | 8 |
| 07. Portable Fuel Tanks | + | + | + | + | + | N | - | + | + | N | + | N | + | N | + | + | Ν | - | Ν | Ν | Ν | Ν | 9 |
| 08.Generator | + | + | - | + | + | Ν | - | + | + | Ν | + | N | + | Ν | + | + | Ν | - | Ν | Ν | Ν | Ν | 7 |
| 09. Cooling Centers | + | + | - | + | + | - | + | + | + | + | + | + | + | Ν | + | + | Ν | - | Ν | Ν | Ν | Ν | 10 |
| 10.Implement Drought Contingency Plan | - | + | + | + | + | + | N | + | + | + | - | + | + | N | + | + | N | N | + | N | + | + | 14 |