



CDBG-MIT Action Plan

City of San Marcos

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Planning and Development Services Department

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Contents

I.	Executive Summary.....	5
a.	Introduction.....	5
b.	Recent Flood Events	7
c.	State of Texas	8
II.	Mitigation Needs Assessment.....	8
a.	Overview of the City of San Marcos Hazard Mitigation Action Plan	8
b.	San Marcos' Risk Landscape.....	9
i.	Geography.....	9
c.	Hazard Analysis and Lifeline Assessment.....	11
i.	Flood.....	13
ii.	Drought	16
iii.	Dam/Levee Failure	18
iv.	Severe Winter Storms.....	19
v.	Tornadoes.....	21
vi.	Extreme Heat.....	23
vii.	Wildfire	25
viii.	Wind Storms.....	29
ix.	Lightning	32
x.	Hail Storms	33
xi.	Expansive Soils	37
xii.	Earthquakes.....	38
xiii.	Hurricanes/Tropical Storms	41
d.	Vulnerability Assessment.....	45
III.	Use of Funds.....	46
a.	Connection to Identified Risk	46
b.	Allocations	47
c.	Low and Moderate-Income Priority.....	47
d.	CDBG-MIT Activities.....	48
i.	Repetitive Loss Infrastructure	48
ii.	Land Preservation.....	50
iii.	Hazard Warning System.....	52
iv.	Signs and Barricades.....	54
v.	Planning	55

vi. Administration	56
IV. General Requirements	57
a. Certification of Controls, Processes, and Procedures	57
b. Implementation Plan and Capacity Assessment	57
c. Program Income	57
d. Long-Term Planning Considerations	57
e. Coordination of Mitigation Projects and Leveraging Resources.....	58
f. Plans to Minimize Displacement.....	59
g. Natural Infrastructure	59
h. Construction Standards.....	60
i. Operation and Maintenance Plan.....	60
j. Cost Verification.....	61
V. Public Feedback.....	61
a. Survey and Town Hall	61
b. Public Hearings for CDBG-MIT	62
c. Publication of Draft Action Plan	62
d. Summary of Input	63
VI. Citizen Participation Plan for San Marcos' CDBG-MIT (CPP-MIT)	63
a. Availability and Accessibility of Records	63
b. Citizen Advisory Group	63
c. Public Website	63
d. Amendments	64
i. Substantial Amendment	64
ii. Non-substantial Amendment.....	64
e. Application Status and Transparency.....	65
f. Citizen Complaints.....	65
VII. Certifications.....	65
VIII. Appendices	68

I. Executive Summary

a. Introduction

On February 9, 2018, the United States Congress approved Public Law 115-123, which directed the U.S. Department of Housing and Urban Development (HUD) to allocate more than \$12 billion for mitigation activities proportional to the amounts that Community Development Disaster Recovery (CDBG-DR) grantees received for qualifying federally declared disasters in 2015, 2016, and 2017.

On August 30, 2019, 84 Federal Register 45838 was published, which allocated \$6.875 billion in Community Development Block Grant Mitigation (CDBG-MIT) to grantees recovering from qualifying disasters in 2015, 2016, and 2017. This notice, and any subsequent notices, describes grant requirements and procedures applicable to CDBG-MIT funds only. CDBG-MIT is a new grant and the first appropriation of CDBG funds to be used specifically for mitigation activities. As part of this notice, HUD allocated \$24,012,000 in CDBG-MIT funds to the City of San Marcos.

CDBG-MIT activities are defined as those that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters. These funds represent a unique and significant opportunity to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses. The grant prioritizes activities that benefit vulnerable and lower-income people and communities while targeting the most impacted and distressed areas.

This document, San Marcos' CDBG-MIT Action Plan (Action Plan) was developed to meet the HUD requirements outlined in their Federal Register notice, 84 FR 45838 (August 30, 2019). The Action Plan includes a risk-based mitigation needs assessment derived from the 2018 City of San Marcos / Hays County Hazard Mitigation Plan (the Assessment). The Assessment identifies and analyzes all significant current and future disaster risks and provides a basis for the proposed CDBG-MIT activities. This Action Plan also includes information about the use of CDBG-MIT funds, including prioritizing assistance for low- and moderate-income (LMI) communities. As determined through the mitigation needs assessment and public input, CDBG-MIT activities will focus on decreasing the risk of flooding in San Marcos through several initiatives/projects. Table 1 provides a breakdown of how the City intends to utilize the CDBG-MIT allocation.

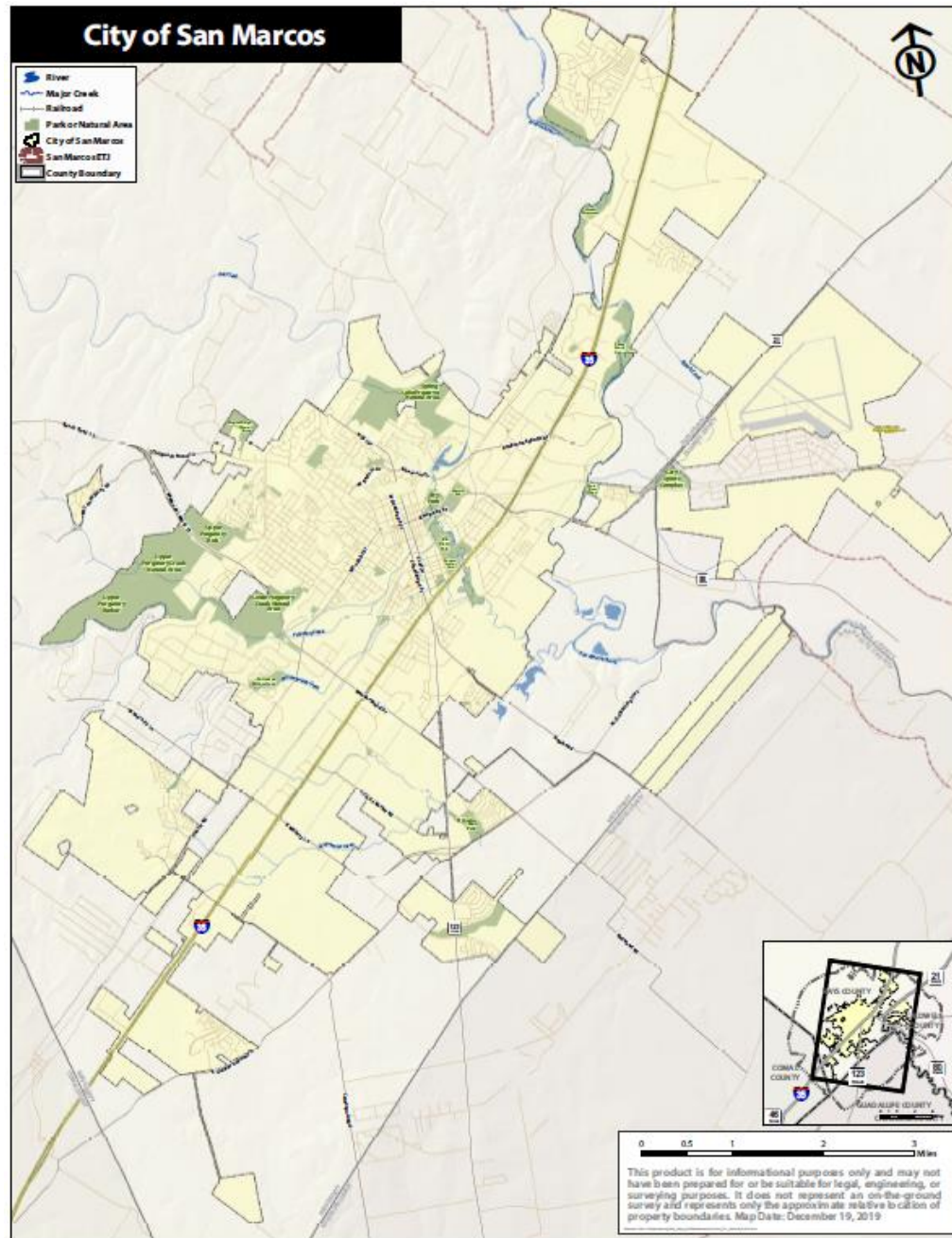
Table 1 CDBG-MIT Budget Allocation

Programs	Total Allocation	% of Total Allocation	Minimum LMI Amount
Repetitive Loss Infrastructure	\$16,000,000	66.63%	\$8,000,000
Land Preservation Program	\$2,849,600	11.87%	\$1,424,800
Hazard Warning System	\$300,000	1.25%	\$150,000
Signs & Barricades	\$60,000	0.25%	\$30,000
Planning	\$3,601,800	15.00%	N/A
Administration	\$1,200,600	5.00%	N/A
Total	\$24,012,000	100.00%	\$9,604,800

Source: City of San Marcos Planning and Development Services and Engineering Departments

HUD set the city limits of San Marcos as the “most impacted and distressed” areas (HUD MID) the Federal Register notice, 84 FR 45838 (August 30, 2019), and has required that at least 50 percent of the allocation must address identified risks within these areas. In contrast, up to 50 percent may address identified risks needs within the “most impacted and distressed” areas determined by the City. Refer to the map below of the eligible areas as identified by HUD, also included as Appendix A.

Figure 1 CDBG-MIT Eligible Areas



Source: City of San Marcos Planning and Development Services Department

b. Recent Flood Events

The City of San Marcos, Texas was inundated with historic flash and river flooding in Hays County on two separate occasions within six months of each other in 2015. The first event, now called the “Memorial Day Floods”, occurred overnight on May 23rd and early May 24th. May 2015 has been documented by the National Weather Service as the wettest month in Texas History, with well above-normal rainfall during the first two to three weeks of the month. A persistent area of low pressure over the western United States brought multiple rain events throughout the month of May that saturated soil throughout south-central Texas. By the time Memorial Day weekend arrived, much of the region was at least 2-4 inches (100- 300%) above normal. These wet antecedent conditions meant that any new rain, and especially heavy rain, would become rapid run-off directly into rivers, streams, and flash flood prone areas.

This “worst-case” scenario came to pass Memorial Day weekend. A thunderstorm cluster organized west of Hays County on Saturday afternoon and produced upwards of 12 inches of rain in less than six (6) hours. The majority of this rain fell in the upper reaches of the Blanco River watershed at rates that exceeded four (4) inches per hour as thunderstorms merged and regenerated for hours over southern Blanco and eastern Kendall counties.

Most of the rain fell from Saturday afternoon into the overnight hours of early Sunday morning, leading to a rapid rise in the Blanco and San Marcos rivers. The Blanco River at Wimberley rose from near five (5) feet at 9 p.m. on May 23rd to near 41 feet by 1 a.m. on May 24th. The Blanco River rose five (5) feet every 15 minutes just before midnight, equating to a 20-foot rise along the river within a one-hour time frame. Numerous high-water rescues occurred throughout the late evening and morning hours along the banks of the Blanco River and eventually the San Marcos River. The resulting flash flooding caused a tragic loss of life and extreme property damage.

Rescue and recovery efforts stalled on May 25th as another round of severe weather struck the neighboring counties of Williamson, Travis, Bastrop and Caldwell. Large areas of these counties experienced flash flooding and tornados.

Another catastrophic flood event took the area on October 30, 2015, referred to as the “All Saints Flood”, where water caused portions of Interstate 35 to be closed for a second time that year. The impacts of this event were widespread, leading to the closing of Austin-Bergstrom International Airport, approximately 30 miles away. The National Weather Service reported “nearly 6 inches of rain...within an hour...flooding the ground floor of the Austin Air Traffic Control Tower and Terminal Radar Approach Control facility.” Elsewhere in Texas, some areas received more than 10 inches of rain with heavy rains washing away RVs, boats, and trailers along the Guadalupe River in New Braunfels, Texas.

The powerful waters of the All Saints Flood struck Cypress Creek in Wimberley, the Blanco River, and the San Marcos River, causing additional property damage and delaying recovery efforts from the previous flood. However, the community’s heightened sense of awareness and improved reaction to alerts translated to no loss of life during the All Saints Flood.

Both events were considered historical flood events for Central Texas, but for different reasons. The Memorial Day Flood was noted for its extreme water velocities, analogous to the velocities of Niagara Falls. The All Saints Flood was noted for the extreme volume of precipitation in such a short

period of time in various locations around Hays County quickly inundating the rivers, ditches, and ephemeral streams.

The cumulative impact of these disasters has been devastating for the City of San Marcos, and the scale of damage, both physically and financially, is unparalleled. The community experienced a loss of life and property, including a significant amount of infrastructure. These disasters have created significant financial challenges for area residents, as well as local governments. It is imperative the City of San Marcos address areas of concern to reduce the probability of future disasters, especially those relating to flooding and repetitive loss. Through these holistic approaches, the City will be able to improve the health and quality of life for its residents. Table 2 presents the total estimated cost of damages incurred from each of these storm events, and the corresponding CDBG-DR funds that the City received.

Table 2 Federally Declared Disasters in San Marcos 2015

Disaster	Year	Estimated Damage	CDBG-DR Funds Received
Memorial Day Floods	2015		
All Saints Flood	2015		
Total		\$49,431,274	\$33,794,000

Source: City of San Marcos Finance Department

c. State of Texas

Separate from this Action Plan and San Marcos' direct allocation of CDBG-MIT funds, the State of Texas, as administered by the Texas General Land Office (GLO), was allocated \$4,297,189,000 of CDBG-MIT as a result of the six natural disasters that impacted Texas between 2015 and 2017 (Disaster Numbers 4223, 4245, 4266, 4269, 4272, and 4332). HUD has directly allocated CDBG-MIT funds to the City of San Marcos resulting from the two 2015 flood events. In addition, the City of San Marcos may be eligible to receive additional CDBG-MIT funds through the GLO-administered state allocation. Information about the State of Texas activities and projects using CDBG-MIT funds can be found here: <https://recovery.texas.gov/action-plans/mitigation-funding/index.html>.

II. Mitigation Needs Assessment

a. Overview of the City of San Marcos Hazard Mitigation Action Plan

As required by HUD, the City developed a mitigation needs assessment based in part on the existing, approved [City of San Marcos/Hays County Hazard Mitigation Plan](#) (the HMP, see Appendix B). The purpose of the assessment is to identify strategies to protect life and property and to minimize the costs of disaster response and recovery. The goal of the assessment is to minimize or eliminate long-term risks to human life and property from known hazards by identifying and implementing cost-effective hazard mitigation actions. The assessment addresses current and future risks including hazards, vulnerability, and impacts of disasters. It also serves to identify appropriate mitigation actions and develop the action plan that will reduce the highest risks that San Marcos faces. The assessment considers a comprehensive set of data sources that cover multiple geographies and sectors and was completed according to guidelines set forth by HUD in

its first CDBG-MIT Federal Register notice, 84 FR 45838 (August 30, 2019).

The information contained in the assessment focuses on the impacts on the CDBG-MIT eligible area (Figure 1, or Appendix A). The information was compiled using federal and state sources, including information from FEMA, Texas Division of Emergency Management (TDEM), and other federal, state, and local agencies and data sources.

The City was able to gather information regarding the impacts of the 2015 floods, actions taken during and following the event, and the risks and impacts on impacted area. The Assessment includes specific details about needs in the eligible, most impacted, and distressed area. This includes risks to and the impact on housing and infrastructure. The Mitigation Strategy in the HMAP provides a comprehensive approach to address hazards that pose a harm to the city, including a strong emphasis on flooding. The strategy identifies the following:

- (1) Existing Capabilities;
- (2) National Flood Insurance Program Participation;
- (3) Mitigation Goals;
- (4) Mitigation Actions;
- (5) Capabilities Assessment; and
- (6) Integration Efforts.

b. San Marcos' Risk Landscape

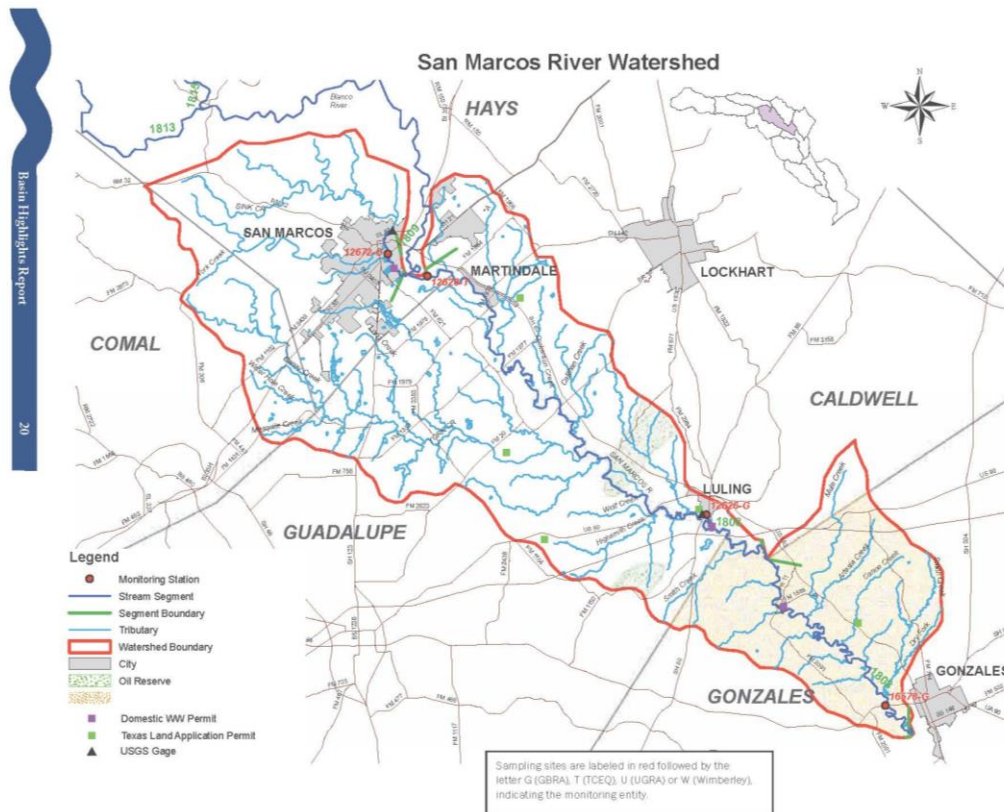
i. Geography

San Marcos is known as the heart of Central Texas, located exactly midway between the cities of Austin and San Antonio, Texas on Interstate Highway 35 (IH-35). Located along the San Marcos River, San Marcos is the county seat for Hays County. The community has the largest population throughout the County and is home to Texas State University. Incorporated in 1877, the community follows a Council-Manager form of city government made up of a Mayor and 6 Council Members. The City is supported by 670 employees and known for its arts and history and is a popular tourist destination fueled by river activities, shopping and other attractions. In 2015, the City was named the fastest growing city in the United States with a population of 50,000 residents or more, and earned the designation for 3 years running (Time, 2015). Recent U.S. Census Bureau estimates show that San Marcos' population has grown to 63,509, or nearly 41 percent, between the 2000 decennial census and 2018. San Marcos is served by San Marcos Consolidated ISD (SMCISD), which has 12 campuses throughout the City. There are almost 38,000 people enrolled at Texas State University as of 2018. In 2013, San Marcos permitted \$235,940,463 in building permit values between the months of January and August. Most populated in the County, and still growing at an impressive rate, San Marcos is also home to 1,700 acres of parkland and open space.

The city has a total area of over 31 square miles, of which 30 square miles are land and one (1) square miles is over water. It is situated on the Balcones Fault, the boundary between the Hill Country to the west and the Coastal Plains to the east. Along the fault, many springs emerge, such as San Marcos Springs, which forms Spring Lake and is the source of the San Marcos River. The fault extends from Waco to Del Rio and marks the beginning of the Texas Hill Country to the west. Leading the United States in the number

of flash and river flooding-related deaths annually, Texas, specifically the Hill Country, is the most flash flood-prone region found in North America. The eastern part of San Marcos is Blackland Prairie while the western part of the city consists of forested or grassy rolling hills, often marked with cacti. The San Marcos River and the Blanco River, part of the Guadalupe watershed, flow through the city, along with Cottonwood Creek, Purgatory Creek, Sink Creek, and Willow Springs Creek. The San Marcos River begins at San Marcos Springs, rising from the Edwards Aquifer into Spring Lake. The upper river flows through Texas State University and San Marcos and is a popular recreational area. It is joined by the Blanco River after four miles, passes through Luling and near Gonzales, and flows into the Guadalupe River after 75 miles (121 km).

Figure 2 San Marcos River Watershed



Source: Guadalupe-Blanco River Authority

c. Hazard Analysis and Lifeline Assessment

The most recent comprehensive hazard identification and risk assessment for mitigation planning was completed, along with the required plan update, in 2017. Upon a review of the full range of natural hazards suggested under the Federal Emergency Management Agency (FEMA) planning guidance, the City of San Marcos identified 13 hazard types that could occur in the region. Of the hazards identified, 11 natural hazards and 1 quasi-technological hazard (dam failure) were identified as significant and therefore included in the City of San Marcos Hazard Mitigation Action Plan. This data is presented in Table 3. Using a Half-exclusive risk assessment tool, community's hazards were ranked and given a value between 100 and 0 according to risk based on the quantified impacts to Health and Safety, Property Damage, Business Continuity/Resiliency, and Citizen Perception/Concern.

Table 3 Hazard Identification Ranking

Ranking Order	Hazard	Risk Ranking Value
1	Floods	99.5
2	Drought	94.1
3	Dam/Levee Failure	91.3
4	Severe Winter Storms	72.9
5	Tornadoes	70.9
6	Extreme Heat	70.0
7	Wildfire	51.9
8	Wind Storms	51.0
9	Lightning	50.8
10	Hail Storms	44.7
11	Expansive Soils	43.2
12	Earthquakes	35.9
13	Hurricanes/Tropical Storms	33.8

Source: City of San Marcos Hazard Mitigation Plan Update 2017

The CDBG-Mitigation risk assessment addresses all hazards identified in the City of San Marcos Hazard Mitigation Plan. More detailed analyses are provided on hazards which have impacted San Marcos significantly in recent years. These are the risks that are considered to have the highest potential for consequences for the City of San Marcos.

FEMA recently defined Community Lifelines for the purposes of incident response, allowing the federal government to better understand the impacts of hazards and disasters in states and local jurisdictions. While the City of San Marcos Hazard Mitigation Plan does not currently evaluate hazards using these lifelines, future risk assessments and plans will include lifeline assessments to align with this federal initiative. The lifelines assessed, including their components are shown in Table 4.

Table 4 Community Lifeline Components

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

Source: FEMA Community Lifelines Toolkit 2.0

Ensuring the resiliency of Community Lifelines is an important concept in all phases of emergency management, including mitigation. To quantitatively assess lifelines, the City of San Marcos is evaluating known facilities and infrastructure to support each lifeline and conducting geographic assessments of each with known hazard zones. The quantitative assessment is limited to flood risks. A preliminary assessment of each lifeline by hazard is provided in this section using vulnerability and consequence/impact assessments for each of the seven community lifelines. The classifications of vulnerability and consequences are shown in Table 5 and Table 6, respectively. These assessments are presented at the end of each hazard section. Consequence analysis may include all components of a lifeline or be isolated to one or two components or subcomponents that are critical in a given hazard condition.

Table 5 Vulnerability Classifications

Vulnerability	Description
High Vulnerability	Geographically widespread exposure of facilities and systems to the damaging effects of a hazard AND the lifeline has low resilience to a hazard.
Moderate Vulnerability	The geographic exposure of facilities and systems to a hazard is widespread OR the lifeline has a low resilience to a hazard and the hazard is geographically isolated.
Low Vulnerability	Exposure of facilities and systems related to a community lifeline are geographically isolated or the system itself has significant resilience to the hazard.

Source: City of San Marcos OEM

Table 6 Consequence Classifications

Consequence	Description
Low Impact to Lifeline/Services	In the worst, most probable hazard situation, services and infrastructure are fully functioning within hours of onset of the hazard condition.
Moderate Impact to Lifeline/Services	In the worst, most probable hazard situation, services and infrastructure are functioning within days of onset of the hazard condition.
Significant Impact to Lifeline/Services	In the worst, most probable hazard situation, services and infrastructure are functioning within weeks of onset of the hazard condition.

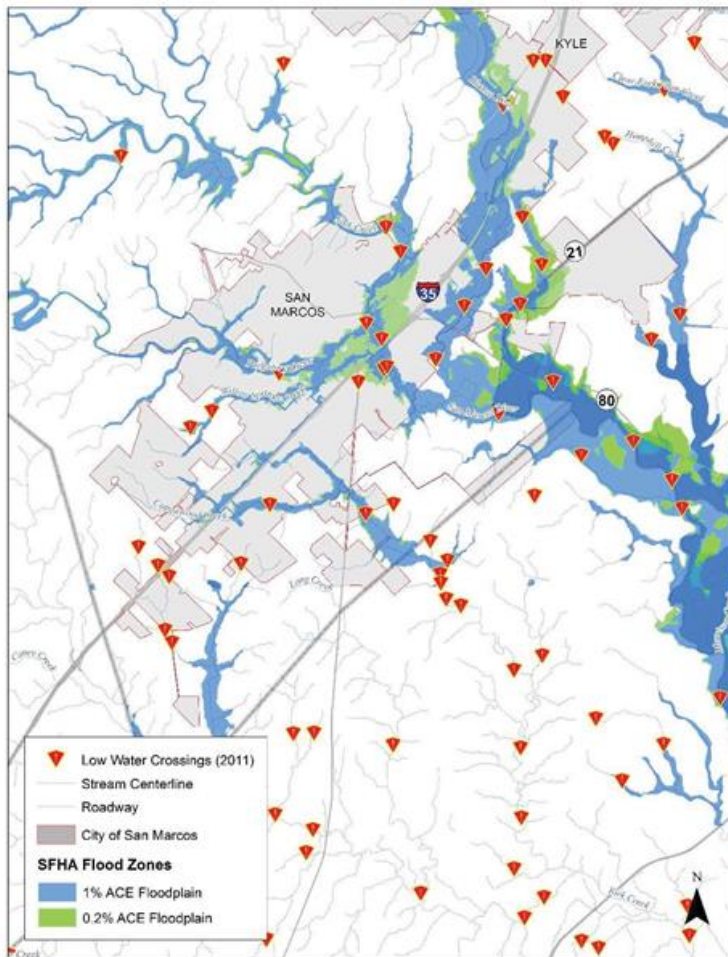
Source: City of San Marcos OEM

i. Flood

According to the City's Hazard Mitigation Plan, flooding is the foremost hazard that threatens the City of San Marcos. The severity of a flood event is determined by a combination of several major factors including: stream and river basin topography and physiography; precipitation and weather patterns; antecedent; recent soil moisture conditions; the degree of vegetative clearing and impervious surfaces; and drainage system capacity and condition of infrastructure. Floods can be short-term or long-term in duration, ranging from several hours to several days.

The location of low water crossings, as well as the 1% (100-year) and 0.2% (500-year) Annual Chance Event (ACE) floodplains for the City of San Marcos are shown in Figure 3. This figure represents the locations within the planning area that are most affected by riverine flooding and is based upon newly developed hydrologic and hydraulic analysis. The new analysis is considered the best information available to date. The total acreage of the city that is located in the 1% floodplain is 4,250 acres and 0.2% is 5,938 acres. The new Atlas 14 data indicates the average 24-hour precipitation depth for a 1% flood event is 13.3 inches and the .02% is 19.9 inches. Both events represent a significant increase over the previous USGS 1998 depths.

Figure 3 Special Flood Hazard Areas and Low Water Crossings, City of San Marcos



Source: City of San Marcos Hazard Mitigation Plan

According to the NOAA Storm Events Database, there were eight (8) documented flood events listed for the City of San Marcos and 69 documented events listed for Hays County from year 1997. While NOAA Storm Events Database lists events since 1997 for the County, events were not documented per jurisdiction until 2004. The flood events reported for the City of San Marcos are shown in Table 7.

Table 7 Flood Events, City of San Marcos

Location	Date	Type
San Marcos	11/14/2004	Flash Flood
San Marcos	9/8/2010	Flash Flood
San Marcos	5/13/2014	Flash Flood
San Marcos	5/27/2014	Flash Flood
San Marcos Lowman AR	5/30/2015	Flash Flood
San Marcos	6/28/2015	Flash Flood
San Marcos	5/19/2016	Flash Flood
San Marcos	9/26/2016	Flash Flood

Source: City of San Marcos Hazard Mitigation Plan

According to NOAA Storm Events Database, in October of 2013 (Disaster 4159-DR), a surface trough was the focus of trailing storms which produced heavy rainfall that led to major flooding across the Onion Creek and Blanco/San Marcos River watersheds. Thunderstorms produced heavy rain that led to flash flooding in Wimberley, San Marcos, Buda, and Kyle. Public reports stated that 14 inches of rain fell near Wimberley and this rainfall made its way into the Blanco River and Onion Creek Watersheds. The Blanco River flooded and major flooding occurred downstream to San Marcos. The Blanco River crested at 26.74 feet in Wimberley. Flooding then occurred in the San Marcos River as the flood wave crossed IH-35 in San Marcos. Sections of San Marcos flooded near the Blanco River, including areas of Texas State University and areas along River Road, where several evacuations of residences occurred. The Blanco River was 100 feet out of its banks. In many areas along the Blanco River, debris was found 15 to 20 feet off the ground.

In May of 2015 (Disaster 4223-DR), a historic flash flood occurred on the Blanco River. Hundreds of homes were destroyed along the river from the City of Blanco down into Wimberley and San Marcos. The flood wave continued downstream for days, affecting residents and homes along the San Marcos and Guadalupe Rivers. Thunderstorms produced more heavy rain that caused flash flooding. Downstream from the bridge, the Blanco River reached a record crest. The gage failed at 40 feet and the USGS later estimated the crest at 44.9 feet. This height was more than 10 feet over the previous record height of 33.3 feet from 1929. Homes along the banks of the Blanco River down to San Marcos experienced a historic flood. Many homes were totally destroyed and swept downstream. Other homes were struck by large debris, including full-sized cypress trees that typically lined the banks of the river. The river experienced rises that exceeded 20 feet within 1 hour.

In October of 2015 (Disaster 4245-DR), a warm front combined with an upper level trough and deep moisture produced heavy rainfall and severe thunderstorms across much of South-

Central Texas on October 30th and 31st. Excessive rainfall resulted in widespread flash flooding along the IH-35 corridor. Rainfall rates of five (5) to seven (7) inches per hour fell, from northern San Marcos through South Austin. Some rainfall totals exceeded 10 inches. Record flooding occurred with river and creek flooding being extensive. The Blanco River in San Marcos crested at 42 feet creating another 1% flood event for the second time in 2015. Many areas, especially San Marcos, compared this flooding to the record flooding of October 1998.

Figure 4 2015 Flood Event in San Marcos, TX



The City of San Marcos has the most Repetitive Loss payments in all of Hays County. This can obviously be attributed to the fact that the population is higher, but can also be related to proximity to the San Marcos River, the number of Pre-FIRM homes that were built before the Flood Damage Prevention Ordinance was adopted, and also the occurrences of localized flooding that occur outside of the Special Flood Hazard Area where elevation is not required.

According to community testimony, there are also a limited number of locations where mobility issues could create issues during flood events. There is a daycare at risk due to flooding and access to several group homes and other facilities where people are non-ambulatory and unable to seek higher ground on their own. Areas with low water crossings that become overtopped are also an issue for emergency services access and the ability for residents to enter or exit their residences.

The City of San Marcos is a current participant in the National Flood Insurance Program (NFIP) and has 247 tallied Repetitive Loss payments (as of September of 2016) with an average total (building & contents) payment of \$37,560.76. Table 8 identifies the number of structures and claimed costs associated with the program in San Marcos. A summary assessment of flood hazard vulnerability and impacts to the community lifelines is presented in Table 10.

Table 8 NFIP Repetitive Loss for San Marcos

Structure Type	Number of Structures	Total Amount of Claims
Residential	107	\$8,905,976.65
Non-Residential	3	\$371,530.54

Source: City of San Marcos Hazard Mitigation Plan

Table 9 Flood Vulnerability and Consequence Summary by Lifeline

Flood	Vulnerability	Consequence
Safety and Security	High Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	High Vulnerability	Significant Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	High Vulnerability	Significant Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Significant Impact to Lifeline/Services
Hazardous Material (Mgmt)	High Vulnerability	Significant Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Significant Impact to Lifeline/Services

Source: City of San Marcos OEM

ii. Drought

According to the State of Texas Hazard Mitigation Plan 2018, drought is the consequence of a natural reduction in the amount of precipitation expected for a given area or region over an extended period of time, usually a season or more in length. The US Drought Monitor Drought Intensity scale classifies drought by five (5) categories shown in Table 10, D0 through D4. According to the reported drought occurrences, the maximum drought extent experienced is a Category D4 drought.

Table 10 Drought Intensity Index

Category	Description	Possible Impacts
D0	Abnormally Dry	<p><i>Going into drought:</i></p> <ul style="list-style-type: none"> • short-term dryness slowing planting, growth of crops or pastures <p><i>Coming out of drought:</i></p> <ul style="list-style-type: none"> • some lingering water deficits • pastures or crops not fully recovered
D1	Moderate Drought	<ul style="list-style-type: none"> • Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested
D2	Severe Drought	<ul style="list-style-type: none"> • Crop or pasture losses likely • Water shortages common • Water restrictions imposed
D3	Extreme Drought	<ul style="list-style-type: none"> • Major crop/pasture losses • Widespread water shortages or restrictions
D4	Exceptional Drought	<ul style="list-style-type: none"> • Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies

Source: U.S. Drought Monitor

Drought occurs on a regional scale. The entire planning area is equally at risk as it can occur anywhere within the community. NOAA Storm Events Database documents 27 drought events for Hays County since the year 1996. Although there were no drought events reported

specifically for San Marcos, all communities within Hays County would have been affected by the events that were reported for the surrounding County area.

Based on six (6) years with reported drought events from the NOAA Storm Events Database within 20 years, a drought event occurs approximately once every three (3) years on average. All communities within the county are assumed to experience drought reported for the surrounding County areas, and therefore can expect a drought event approximately once every three (3) years on average, up to a Stage D4.

Impacts reported at the County level are applicable in illustrating impact to the San Marcos planning area. As indicated by Table 11, multiple assets are impacted during a drought event. The highest reported impact is water supply and quality for residents being impacted by low availability, resulting in the need for restrictions. As a cascading impact, low water levels affect water pressure needed for firefighting in residential and brush fire situations. Agricultural resources are also strained as water is critical to operations for farmers and ranchers who tend to their crops and animals. Other assets impacted include the effect on water-dependent businesses losing revenue, and interruptions or shortages for water-dependent energy generation. Dying plants and wildlife, and impacts to society are also experienced during a drought. In addition, low river levels deter tourists from visiting San Marcos, impacting tourism and recreation revenue.

Table 11 Reported Drought Impacts, Hays County 1996-2016

Category	# of Incidents Reported
Agriculture	45
Business & Industry	3
Energy	2
Fire	24
Plants & Wildlife	33
Relief, Response & Restrictions	48
Society & Public Health	7
Tourism & Recreation	3
Water Supply & Quality	53

Source: Hays County Hazard Mitigation Plan Update 2017

There are wells and pumps in the City that provide the water supply, and those are vulnerable to drought. The City has a backup contract with Canyon Lake for emergency water situations, to lessen the impact of water shortage. River levels directly impact the tourism activity of the City. When drought periods are occurring, low water levels inhibit the ability for tourists to float down the river. A decrease in visitors directly impacts tax revenue from the sales that typically come in during those seasons for tubing vendors and also other economic outlets throughout the area. There is a power generation plant dependent on water in the City. Effluent water that has been through wastewater treatment is sold to the electrical generation plants for the purposes of cooling their engines. Another vulnerability is the impact of drought on the small amount of farmland within the City limits. Periods of drought in San Marcos can lead to cascading disaster scenarios such as wildfire due to the increase in dried vegetation that

can in turn increase wildfire risk. A summary assessment of drought hazard vulnerability and impacts to the community lifelines is presented in Table 12.

Table 12 Drought Vulnerability and Consequence Summary by Lifeline

Flood	Vulnerability	Consequence
Safety and Security	High Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	High Vulnerability	Significant Impact to Lifeline/Services
Communications	Low Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Low Vulnerability	Significant Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Significant Impact to Lifeline/Services
Hazardous Material (Mgmt)	Low Vulnerability	Significant Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Significant Impact to Lifeline/Services

Source: City of San Marcos OEM

iii. Dam/Levee Failure

Any individual dam has a very specific area that will be impacted by a catastrophic failure. Dams identified with potential risk can directly threaten the lives of individuals living or working in the inundation zone below the dam. The impact from any catastrophic failure would be similar to that of a flash flood. Potential impacts for the planning area include:

- Lives could be lost.
- There could be injuries from impacts with debris carried by the flood.
- Swift-water rescue of individuals trapped by the water puts the immediate responders at risk for their own lives.
- Individuals involved in the cleanup may be at risk from the debris and contaminants.
- Continuity of operations for any jurisdiction outside the direct impact area could be very limited.
- Roads and bridges could be destroyed.
- Homes and businesses could be damaged or destroyed.
- Emergency services may be temporarily unavailable.
- Disruption of operations and the delivery of services in the impacted area.
- A large dam with a high head of water could effectively scour the terrain below it for miles, taking out all buildings, and other infrastructure.
- Scouring force could erode soil and any buried pipelines.
- Scouring action of a large dam will destroy all vegetation in its path.
- Wildlife and wildlife habitat caught in the flow will likely be destroyed.
- Fish habitat will likely be destroyed.
- Topsoil will erode, slowing the return of natural vegetation.
- The destructive high velocity water flow may include substantial debris and hazardous materials, significantly increasing the risks to life and property in its path.
- Debris and hazardous material deposited downstream may cause further pollution of areas far greater than the inundation zone.
- Destroyed businesses and homes may not be rebuilt, reducing the tax base and impacting long term economic recovery.
- Historical or cultural resources may be damaged or destroyed.

- Recreational activities and tourism may be temporarily unavailable or unappealing, slowing economic recovery.

The economic and financial impacts of dam failure on the area will depend entirely on the location of the dam, scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the government, community, local businesses, and residents will also contribute to the overall economic and financial conditions in the aftermath of any dam failure event. A summary assessment of dam failure hazard vulnerability and impacts to the community lifelines is presented in Table 13.

Table 13 Dam Failure Vulnerability and Consequence Summary by Lifeline

Dam Failure	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Significant Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Significant Impact to Lifeline/Services
Communications	Moderate Vulnerability	Significant Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Significant Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Significant Impact to Lifeline/Services
Hazardous Material (Mgmt)	Moderate Vulnerability	Significant Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Significant Impact to Lifeline/Services

Source: City of San Marcos OEM

iv. Severe Winter Storms

A winter storm event is identified as a storm with primarily snow, ice, or freezing rain. Winter storms are associated with the combined effects of winter precipitation and strong winds creating a dangerous wind chill, or perceived air temperature. This type of storm can cause significant problems for area residents due to snow, ice hazards, and cold temperatures. Wind chill is a function of temperature and wind. Low wind chill is a product of high winds and freezing temperatures.

Severe winter storms occur on a regional scale; therefore, all of the planning area is equally at risk. NOAA Storm Events Database documents 13 winter storm events for Hays County since the year 1996. Although there were no winter storm events reported specifically for San Marcos, the entire planning area would have been affected by the events that were reported for the surrounding County area. Based on the 13 reported events from the NOAA Storm Events Database, a winter weather event occurs approximately every two (2) years on average in Hays County. Since these events occur on a regional scale, the entire planning area's probability is assumed to be similar to the surrounding County area and can expect a winter weather event approximately once every two (2) years on average.

About half of San Marcos' power lines are on poles. This poses a vulnerability due to the impact on electricity to homes and businesses during cold temperatures when an accumulation of ice and snow on branches could cause them to fall on the exposed power lines. Dangerous road conditions pose a threat to San Marcos due to the large number of residents and student populations that drive into the City for classes at Texas State University. The City has a dump truck that is used to drop sand onto the streets, however this is not the most effective method

for spreading sand for icy roads. School buses often have problems during icy conditions in San Marcos, as well. There are some significant roadways that have alternate routes, but the major thoroughfares for the community are Wonder World Drive, Aquarena Springs and IH-35. All State and Federal roadways are maintained by other entities and outside of the control of the City.

The greatest risk from a winter storm hazard is to public health and safety. Potential impacts for the planning area may include:

- Vulnerable populations, particularly the elderly and infants, can face serious or life-threatening health problems from exposure to extreme cold including hypothermia and frostbite. Houston residents are located far south in Texas and therefore may be even more vulnerable than the general population of the United States based on not having proper outdoor wear and warm weather accessories needed to be in the cold.
- Loss of electric power or other heat sources can result in increased potential for fire injuries or hazardous gas inhalation because residents burn candles for light and use fires or generators to stay warm.
- Response personnel, including utility workers, public works personnel, debris removal staff, tow truck operators, and other first responders are vulnerable to injury or illness resulting from exposure to extreme cold temperatures.
- Response personnel would be required to travel in potentially hazardous conditions, elevating the life safety risk due to accidents, and potential contact with downed power lines.
- Operations or service delivery may experience impacts from electricity blackouts due to winter storms.
- Power outages are possible throughout the planning area due to downed trees and power lines and/or rolling blackouts.
- Critical facilities without emergency backup power may not be operational during power outages.
- Emergency response and service operations may be impacted by limitations on access and mobility if roadways are closed, unsafe, or obstructed.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by ice and snow events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A winter storm event could lead to tree, shrub, and plant damage or death.
- Severe cold and ice could significantly damage agricultural crops.
- Schools may be forced to shut early due to treacherous driving conditions.
- Exposed water pipes may be damaged by severe or late season winter storms at both residential and commercial structures, causing significant damages.
- Cities located in the north have a higher frequency and therefore have more resources allocated yearly to fight and mitigate the impacts of winter storms. The resources here may not be primarily focused on mitigating this risk and therefore do not have the resources prepared and staged like cities in the northern United States.

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

financial conditions in the aftermath of a winter storm event. A summary assessment of winter storm hazard vulnerability and impacts to the community lifelines is presented in Table 14.

Table 14 Winter Storm Vulnerability and Consequence Summary by Lifeline

Winter Storm	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	High Vulnerability	Significant Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material (Mgmt)	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Significant Impact to Lifeline/Services

Source: City of San Marcos OEM

v. Tornadoes

The entire extent of the City of San Marcos is exposed to some degree of tornado hazard. Since tornadoes can occur at any location, tornado events can be experienced anywhere within the planning area. A tornado is a rapidly rotating column of air extending between, and in contact with, a cloud and the surface of the earth. Tornadoes are among the most violent storms on the planet; the most violent tornadoes are capable of tremendous destruction, with wind speeds of 250 miles per hour (mph) or more. In extreme cases, winds may approach 300 mph. Damage paths can be in excess of one mile wide and 50 miles long.

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

Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale. Since February 2007, the Fujita Scale has been replaced by the Enhanced Fujita Scale (Table 15), which retains the same basic design and six strength categories as the previous scale. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures. For the purposes of this plan, those tornadoes that occurred prior to the adoption of the EF scale will still be mentioned in the Fujita Scale for historical reference.

Table 15 Fujita (F) Scale and Operational Enhanced Fujita (EF) Scale

Fujita (F) Scale			Derived		Operational Enhanced Fujita (EF) Scale	
F Number	Fastest ¼ mile (mph)	3-second gust (mph)	EF Number	3-second gust (mph)	EF Number	3-second gusts (mph)
0	40-72	45-78	0	65-85	---	---
1	73-112	79-117	1	86-109	0	65-85
2	113-157	118-161	2	110-137	1	86-110
3	158-207	162-209	3	138-167	2	111-135
4	208-260	210-261	4	168-199	3	136-165
5	261-318	262-317	5	200-234	4	166-200

Source: Hays County Hazard Mitigation Plan Update 2017

According to the NOAA Storm Events Database, there were three (3) documented tornado events listed for the City of San Marcos and 16 documented events listed for Hays County since the year 1953. While NOAA Storm Events Database lists events since 1953 for the County, events were not documented per jurisdiction until 1997. The tornado events with fatality, injury, and damage amounts reported for the City of San Marcos are listed in Table 16, per the NOAA Storm Events Database. Community testimony indicates that these amounts do not reflect the most recent totals, however NOAA data is used as the best source of information available for the record period.

Table 16 Tornado Events, City of San Marcos

Location	Date	Type	Extent	Fatalities	Injuries	Property Damage	Crop Damage
San Marcos	12/30/2002	Tornado	F0	0	0	0.00	0.00
San Marcos	1/13/2007	Tornado	F1	0	0	50000.00	0.00
San Marcos Lowman AR	10/30/2015	Tornado	EF1	0	0	0.00	0.00
Total				0	0	\$50,000.00	\$0.00

Source: City of San Marcos Hazard Mitigation Plan Update 2017

According to the reported previous tornado occurrences in the planning area, the maximum tornado extent experienced was a category EF1. Based on three (3) reported events in 19 years, the City of San Marcos can expect a tornado event approximately once every six (6) years (on average) in the future, with up to an EF1 magnitude.

The economic and financial impacts of a tornado event on the community will depend on the scale of the event, what is damaged, costs of repair or replacement, lost business days in impacted areas, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a tornado event. A summary assessment of tornado hazard vulnerability and impacts to the community lifelines is presented in Table 17.

Table 17 Tornado Vulnerability and Consequence Summary by Lifeline

Tornado	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Significant Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material (Mgmt)	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Significant Impact to Lifeline/Services

Source: City of San Marcos OEM

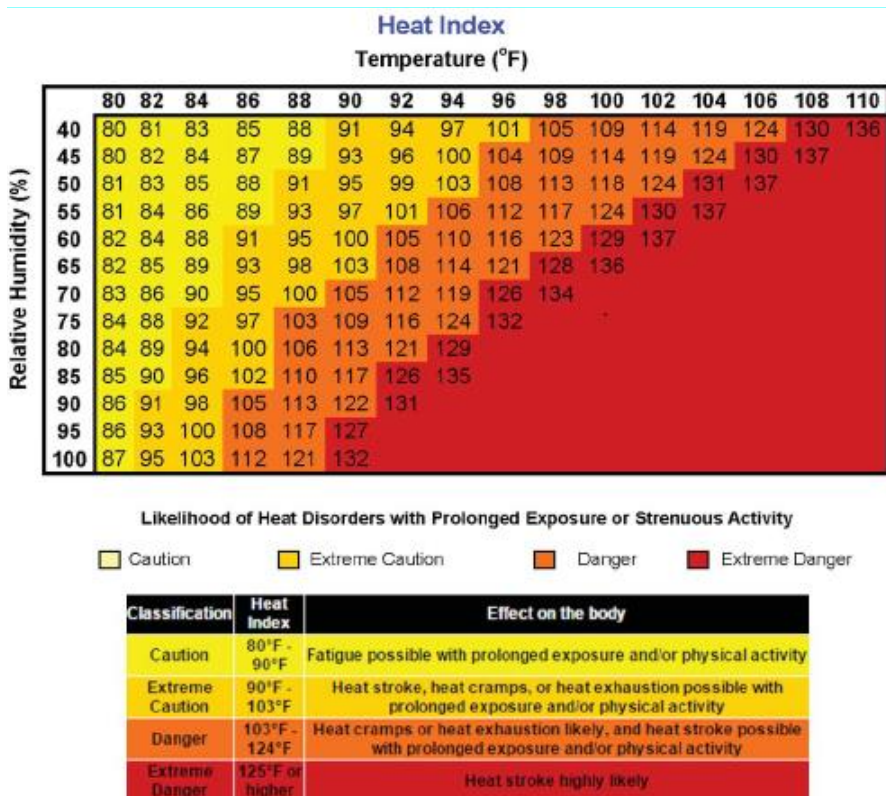
vi. Extreme Heat

Extreme heat is the condition where temperatures hover ten degrees or more above the average temperature in a region for an extended period. Extreme heat is often associated with conditions of high humidity. When these conditions persist over a long period of time, it is defined as a heat wave. Extreme heat during the summer months is a common occurrence throughout the State of Texas, and the City of San Marcos is no exception. Extreme heat occurs on a regional scale; the entire planning area is equally at risk as it can occur anywhere within the city.

According to Canyon Dam Station, the local weather data collection center with comprehensive data within the planning area, the mean number of days with a daily max temperature equal or greater to 90°F is 94 days. Currently, the greatest number of days during which the planning area experienced extreme heat is 119 in 2008 while the highest temperature experienced was 109°F in August 2011 (a “Danger” NWS Heat Index classification). Due to the regional nature of extreme heat occurrence, Canyon Dam Station records apply equally to all participating communities. Figure 5 illustrates NOAA’s National Weather Service (NWS) Heat Index commonly used to provide information on perceived heat and dangers of exposure considering the relationship between air temperature and relative humidity. The heat index value can be increased by up to 15°F if exposed to direct sunlight as the index was created for shady locations.

The extent of extreme heat that the planning area has experienced can be derived from the data provided from NOWData at Canyon Dam Station since the year 2000. The highest daily mean temperature experienced was 109°F in August 2011. This event is classified by the NWS Heat Index as “Danger”. The probability of future events can be determined by assessing historical averages. Since extreme heat events occur on a regional scale, all participating communities’ future probability is assumed to be similar to the area surrounding Canyon Dam Station. Based on NOWData, the planning area can expect, on average, approximately 94 days a year with temperatures equal or greater to 90°F, and up to 109°F, a “Danger” warning classification per the NOAA NWS Heat Index. As extreme heat events have occurred every year since 2000, the probability of extreme heat affecting the planning area is 100% in any given year.

Figure 5 NOAA NWS Heat Index and Exposure



Source: Hays County Hazard Mitigation Plan Update 2017

In addition to the physical impacts, an excessive heat event can also be the cause of cascading incidents. Electrical outages could occur due to the high demands of electricity needed to power cooling systems. A loss of critical resources, such as power, has significant impact on the entire population, with higher impacts to those with vulnerabilities to such conditions.

San Marcos does not have a cooling station plan for the community but does have locations available in order to cool people. They have also held fan drives that provide box fans to the senior adult population in need. This project is a volunteer-run effort that utilizes some of the emergency services district stations as donation drop-off points. There are over 15,000 residents classified within the Community Vulnerable Populations (those over age 65, under age 16, and those economically disadvantaged) in San Marcos. These members of the community are financially impacted by the increased cost of energy for cooling homes during long periods of extreme heat and can also be impacted. In addition, San Marcos has a small homeless population that sleep outside, under bridges, and in parks and wooded areas. This population would be especially impacted by the dangerous temperatures of extreme heat events. A summary assessment of extreme heat hazard vulnerability and impacts to the community lifelines is presented in Table 18.

Table 18 Extreme Heat Vulnerability and Consequence Summary by Lifeline

Extreme Heat	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Moderate Vulnerability	Low Impact to Lifeline/Services
Transportation	Low Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Low Impact to Lifeline/Services
Hazardous Material (Mgmt)	Moderate Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Moderate Impact to Lifeline/Services

Source: City of San Marcos OEM

vii. Wildfire

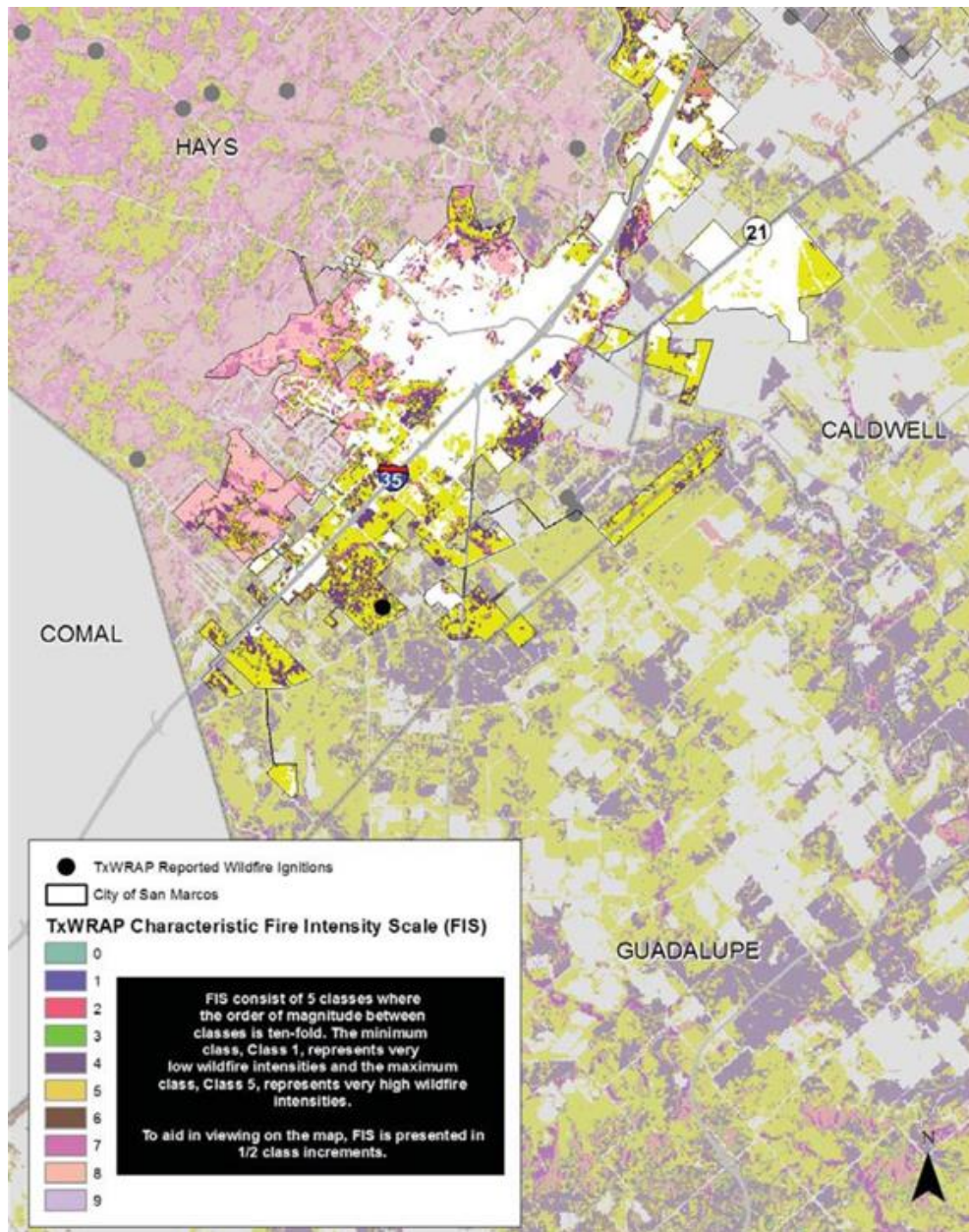
A wildfire event can rapidly spread out of control and occurs most often in the summer, when the brush is dry and flames can move unchecked through a highly vegetative area. Wildfires can start as a slow burning fire along the forest floor, killing and damaging trees. The fires often spread more rapidly as they reach the tops of trees, with wind carrying the flames from tree to tree. Usually, dense smoke is the first indication of a wildfire. A wildfire event often begins unnoticed and spreads quickly, lighting brush, trees, and homes on fire. For example, a wildfire may be started by a campfire that was not doused properly, a tossed cigarette, burning debris, or arson.

Texas has seen a significant increase in the number of wildfires in the past 30 years, which included wildland, interface, or intermix fires. Wildland Urban Interface or Intermix (WUI) fires occur in areas where structures and other human improvements meet or intermingle with undeveloped wildland or vegetative fuels. Wildland fires are fueled almost exclusively by natural vegetation while interface or intermix fires are urban/wildland fires in which vegetation and the built-environment provide the fuel.

A wildfire event can be a potentially damaging consequence of drought. Wildfires can vary greatly in terms of size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in open grasslands. The threat to people and property from a wildfire event is greater in the fringe areas where developed areas meet open grass lands.

The Texas Forest Service reported one (1) wildfire event between 2005 and 2015. The National Centers for Environmental Information (NCEI) did not include any wildfire events from 1996 through August 1, 2017. The Texas Forest Service (TFS) and volunteer fire departments started fully reporting events in 2005. Due to a lack of recorded data for wildfire events prior to 2005 and after 2015, frequency calculations are based on an eleven-year period, using only data from recorded years. The map below shows the approximate location of the wildfire (Figure 6) based on Texas A&M Forest Service's Texas Wildfire Risk Assessment Portal (TxWRAP).

Figure 6 Reported Wildfire Ignitions for San Marcos, TX and the Fire Intensity Scale (FIS)



Source: City of San Marcos Hazard Mitigation Plan Update 2017

Based on one (1) reported event in 35 years, the City of San Marcos’ future probability of a wildfire event is approximately once every 35 years (on average), with up to a potential fire intensity of 4.5, or “High” classification on the TxWRAP FIS. Table 19 below lists the Fire Intensity Acreage for the City, according to the Texas A&M Forest Service Community Summary Report.

Table 19 Fire Intensity Acreage, City of San Marcos

Class	Acres	Percent
Non-Burnable	10,065	49.20%
1 (Very Low)	547	2.70%
1.5	844	4.10%
2 (Low)	216	1.10%
2.5	1,538	7.50%
3 (Moderate)	4,573	22.30%
3.5	525	2.60%
4 (High)	527	2.60%
4.5	1,631	8.00%
5 (Very High)	0	0.00%
Total	20,467	100.00%

Source: City of San Marcos Hazard Mitigation Plan Update 2017

A wildfire event poses a potentially significant risk to public health and safety, particularly if the wildfire is initially unnoticed and spreads quickly. The impacts associated with a wildfire are not limited to the direct damages. Impacts on the community can be measured using TxWRAP housing density levels within the WUI. Areas with a higher housing and population density would be affected to a greater extent than rural areas, especially in areas near burnable fuels. In the event of a wildfire in high density areas of population, residential structures would be damaged or destroyed, critical infrastructure such as water, sewer and electrical services would be interrupted and residents would experience injury or loss of life. Table 20 lists the population, percent of total population, WUI acreage and percent of WUI acreage for the City of San Marcos, according to the Texas A&M Forest Service TxWRAP Community Summary Report.

Table 20 WUI Acreage, City of San Marcos

Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
LT 1hs/40ac	30	0.10%	1,620	16.40%
1hs/40ac to 1hs/20ac	35	0.10%	698	7.10%
1hs/20ac to 1hs/10ac	84	0.30%	909	9.20%
1hs/10ac to 1hs/5ac	302	1.00%	984	9.90%
1hs/5ac to 1hs/2ac	755	2.50%	1,413	14.30%
1hs/2ac to 3hs/1ac	11,502	38.80%	3,164	32.00%
GT 3hs/1ac	16,929	57.10%	1,103	11.20%
Total	29,637	100.00%	9,891	100.00%

Source: City of San Marcos Hazard Mitigation Plan Update 2017

Potential impacts for the planning area include:

- Persons in the area at the time of the fire are at risk for injury or death from burns and/or smoke inhalation.
- First responders are at greater risk of physical injury since they are in close proximity to the hazard while extinguishing flames, protecting property or evacuating residents in the area.
- First responders can experience heart disease, respiratory problems, and other long-term related illnesses from prolonged exposure to smoke, chemicals, and heat.
- Emergency services may be disrupted during a wildfire if facilities are impacted, and roadways are inaccessible or personnel are unable to report for duty.
- Critical city and/or county departments may not be able to function and provide necessary services depending on the location of the fire and the structures or personnel impacted.
- Non-critical businesses may be directly damaged, suffer loss of utility services, or be otherwise inaccessible, delaying normal operations and slowing the recovery process.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility.
- Older homes are generally exempt from modern building code requirements, which may require fire suppression equipment in the structure.
- Some high-density neighborhoods feature small lots with structures close together, increasing the potential for fire to spread rapidly.
- Air pollution from smoke may exacerbate respiratory problems of vulnerable residents.
- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- Wildfires can cause erosion, degrading stream water quality.
- Historical or cultural resources may be damaged or destroyed.
- Tourism can be significantly disrupted, further delaying economic recovery for the area.
- Economic disruption negatively impacts the programs and services provided by the community due to short and long-term loss in revenue.
- Fire suppression costs can be substantial, exhausting the financial resources of the community.
- Residential structures lost in a wildfire may not be rebuilt for years, reducing the tax base for the community.
- Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground delivery lines, and soil erosion or debris deposits into waterways after the fire.
- The City of Houston includes 1,700 acres of total park space. Recreation activities throughout the city's parks may be unavailable and tourism can be unappealing for years following a large wildfire event, devastating directly related local businesses and negatively impacting economic recovery.

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

businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a wildfire event.

A summary assessment of wildfire hazard vulnerability and impacts to the community lifelines is presented in Table 21.

Table 21 Wildfire Vulnerability and Consequence Summary by Lifeline

Wildfire	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Moderate Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Communications	Low Vulnerability	Significant Impact to Lifeline/Services
Transportation	Low Vulnerability	Significant Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Moderate Impact to Lifeline/Services
Hazardous Material (Mgmt)	Low Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Moderate Impact to Lifeline/Services

Source: City of San Marcos OEM

viii. Wind Storms

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

The entire extent of the City of San Marcos is exposed to some degree of wind hazard. Since wind can occur at any location, wind events could be experienced anywhere within the planning area. According to the NOAA Storm Events Database, there were 17 documented wind events listed for the City of San Marcos and 38 documented events listed for Hays County and its unincorporated jurisdictions from year 1974. While the NOAA Storm Events Database lists events since 1974 for the County, events were not documented per jurisdiction until 1994. Wind is measured by the Beaufort Wind Scale that relates wind speed to observed conditions on land and sea. According to the reported previous windstorm occurrences in the planning area, the maximum wind extent experienced was 70 knots (corresponding to Beaufort Wind Scale Classification: Hurricane). Based on 17 reported events in 22 years, the City of San Marcos can expect a wind event of up to 70 knots approximately once every year (on average) in the future.

City level data available from the Texas Department of Transportation's Crash Records Information System shows that between the years of 2010 and 2017, the City of San Marcos experienced two (2) crashes related to severe crosswind weather conditions. There were no reported injuries from these crash events.

Structures can be damaged by flying debris and impact from winds, damaging rooftops and causing other structural damage. Manufactured homes are especially vulnerable to damage that high winds can cause, to include destruction in the most extreme event conditions. Critical infrastructure, such as utility poles and street signals, could also be disrupted, impacting all

residents in the affected area. Debris on the roadway can also cause obstruction for emergency responders' ability to provide services.

Significant wind events in San Marcos have caused structural damage in the past. According to verbal community testimony (which is integrated into impact and vulnerability as NOAA and NWS reported datasets are utilized for occurrence and extent analysis), there was a previous windstorm in 2011 that caused damage to the Police Department and airport. In addition, it was stated that there were several roofs blown off of community apartment complexes. Additionally, the vulnerability of critical facilities within the community are a concern for the continuity of services to the public. An additional concern is the small number of manufactured home communities and mobile home parks. These structures are more vulnerable to severe winds than a site-built home. These types of residences make up less than 10% of the homes in San Marcos.

There are many sites of critical facilities and infrastructure and non-critical public facilities that are located within the City (according to spatial HAZUS data and community submitted critical facility data) that are not retrofitted to mitigate damages from extreme wind events. Damages sustained by an extreme wind event to these facilities could hinder the ability to provide crucial services needed by the community. These facilities include:

- Hays County Dispatch,
- San Marcos Activity Center,
- Southside Community Center,
- San Marcos Fire Departments,
- San Marcos Police Department,
- Texas State University Police Department,
- Central Texas Medical Center,
- San Marcos City Hall,
- Hays County Health Department,
- and Hays County Government Center

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

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees, causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During exceptionally heavy wind events, first responders may be prevented from responding to calls, as the winds may reach a speed in which their vehicles and equipment are unsafe to operate.

- Wind events may result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
 - Extended power outages often result in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
- Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.
- Critical staff may be unable to report for duty, limiting response capabilities.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.
- Private sector entities that the City and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by wind events may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to high winds.
- Large scale wind events can have significant economic impact on the affected area, as it must now fund expenses such as infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, as well as normal day-to-day operating expenses.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

The economic and financial impacts of high winds on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any wind event. A summary assessment of wind hazard vulnerability and impacts to the community lifelines is presented in Table 22.

Table 22 Wind Vulnerability and Consequence Summary by Lifeline

Wind	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Low Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Low Vulnerability	Moderate Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Low Impact to Lifeline/Services
Hazardous Material (Mgmt)	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Significant Impact to Lifeline/Services

Source: City of San Marcos OEM

ix. Lightning

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

According to Federal Emergency Management Agency (FEMA), an average 300 people are injured and 80 people are killed in the United States each year by lightning. Direct lightning strikes also have the ability to cause significant damage to buildings, critical facilities, and infrastructure. Lightning is also responsible for igniting wildfires that can result in widespread damages to property before firefighters have the ability to contain and suppress the resultant fire.

Based on historical records, the U.S. National Lightning Detection Network, and input from the planning team, the probability of occurrence for future lightning events in the City of San Marcos planning area is considered highly likely. NOAA’s Severe Weather Data Inventory (SWDI) provides the ability to search through National Climatic Data Center (NCDC) archives for data on a county level. SWDI provided historical lightning counts for Hays County from 1986 through 2013. These counts are archived per day. Over the time period, there were 1,667 days with at least one lightning strike in the County (National Climatic Data Center, 2017). Based on the 10,007 days of data presented in the reporting period from 1986 to 2013, there were 1,667 days with at least one lightning event within the County (16.6% of the total days). Those event days resulted in an average of 105 strikes per day with a maximum strike of count of 3,076 in one day.

The planning area can expect a lightning event once every six (6) days in the future with up to a maximum of 3,076 strikes in one day. Since these events can happen anywhere throughout the HMP update area, the entire planning area’s probability is assumed to be similar to the surrounding County area. Given this estimated frequency of occurrence, it can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the planning area.

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

- The City of San Marcos includes 1,700 acres of total park space. Lightning events could impact recreational activities, placing residents and visitors in imminent danger, potentially requiring emergency services or park evacuation.
- Individuals exposed to the storm can be directly struck, posing significant health risks and potential death.
- Structures can be damaged or crushed by falling trees damaged by lightning, which can result in physical harm to the occupants.
- Lightning strikes can result in widespread power outages, increasing the risk to more

- vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages often result in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Lightning strikes can be associated with structure fires and wildfires, creating additional risk to residents and first responders.
- Emergency operations and services may be significantly impacted due to power outages and/or loss of communications.
- City departments may be damaged, delaying response and recovery efforts for the entire community.
- Economic disruption due to power outages and fires negatively impacts the programs and services provided by the community due to short and long-term loss in revenue.
- Some businesses not directly damaged by lightning events may be negatively impacted while utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

The economic and financial impacts of lightning on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any lightning event. A summary assessment of lightning hazard vulnerability and impacts to the community lifelines is presented in Table 23.

Table 23 Lightning Vulnerability and Consequence Summary by Lifeline

Lightning	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Low Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Low Impact to Lifeline/Services
Hazardous Material (Mgmt)	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Moderate Impact to Lifeline/Services

Source: City of San Marcos OEM

x. Hail Storms

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

Higher temperature gradients above Earth’s surface result in increased suspension time and hailstone size. The National Weather Service (NWS) classifies a storm as “severe” if there is hail 3/4 of an inch in diameter (approximately the size of a penny) or greater, based on radar intensity or as seen by observers. The intensity category of a hailstorm depends on hail size and the potential damage it could cause, as depicted in the TORRO Hailstorm Intensity Scale in Table 24.

The entire extent of the City of San Marcos is exposed to some degree of hail hazard. Since hail can occur at any location, hail events could be experienced anywhere within the planning area. According to the NOAA Storm Events Database, there were 23 documented hail events listed for the City of San Marcos and 57 documented events listed for Hays County and its unincorporated jurisdictions from year 1967. While the NOAA Storm Events Database lists events since 1967 for the County, events were not documented per jurisdiction since the year 1993.

The Tornado and Storm Research Organization (TORRO) created a hail extent index to measure hail called the Hailstorm Intensity Scale. According to the reported previous hail occurrences in the planning area, the maximum hail extent experienced was up to 4.5 in., or 114.30 mm. in diameter. This size corresponds to a TORRO Hailstorm Intensity Scale classification of “Super Hailstorm.”

Table 24 TORRO Hailstorm Intensity Scale

Size Code	Intensity Category	Size (Diameter Inches)	Descriptive Term	Typical Damage
H0	Hard Hail	Up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33 – 0.60	Marble	Slight damage to plants and crops
H2	Potentially Damaging	0.60 – 0.80	Dime	Significant damage to plants and crops
H3	Severe	0.80 – 1.20	Nickel	Severe damage to plants and crops
H4	Severe	1.2 – 1.6	Quarter	Widespread glass and auto damage
H5	Destructive	1.6 – 2.0	Half Dollar	Widespread destruction of glass, roofs, and risk of injuries
H6	Destructive	2.0 – 2.4	Ping Pong Ball	Aircraft bodywork dented and brick walls pitted
H7	Very Destructive	2.4 – 3.0	Golf Ball	Severe roof damage and risk of serious injuries
H8	Very Destructive	3.0 – 3.5	Hen Egg	Severe damage to all structures
H9	Super Hailstorms	3.5 – 4.0	Tennis Ball	Extensive structural damage, could cause fatal injuries
H10	Super Hailstorms	4.0 +	Baseball	Extensive structural damage, could cause fatal injuries

Source: Hays County Hazard Mitigation Plan Update 2017

Table 25 TORRO Hailstorm Diameter Index

Size Code	Maximum Diameter (mm)	Description
0	5-9	Pea
1	10-15	Mothball
2	16-20	Marble, grape
3	21-30	Walnut
4	31-40	Pigeon's egg > squash ball
5	41-50	Golf ball > Pullet's egg
6	51-60	Hen's egg
7	61-75	Tennis ball > cricket ball
8	76-90	Large orange > Soft ball
9	91-100	Grapefruit
10	>100	Melon

Source: Hays County Hazard Mitigation Plan Update 2017

Based on 23 reported events in 23 years, the City of San Marcos can expect a hail event approximately once every year (on average) in the future, with hail up to 4.5 in., or 114.30 mm. in diameter, corresponding to a TORRO Hailstorm Intensity Scale classification of “Super Hailstorm.”

Hail events in the area have been reported to cause up to \$100,000,000 in property damages and \$500,000 in crop damages according to NOAA reports for the City. Additional potential impacts can be determined based on the maximum hail extent experienced (114.30 mm).

Data provided by NOAA lists the highest diameter of hail to be 4.5”, however community testimony indicates that the hailstorm of 2003 actually produced 6” diameter hail. (For the purposes of consistency with analysis data sources, NOAA/NWS datasets were used to determine extent and probability for all communities, while verbal community testimony was integrated into impact and vulnerability). The damage experienced during this storm made 6” holes in windshields and caused significant damage to the roof at the City shopping mall. There is a variety of roof types for the public facilities in San Marcos, to include composition, built-up, and metal roofs. The City of San Marcos is the Hays County Seat and many critical facilities are located within the City. These have varying levels of vulnerability to hail.

Hail events have the potential to pose a significant risk to people and can create dangerous situations. Impacts to the planning area can include:

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

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

The economic and financial impacts of hail will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning conducted by the community, local businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of any hail event. A summary assessment of hail hazard vulnerability and impacts to the community lifelines is presented in Table 26.

Table 26 Hail Vulnerability and Consequence Summary by Lifeline

Hail	Vulnerability	Consequence
Safety and Security	Moderate Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Moderate Vulnerability	Moderate Impact to Lifeline/Services
Transportation	Low Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Low Impact to Lifeline/Services
Hazardous Material (Mgmt)	Moderate Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	Moderate Vulnerability	Low Impact to Lifeline/Services

Source: City of San Marcos OEM

xi. Expansive Soils

Expansive soils are soils and soft rocks with a relatively high percentage of clay minerals that are subject to changes in volume as they swell and shrink with changing moisture conditions. Drought conditions can cause soils to contract in response to a loss of soil moisture.

Expansive soils contain minerals such as smectite clays that are capable of absorbing water. When these clays absorb water, they increase in volume and expand. Expansions in soil of 10 percent or more are not uncommon in the City of Houston planning area. The change in soil volume and resulting expansion can exert enough force on a building or other structure to cause damage.

Expansive soils will also lose volume and shrink when they dry. A reduction in soil volume can affect the support to buildings or other structures and result in damage. Fissures in the soil can also develop and facilitate the deep penetration of water when moist conditions or runoff occurs. This produces a cycle of shrinkage and swelling that places repetitive stress on structures.

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

Homeowners and public agencies that assume they cannot afford preventative measures such as costlier foundations and floor systems, often incur the largest percentage of damage and costly repairs from expanding soil. According to the USGS Expansive Soils Regions, small sections of the western side of the City have less than 50% of the area underlain with soils with clayey textures that have high shrink-swell properties whereas the rest of the planning area has over 50% of the area underlain with soils with abundant clays with high swelling potential, and is the area with the highest magnitude of expansive soil potential within the City.

Foundation issues for slab buildings and road base pads for mobile homes offer the most visible impacts to infrastructure and structures. Undocumented reports of small cracks to foundations and terrain could possibly be attributed to the presence of expansive soils. Deeper and longer cracks, and possible structural shifting could occur with natural conditions that increase soil swelling. There was no documentation of past site-specific events for structural damage due to expansive soils from local, State, or national datasets found.

Expansive soils cannot be documented as a time-specific event, except when they lead to structural and infrastructure damage. There are no specific damage reports or historical records of events in the City, however future events can occur.

Areas within San Marcos that are experiencing higher amounts of development on previously undeveloped land may find a higher impact as this will offer increased opportunity for structural foundation damage in areas with high clay content. Expansion of jurisdictional boundaries and the development of more land between Austin, San Antonio, and San Marcos can lead to exposure to previously unnoticed areas of expansive soil. The lack of current problems from this hazard in the community leads to a lessened concern for the issue. Should parts of the community with higher concentrations of clay in the soil begin to experience subdivision

development, there may be a heightened amount of vulnerability for residential structures within San Marcos.

A summary assessment of expansive soils hazard vulnerability and impacts to the community lifelines is presented in Table 27.

Table 27 Expansive Soils Vulnerability and Consequence Summary by Lifeline

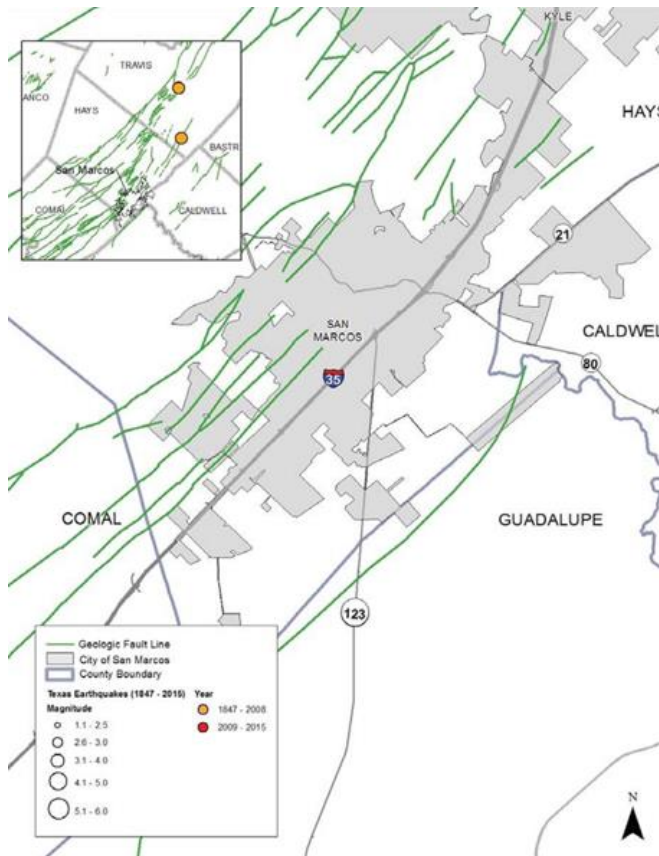
Expansive Soils	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Moderate Vulnerability	Low Impact to Lifeline/Services
Communications	Low Vulnerability	Low Impact to Lifeline/Services
Transportation	Moderate Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Low Impact to Lifeline/Services
Hazardous Material (Mgmt)	Low Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	Low Vulnerability	Low Impact to Lifeline/Services

Source: City of San Marcos OEM

xii. Earthquakes

Locations within proximity to fault lines are typically the areas most at risk for earthquakes. Figure 7 shows USGS documented fault lines and the locations of earthquakes from 1847 to 2015 in relation to the City of San Marcos. According to USGS 1847-2015 data, there have been no documented earthquake events for the City of San Marcos, as illustrated in Figure 7.

Figure 7 Earthquake Fault lines and Earthquake Locations in San Marcos, TX



Source: City of San Marcos Hazard Mitigation Plan Update 2017

Earthquakes are measured by Peak Ground Acceleration (PGA). The HAZUS Max PGA for the planning area is 1.56% (see Earthquakes: Impact Section for a description of the HAZUS Analysis). This corresponds to the Modified Mercalli Scale Category IV, with light perceived shaking and no potential structure damage. HAZUS measures PGA on a census tract level. Cities within more than one (1) census tract were assigned the highest PGA level to reflect the maximum possible extent. As there have been no recorded previous occurrences of earthquakes for the City of San Marcos and the PGA is less than 2% for the area, the probability of an earthquake in the City in the future is low (0 - 1 occurrences in the next 10 years, at up to a 500yr PGA of 1.56%).

While the probability of an earthquake in San Marcos is low, with no significant prior events on file, there are fault lines within the community that could cause impact if there were to be an increase in seismic activity in the area. There are 13 fault lines located within the jurisdiction according to USGS data. San Marcos could expect to be impacted with debris and possible interruptions if an event were to occur in this unlikely and unprecedented scenario. If an event were to incapacitate a roadway, emergency responders would be hindered from responding, thus leaving the residents who were affected at risk. The following thoroughfares are crossed by the USGS fault lines displayed on Figure 7: LBJ, RM 12, Craddock Avenue, Nevada Street, S. Stagecoach Trail, W. Sierra Circle, Camaro Way, and Lancaster Street.

Additionally, the following critical facilities and infrastructure and non-critical public facilities (according to HAZUS and community submitted critical facility data) are located within one (1) mile of a fault line within the community:

- Hays County Public Safety Answering Point (PSAP),
- Grande Communications,
- South Hays Fire Department,
- San Marcos Police Department (SMPD),
- Hays County Sheriff,
- Three (3) San Marcos Fire Department Locations,
- Primary EOC – SMPD,
- SMHCEMS Medics 5, 13, 11, and 12,
- San Marcos Treatment Center,
- Goodnight Middle School,
- Crockett Elementary,
- Hernandez Elementary,
- Miller Middle School,
- Travis Elementary,
- Blanco Vista Elementary,
- Mendez Elementary,
- San Marcos Adventist Junior Academy,
- San Marcos Center School,
- Public Safety Building/Jail,
- Hays County Government Center, and
- Two (2) Armed Forces Reserve Centers.

A summary assessment of wildfire hazard vulnerability and impacts to the community lifelines is presented in Table 28.

Table 28 Earthquake Vulnerability and Consequence Summary by Lifeline

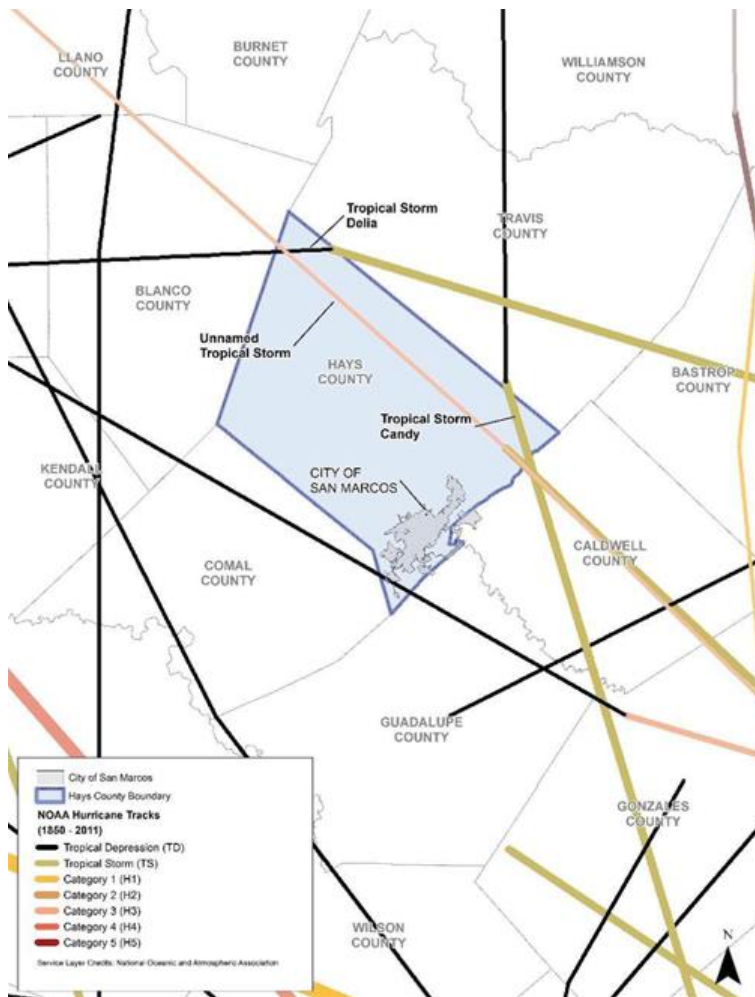
Earthquake	Vulnerability	Consequence
Safety and Security	Low Vulnerability	Low Impact to Lifeline/Services
Food, Water, Sheltering	Low Vulnerability	Low Impact to Lifeline/Services
Communications	Low Vulnerability	Low Impact to Lifeline/Services
Transportation	Low Vulnerability	Low Impact to Lifeline/Services
Health and Medical	Low Vulnerability	Low Impact to Lifeline/Services
Hazardous Material (Mgmt)	Low Vulnerability	Low Impact to Lifeline/Services
Energy (Power and Fuel)	Low Vulnerability	Low Impact to Lifeline/Services

Source: City of San Marcos OEM

xiii. Hurricanes/Tropical Storms

Due to the regional nature of a hurricane or tropical storm event, the entire extent of the City of San Marcos is equally exposed to a hurricane or tropical storm. Figure 8 illustrates the location of the planning area with historical hurricane and tropical storm paths documented by NOAA's Hurricane Tracker from 1850 to 2011.

Figure 8 Historical Hurricane/Tropical Storm Paths, City of San Marcos



Source: City of San Marcos Hazard Mitigation Plan Update 2017

The following events are listed based on NOAA Storm Events Database for Tropical Storm Hermine and NOAA Hurricane Tracker for all other events, also shown in Figure 9. By the time most hurricanes reach the County, they are tropical storms, depressions or thunderstorms. Because hurricane and tropical storm events occur on a regional scale, all events listed for Hays County have been included, as they would impact the City of San Marcos.

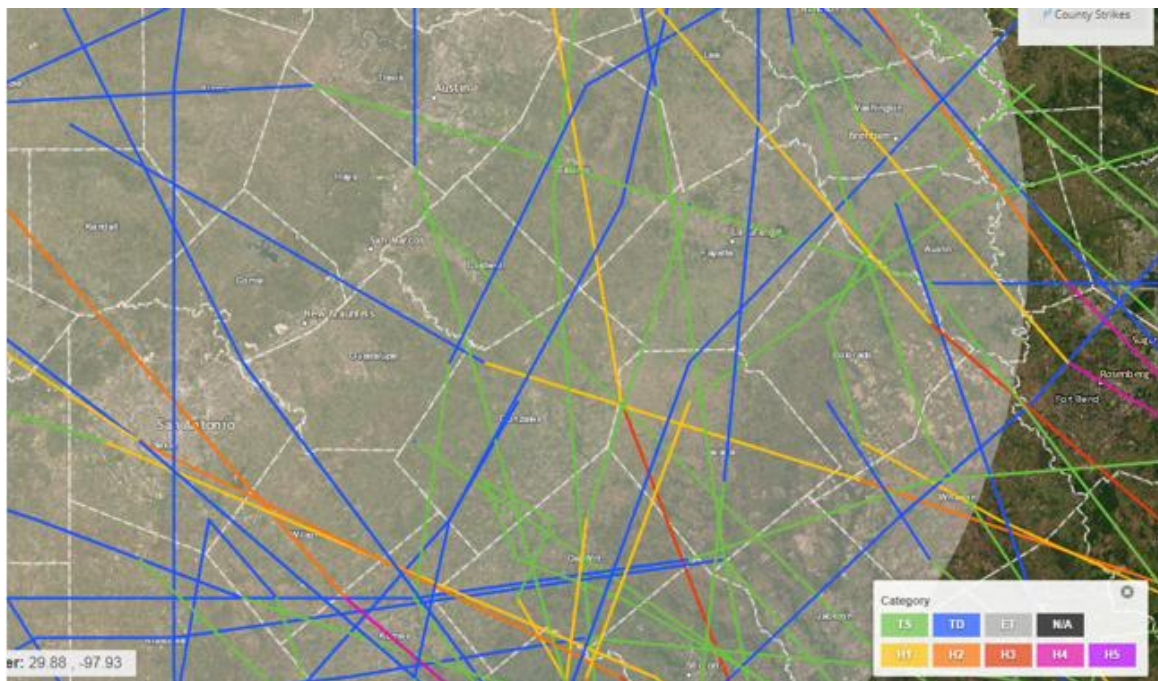
July 13 to July 22, 1909 – An unnamed storm made landfall near Freeport, as a Category 3 Hurricane. This storm impacted Hays County and participating communities as a tropical depression with wind speeds up to 30 knots. No significant damages, injuries, or fatalities were reported for the City.

June 22 to June 26, 1968 – Tropical Storm Candy made landfall near Port Aransas. This storm impacted Hays County and participating communities as a tropical storm with wind speeds slowing to 30 knots as a tropical depression just after leaving the County. No significant damages, injuries, or fatalities were reported for the planning area.

September 1 to September 7, 1973 – Tropical Storm Delia made landfall near the border of Brazoria and Matagorda Counties. This storm impacted Hays County and participating communities as a tropical storm with wind speeds slowing to 30 knots as a tropical depression just after leaving the County. No significant damages, injuries, or fatalities were reported for the jurisdiction.

September 6 to September 8, 2010 – According to the NOAA Storm Events Database, Tropical Storm Hermine made landfall near the Texas/Mexico border on the night of September 6. South Central Texas was hit very hard with widespread rains of 8 to 12 inches across much of the IH-35 corridor from Austin down to San Antonio.

Figure 9 Historical Hurricane Tracks near San Marcos, TX



Source: <https://coast.noaa.gov/hurricanes/>

The Saffir-Simpson Scale measures pressure, wind speed, and storm surge in five (5) categories. According to the reported previous hurricane occurrences in the jurisdiction, the maximum hurricane extent experienced was categorized as a tropical storm.

Based on four (4) reported events in 107 years, a hurricane or tropical storm event occurs approximately every 27 years on average in Hays County. Since hurricane and tropical storm events can happen anywhere throughout the HMP update area, the City of San Marcos' future probability is assumed to be similar to the surrounding County areas. In the future, the City can expect an event approximately once every 27 years on average, of up to a magnitude of a tropical storm at a 100-yr Max Wind Speed of 78 mph based on historical extents and HAZUS analysis. A Probabilistic 100-year Return Period HAZUS-MH 3.2 analysis was run for the City of San Marcos. The following describes the results of this analysis.

General Building Stock Damage

The total property damage losses were estimated at \$2,251,079. The majority of damage can be expected to impact residential areas (98%). The remaining damages (2%) are for commercial, industrial, agricultural and religious buildings. While some building damage is experienced, it is estimated that no buildings will be completely destroyed or experience severe damage. Exposed Value is the total building and content values for structures within the community. Loss values are divided separately for building and content loss in dollars.

Debris Generation

The model estimates that a total of 350 tons of debris will be generated. Of the total amount, brick/wood comprises 100% of the total. If the building debris tonnage is converted to an estimated number of truckloads, it will require 14 truckloads (with 1 to 25 tons per truck) to remove the building debris generated by the hurricane.

Similar to the impacts of windstorms, hailstorms, and lightning, San Marcos can expect to be impacted with debris and possible interruptions of critical infrastructure if the event is a stronger magnitude than those previously experienced by the City. In addition, the community's proximity to IH-35 could lead to traffic delays caused by major evacuation efforts if the highway is used as an evacuation route for coastal residents.

Hurricane events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. In addition to aforementioned effects of widespread flooding previously described, impacts of hurricanes to the community can include:

- Individuals exposed to the storm may be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Driving conditions may be dangerous during a hurricane event, especially over elevated bridges, increasing the risk of injury and accidents during evacuations if not timed properly.
- Emergency evacuations may be necessary prior to a hurricane making landfall, requiring emergency responders, evacuation routing, and temporary shelters.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During hurricane landfall, first responders may be prevented from responding to calls as the winds may reach a speed in which their vehicles and equipment are unsafe to operate.
- Hurricane events often result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages can also result in an increase in structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their homes with alternative,

unsafe cooking or heating devices, such as grills.

- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
- Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.
- Critical staff may be unable to report for duty, limiting response capabilities.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.
- Private sector entities that the City and its residents rely on, such as financial institutions and medical care providers, may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by the hurricane may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to hurricane damage.
- Large scale hurricanes can have significant economic impact on the affected area, as it must now fund expenses such as infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, as well as normal day-to-day operating expenses.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

The economic and financial impacts of a hurricane will depend entirely on the scale of the event, an inventory of damage, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning performed by the counties, communities, local businesses, and residents will also contribute to the overall economic and financial conditions in the aftermath of any hurricane event. A summary assessment of hurricane hazard vulnerability and impacts to the community lifelines is presented in Table 29.

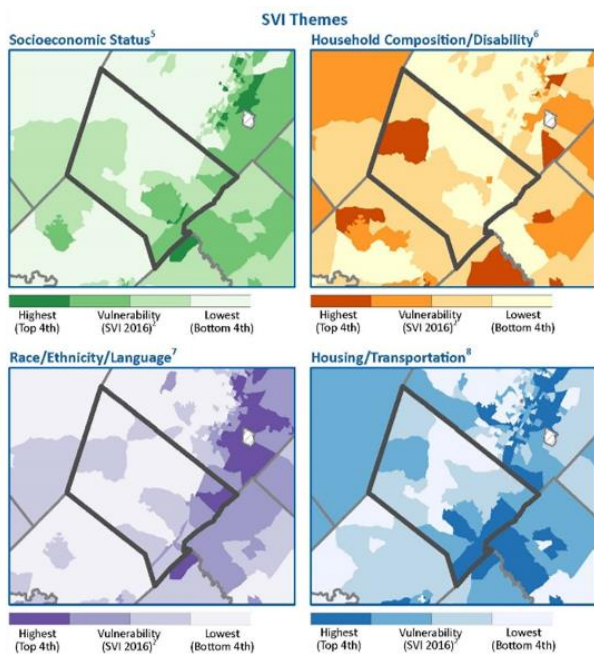
Table 29 Hurricane Vulnerability and Consequence Summary by Lifeline

Hurricane	Vulnerability	Consequence
Safety and Security	High Vulnerability	Significant Impact to Lifeline/Services
Food, Water, Sheltering	High Vulnerability	Significant Impact to Lifeline/Services
Communications	High Vulnerability	Significant Impact to Lifeline/Services
Transportation	High Vulnerability	Significant Impact to Lifeline/Services
Health and Medical	Moderate Vulnerability	Significant Impact to Lifeline/Services
Hazardous Material (Mgmt)	High Vulnerability	Significant Impact to Lifeline/Services
Energy (Power and Fuel)	High Vulnerability	Significant Impact to Lifeline/Services

d. Vulnerability Assessment

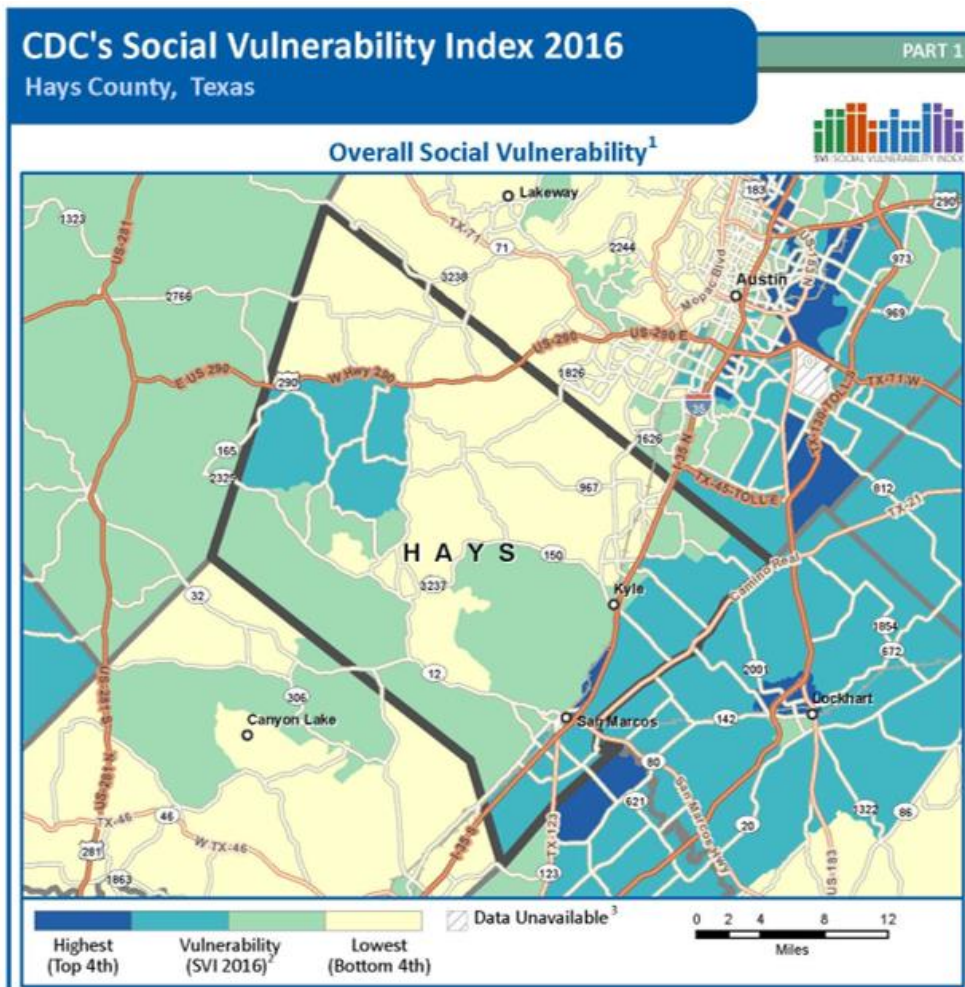
According to the Centers for Disease Control and Prevention (CDC), “social vulnerability refers to a community’s capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human-caused threats such as toxic chemical spills.” The CDC’s Social Vulnerability Index uses 15 U.S. census variables at the tract level to help local officials identify communities that may need support in preparing for hazards; or recovering from disaster.¹⁰ Social Vulnerability Index themes include socioeconomic status, household composition, language, and transportation/housing status. Figure 10 shows the Social Vulnerability Index themes for the City of San Marcos planning area, and Figure 11 presents the overall social vulnerability for the planning area.

Figure 10 Social Vulnerability Themes in Hays County



Source: Agency for Toxic Substances and Disease Registry, “CDC’s Social Vulnerability Index 2016 Hays County, Texas:” <https://svi.cdc.gov/prepared-county-maps.html>

Figure 11 Overall Social Vulnerability in Hays County



Source: Agency for Toxic Substances and Disease Registry, "CDC's Social Vulnerability Index 2016 Hays County, Texas:" <https://svi.cdc.gov/prepared-county-maps.html>

III. Use of Funds

a. Connection to Identified Risk

The most significant consideration in developing CDBG-MIT activities and the allocation of funds is the mitigation needs assessment. This assessment is based on the [City of San Marcos / Hays County Hazard Mitigation Action Plan \(the HMAP\)](#) and other data related to risk and recovery. Mitigation activities are also funded in context with threats to Community Lifelines. The mitigation needs assessment was completed to identify long-term risks and investment priorities for CDBG-MIT funding. The assessment may be amended as additional information become available or existing information is updated.

In review of the mitigation needs assessment, threats to Community Lifelines, and public feedback, funding is allocated for infrastructure programs to lessen the risk of flooding in buildings, with the ultimate goal of removing people and property from harm's way. In addition, decreasing flooding will also improve mobility so services that enable the continuous operation

of critical business and government functions and that are critical to the protection of human health and safety would remain available and accessible. There is a need to improve the City's infrastructure, particularly its drainage systems, to reduce flooding.

b. Allocations

The City of San Marcos allocates CDBG-MIT resources to fund the following programs: 1) Repetitive Loss Infrastructure, 2) Land Preservation, 3) Hazard Warning System, 4) Signs & Barricades, 5) Planning, and 6 Administration. Per requirements, at least 50 percent of CDBG-MIT funds will be spent to benefit low- and moderate- income (LMI) communities. The entire CDBG-MIT allocation will be used in HUD-identified most impacted and distressed (MID) area, as the City of San Marcos is entirely within a HUD-identified MID area. Table 30 provides a breakdown of the proposed budget of the CDBG-MIT funds. The Projection of Expenditures and Outcomes can be found in Appendix F.

Table 30 CDBG-MIT Budget Allocation

Programs	Total Allocation	% of Total Allocation	LMI Amount
Repetitive Loss Infrastructure	\$16,000,000	66.63%	\$8,000,000
Land Preservation	\$2,849,600	11.87%	\$1,424,800
Hazard Warning System	\$300,000	1.25%	\$150,000
Signs & Barricades	\$60,000	0.25%	\$30,000
Planning	\$3,601,800	15.00%	N/A
Administration	\$1,200,600	5.00%	N/A
Total	\$24,012,000	100.00%	\$9,604,800

Source: City of San Marcos Planning and Development Services and Engineering Departments

c. Low and Moderate-Income Priority

Although impacts from flooding and extreme weather events vary from one area of the community to the next, the relative disaster-related losses experienced in LMI communities is disproportionately high. The City of San Marcos is committed to leading an effort that is equitable and serving all residents, particularly the most vulnerable in LMI areas, which will be prioritized for CDBG-MIT activities. The requirement for CDBG-MIT funds is to expend at least 50 percent of CDBG-MIT on activities benefiting LMI persons, and the City expects to exceed this requirement.

The City of San Marcos will prioritize infrastructure projects funded with CDBG-MIT that address flooding in LMI neighborhoods. Decreasing flood risk in neighborhoods, especially LMI neighborhoods, will positively affect residents of the city, of all protected classes, and increase the ability of individuals and households to more quickly recover from future flood events. Decreasing flood risk will also reduce disruptions at a larger-scale, allowing residents to return to normalcy more quickly while reducing the negative social and economic consequences of flooding. Minimizing flooding in neighborhoods through mitigation infrastructure projects will also protect housing and make neighborhoods safer and more desirable places to live.

The City works in many ways to assist low- and moderate-income communities, including through its CDBG Division, where it provides homebuyer assistance, rehabilitation, and reconstruction assistance.

d. CDBG-MIT Activities

The following activities were developed to meet the requirements of the CDBG-MIT program, as well as other federal, state, and local requirements and regulations, to fund mitigation activities that protect against loss of life and property as efficiently and expeditiously as possible. The following activities address flooding through infrastructure improvements but do not include direct assistance to household beneficiaries. Households may be eligible for direct assistance through other funding sources including CDBG-DR and other entitlement programs through the City's Planning and Development Services Department, CDBG Division.

i. Repetitive Loss Infrastructure

The Repetitive Loss Infrastructure program is a crucial component of a comprehensive, long-term recovery strategy to improve the City's drainage systems and reduce the risk of potential future flooding in neighborhoods and homes. The purpose of this program is to reduce the number of homes damaged by floodwaters, thereby decreasing direct flooding impacts for San Marcos households. There will likely be many co-benefits to addressing flooding in homes through infrastructure improvements, which may include improved mobility, aesthetic improvements, recreational benefits, property value increases, and life cycle cost savings. This program will be administered by the City of San Marcos through the Engineering Department.

Allocation Amount: \$16,000,000

Eligible Mitigation Activity

This program is an eligible mitigation activity under the infrastructure criteria, as defined in the CDBG-MIT requirements, and will improve the stormwater drainage system in San Marcos. This activity will alleviate capacity issues to address flood risks from future severe storms and hurricanes, as identified in the mitigation needs assessment.

Eligible Activities

Activities allowed under CDBG-MIT; HCDA Section 105(a)(1-5), 105(a)(7-9), and 105(a)(11), include but are not limited to:

- Acquisition or disposition of real property.
- Infrastructure improvements (such as water and sewer facilities, streets, provision of generators, removal of debris, bridges, etc.), including flood control and drainage repair and improvements through the construction or rehabilitation of stormwater management system.
- Natural or green infrastructure.
- Clearance, demolition, rehabilitation of publicly or privately-owned buildings, and code enforcement.
- Removal of materials and architectural barriers.
- Public service (such as job training and employment services, healthcare, child care, and crime prevention within the 15 percent cap).

- Buyouts or acquisition with or without relocation assistance, downpayment assistance, housing assistance, demolition or other activities designed to relocate families outside of floodplains.

Ineligible Activities

- Emergency response services.
- CDBG–MIT funds may not be used to enlarge a dam or levee beyond the original footprint of the structure that existed prior to the disaster event. However, CDBG–MIT funds can be used for levees and dams if used to:
 - Register and maintain entries regarding such structures with the USACE National Levee Database or National Inventory of Dams;
 - Ensure that the structure is admitted in the USACE PL 84–99 Rehabilitation Program (Rehabilitation Assistance for Non-Federal Flood Control Projects);
 - Ensure the structure is accredited under the FEMA NFIP;
 - Maintain file documentation demonstrating a risk assessment prior to funding the flood control structure and documentation that the investment includes risk reduction measures.
- Funds may not be used to assist a privately-owned utility for any purpose.
- Buildings and facilities used for the general conduct of government (e.g., city halls, courthouses, and emergency operation centers).
- By law, (codified in the HCD Act as a note to 105(a)), the amount of CDBG–MIT funds that may be contributed to a USACE project is \$250,000 or less.

National Objectives

National objectives for this program will include at least one of the following: LMI, elimination of slum/blight, and/or urgent need.

Geographic Eligibility

At least fifty-percent of the funds spent on infrastructure projects under this program will be spent on projects located within the City of San Marcos, with others potentially spent on projects outside of the city limits, but on ones that will benefit San Marcos residents. More information about the location of specific projects will be available once these projects are selected for implementation.

Selection Criteria

Through its Capital Improvements Program (CIP), the City of San Marcos Engineering Department has a current list of unfunded drainage improvement projects. An analysis will be conducted to select projects that will maximize system capacity and have the greatest benefit on the health, safety, and overall welfare of residents. After the selection of potential projects, the City Council will approve the selection to be funded with CDBG-MIT funds. Projects will be identified by determining level of service and need and prioritized using the criteria below.

For CDBG-MIT funding, priority will be given to projects that:

- Benefit primarily LMI communities;
- Can be completed in a timely manner;
- Coordinate with other local and/or regional infrastructure efforts to ensure consistency, and promote community-level and/or regional post-disaster recovery and mitigation planning;

- Have co-benefits to meet goals set as a part the City's comprehensive plan; and
- Include natural infrastructure or other low impact development methods.

Maximum Award Amount

No person, household or business will receive direct benefits through this program.

Timeline

The proposed program start date is one month after HUD's approval of this Action Plan. The proposed end date is 12 years from the start date of the program.

ii. Land Preservation

The Land Preservation program is a crucial component of a comprehensive, long-term recovery strategy to ensure repetitive loss areas are mitigated by reducing the risk of potential future flooding in neighborhoods and homes or remove high risk areas from development potential. The purpose of this program is to acquire properties to reduce the damage by floodwaters, thereby decreasing direct flooding impacts for San Marcos households. There will likely be many co-benefits to land preservation, which may include reduced water quantity and improved water quality, mobility, aesthetic improvements, recreational benefits, property value increases, and life cycle cost savings. This program will be administered by the City of San Marcos through the Engineering Department.

Allocation Amount: \$2,849,600

Eligible Mitigation Activity

This program is an eligible mitigation activity under the acquisition or disposition of real property criteria, as defined in the CDBG-MIT requirements, and will improve the stormwater drainage system in San Marcos. This activity will alleviate capacity issues to address flood risks from future severe storms and hurricanes, as identified in the mitigation needs assessment.

Eligible Activities

Activities allowed under CDBG-MIT; HCDA Section 105(a)(1-5), 105(a)(7-9), and 105(a)(11), include but are not limited to:

- Acquisition or disposition of real property.
- Infrastructure improvements (such as water and sewer facilities, streets, provision of generators, removal of debris, bridges, etc.), including flood control and drainage repair and improvements through the construction or rehabilitation of stormwater management system.
- Natural or green infrastructure.
- Clearance, demolition, rehabilitation of publicly or privately-owned buildings, and code enforcement.
- Removal of materials and architectural barriers.
- Public service (such as job training and employment services, healthcare, child care, and crime prevention within the 15 percent cap).

- Buyouts or acquisition with or without relocation assistance, downpayment assistance, housing assistance, demolition or other activities designed to relocate families outside of floodplains.

Ineligible Activities

- Emergency response services.
- CDBG–MIT funds may not be used to enlarge a dam or levee beyond the original footprint of the structure that existed prior to the disaster event. However, CDBG–MIT funds can be used for levees and dams if used to:
 - Register and maintain entries regarding such structures with the USACE National Levee Database or National Inventory of Dams;
 - Ensure that the structure is admitted in the USACE PL 84–99 Rehabilitation Program (Rehabilitation Assistance for Non-Federal Flood Control Projects);
 - Ensure the structure is accredited under the FEMA NFIP;
 - Maintain file documentation demonstrating a risk assessment prior to funding the flood control structure and documentation that the investment includes risk reduction measures.
- Funds may not be used to assist a privately-owned utility for any purpose.
- Buildings and facilities used for the general conduct of government (e.g., city halls, courthouses, and emergency operation centers).
- By law, (codified in the HCD Act as a note to 105(a)), the amount of CDBG–MIT funds that may be contributed to a USACE project is \$250,000 or less.

National Objectives

National objectives for this program will include at least one of the following: LMI, elimination of slum/blight, and/or urgent need.

Geographic Eligibility

At least fifty-percent of the funds spent on the acquisition of real property will be spent on lands located within the City of San Marcos, with others potentially spent on lands outside of the city limits, but on ones that will benefit San Marcos residents. More information about the specific acquisition of lands will be available once these lands are identified for acquisition.

Selection Criteria

Through its Capital Improvements Program (CIP), the City of San Marcos Engineering Department has a current list of unfunded drainage improvement projects. An analysis will be conducted to select projects that will maximize system capacity and have the greatest benefit on the health, safety, and overall welfare of residents. After the selection of potential projects, the City Council will approve the selection to be funded with CDBG-MIT funds. Acquisitions will be prioritized using the criteria below.

For CDBG-MIT funding, priority will be given to projects that:

- Benefit primarily LMI communities;
- Can be acquired in a timely manner;
- Coordinate with other local and/or regional infrastructure efforts to ensure consistency, and promote community-level and/or regional post-disaster recovery and mitigation planning;

- Have co-benefits to meet goals set as a part the City’s comprehensive plan; and
- Include natural infrastructure or other low impact development methods.

Maximum Award Amount

No person, household or business will receive direct benefits through this program.

Timeline

The proposed program start date is one month after HUD’s approval of this Action Plan. The proposed end date is 12 years from the start date of the program.

iii. Hazard Warning System

The Hazard Warning System program is a crucial component of a comprehensive, long-term recovery strategy to improve advanced warning of residents to reduce or eliminate the number of lives lost. This program will be administered by the City of San Marcos through the Office of Emergency Management.

Allocation Amount: \$300,000

Eligible Mitigation Activity

This program is an eligible mitigation activity under the infrastructure criteria, as defined in the CDBG-MIT requirements, and will improve the warning system(s) in San Marcos.

Eligible Activities

Activities allowed under CDBG-MIT; HCDA Section 105(a)(1-5), 105(a)(7-9), and 105(a)(11), include but are not limited to:

- Acquisition or disposition of real property.
- Infrastructure improvements (such as water and sewer facilities, streets, provision of generators, removal of debris, bridges, etc.), including flood control and drainage repair and improvements through the construction or rehabilitation of stormwater management system.
- Natural or green infrastructure.
- Clearance, demolition, rehabilitation of publicly or privately-owned buildings, and code enforcement.
- Removal of materials and architectural barriers.
- Public service (such as job training and employment services, healthcare, child care, and crime prevention within the 15 percent cap).
- Buyouts or acquisition with or without relocation assistance, down payment assistance, housing assistance, demolition or other activities designed to relocate families outside of floodplains.

Ineligible Activities

- Emergency response services.
- CDBG–MIT funds may not be used to enlarge a dam or levee beyond the original footprint of the structure that existed prior to the disaster event. However, CDBG–MIT funds can be used for levees and dams if used to:

- Register and maintain entries regarding such structures with the USACE National Levee Database or National Inventory of Dams;
 - Ensure that the structure is admitted in the USACE PL 84–99 Rehabilitation Program (Rehabilitation Assistance for Non-Federal Flood Control Projects);
 - Ensure the structure is accredited under the FEMA NFIP;
 - Maintain file documentation demonstrating a risk assessment prior to funding the flood control structure and documentation that the investment includes risk reduction measures.
- Funds may not be used to assist a privately-owned utility for any purpose.
 - Buildings and facilities used for the general conduct of government (e.g., city halls, courthouses, and emergency operation centers).
 - By law, (codified in the HCD Act as a note to 105(a)), the amount of CDBG–MIT funds that may be contributed to a USACE project is \$250,000 or less.

National Objectives

National objectives for this program will include at least one of the following: LMI and/or urgent need.

Geographic Eligibility

At least fifty-percent of the funds spent on projects under this program will be spent on projects located within the City of San Marcos, with others potentially spent on projects outside of the city limits, but on ones that will benefit San Marcos residents. More information about the location of specific projects will be available once these projects are selected for implementation.

Selection Criteria

Through its HMAP, the City of San Marcos Office of Emergency Management has a current list of warning system projects. An analysis will be conducted to select projects that will maximize system capacity and have the greatest benefit on the health, safety, and overall welfare of residents. After the selection of potential projects, the City Council will approve the selection to be funded with CDBG-MIT funds. Projects will be prioritized using the criteria below.

For CDBG-MIT funding, priority will be given to projects that:

- Benefit primarily LMI communities;
- Can be completed in a timely manner;
- Coordinate with other local and/or regional warning system efforts to ensure consistency; and
- Have co-benefits to meet goals set as a part the City’s comprehensive plan.

Maximum Award Amount

No person, household or business will receive direct benefits through this program.

Timeline

The proposed program start date is one month after HUD’s approval of this Action Plan. The proposed end date is 12 years from the start date of the program.

iv. Signs and Barricades

The Signs and Barricades program is a crucial component of a comprehensive, long-term recovery strategy to improve advanced warning to residents to reduce or eliminate the number of lives lost. This program will be administered by the City of San Marcos through the Engineering Department.

Allocation Amount: \$60,000

Eligible Mitigation Activity

This program is an eligible mitigation activity under the infrastructure criteria, as defined in the CDBG-MIT requirements, and will improve the warning system(s) in San Marcos.

Eligible Activities

Activities allowed under CDBG-MIT; HCDA Section 105(a)(1-5), 105(a)(7-9), and 105(a)(11), include but are not limited to:

- Acquisition or disposition of real property.
- Infrastructure improvements (such as water and sewer facilities, streets, provision of generators, removal of debris, bridges, etc.), including flood control and drainage repair and improvements through the construction or rehabilitation of stormwater management system.
- Natural or green infrastructure.
- Clearance, demolition, rehabilitation of publicly or privately-owned buildings, and code enforcement.
- Removal of materials and architectural barriers.
- Public service (such as job training and employment services, healthcare, child care, and crime prevention within the 15 percent cap).
- Buyouts or acquisition with or without relocation assistance, downpayment assistance, housing assistance, demolition or other activities designed to relocate families outside of floodplains.

Ineligible Activities

- Emergency response services.
- CDBG-MIT funds may not be used to enlarge a dam or levee beyond the original footprint of the structure that existed prior to the disaster event. However, CDBG-MIT funds can be used for levees and dams if used to:
 - Register and maintain entries regarding such structures with the USACE National Levee Database or National Inventory of Dams;
 - Ensure that the structure is admitted in the USACE PL 84-99 Rehabilitation Program (Rehabilitation Assistance for Non-Federal Flood Control Projects);
 - Ensure the structure is accredited under the FEMA NFIP;
 - Maintain file documentation demonstrating a risk assessment prior to funding the flood control structure and documentation that the investment includes risk reduction measures.
- Funds may not be used to assist a privately-owned utility for any purpose.

- Buildings and facilities used for the general conduct of government (e.g., city halls, courthouses, and emergency operation centers).
- By law, (codified in the HCD Act as a note to 105(a)), the amount of CDBG-MIT funds that may be contributed to a USACE project is \$250,000 or less.

National Objectives

National objectives for this program will include at least one of the following: LMI and/or urgent need.

Geographic Eligibility

At least fifty-percent of the funds spent on projects under this program will be spent on projects located within the City of San Marcos, with others potentially spent on projects outside of the city limits, but on ones that will benefit San Marcos residents. More information about the location of specific projects will be available once these projects are selected for implementation.

Selection Criteria

Through its Capital Improvements Program (CIP), the City of San Marcos Engineering Department has a current list of unfunded projects. An analysis will be conducted to select projects that will have the greatest benefit on the health, safety, and overall welfare of residents. After the selection of potential projects, the City Council will approve the selection to be funded with CDBG-MIT funds. Projects will be prioritized using the criteria below.

For CDBG-MIT funding, priority will be given to projects that:

- Benefit primarily LMI communities;
- Can be completed in a timely manner;
- Coordinate with other local and/or regional warning system efforts to ensure consistency; and
- Have co-benefits to meet goals set as a part the City's comprehensive plan.

Maximum Award Amount

No person, household or business will receive direct benefits through this program.

Timeline

The proposed program start date is one month after HUD's approval of this Action Plan. The proposed end date is 12 years from the start date of the program.

v. Planning

The City's planning costs will not exceed 15-percent of the total CDBG-MIT allocation. These costs are necessary for the planning activities to identify and further mitigation efforts for the city. These costs may include, but not be limited to the evacuation and comprehensive planning efforts.

Allocation Amount: \$3,601,800

Eligible Activities

Planning Activities, as defined at 24 CFR 570.205 and 570.206 and any applicable waivers or alternative requirements.

National Objectives

National objectives are not applicable to planning activity funds.

Geographic Eligibility

City of San Marcos

Maximum Award Amount

No person, household or business will receive direct benefits through this program.

Timeline

The proposed program start date is one month after HUD's approval of this Action Plan. The proposed end date is 12 years from the start date of the program.

vi. Administration

The City's administrative costs will not exceed five percent of the total CDBG-MIT allocation. These costs are necessary for the general administration of the CDBG-MIT program and may include, but not be limited to the City's staff time, or the time of its subrecipients or contractors, to: administer and manage mitigation activities; perform compliance, monitoring, and reporting of the activities; and utilize funds for other costs specified as eligible administrative expenses in 24.206.

Allocation Amount: \$1,200,600

Eligible Activities

Administration Costs, as defined at 24 CFR 570.205 and 570.206 and any applicable waivers or alternative requirements.

National Objectives

National objectives are not applicable to administrative funds.

Geographic Eligibility

City of San Marcos

Maximum Award Amount

No person, household or business will receive direct benefits through this program.

Timeline

The proposed program start date is one month after HUD's approval of this Action Plan. The proposed end date is 12 years from the start date of the program.

IV. General Requirements

a. Certification of Controls, Processes, and Procedures

As directed by HUD, the City certified and submitted the following to HUD by January 31, 2020.

- Proficient financial controls and procurement processes
- Adequate procedures to prevent any duplication of benefits
- Processes to ensure timely expenditure of funds
- Ability to maintain comprehensive websites regarding all disaster recovery activities assisted with CDBG- MIT funds
- Adequate measure to detect and prevent waste, fraud, and abuse of funds

b. Implementation Plan and Capacity Assessment

As directed by HUD, the City submitted to HUD in conjunction with this Action Plan its Implementation Plan which outlines the following:

- Procedures to collect timely information on application status
- A capacity assessment
- Staffing plan
- Procedures ensuring internal interagency coordination
- Procedures to provide technical assistance
- Accountability procedures

c. Program Income

The City does not intend to implement any programs or activities that generate income as described in 24 CFR 570.489. However, if any CDBG-MIT activities generate income, the City will retain program income to fund additional CDBG-MIT activities or to fund the repair, operation, or maintenance of existing CDBG-MIT projects. The City will comply with all HUD requirements in 24 CFR 570.504, as well as the rules outlined in 84 FR 45838 and subsequent notices, including tracking program income in the DRGR system and using program income before drawing additional grant funds. Specifically, the City will adhere to the program income policies and procedures as stated in the City's financial certifications.

d. Long-Term Planning Considerations

The City has historically experienced flooding, but the impacts of recent flood events have resulted in an extraordinary amount of damage, disruption, and lasting negative consequences long after flood waters subsided. In response, the City has been proactive in undertaking measures that address resilience and sustainability, as well as educating the public to minimize risk for communities and individuals.

Following over a year of public outreach and involvement, in 2013, the City adopted its comprehensive plan, Vision San Marcos: A River Runs Through Us. This plan has assisted the City in determining the suitability of land within and within the city's extraterritorial jurisdiction. An environmental constraint map, known as the Land Use Suitability Map was created as a tool to identify areas within the planning area that are best suited to accommodate growth in an environmentally sensitive manner. Ten classes of variables were mapped and assigned a weight. Those classes included: Cultural Resources, Edwards Aquifer, Endangered and Threatened

Species, Floodplains, Priority Watersheds, Sensitive Feature Protection Zone, Slopes, Soils, Vegetation, and Water Quality Zone / Water Quality Buffer Zone. Over the next two years, the City anticipates updating its comprehensive plan, and resilience and sustainability will be a critical component to all areas of the plan.

In 2016, the City updated its Flood Damage Prevention Ordinance (Chapter 39 of the San Marcos Code of Ordinances). To accomplish the purpose of minimizing losses due to flood conditions, the ordinance uses the following methods:

- Restricts or prohibits uses that are dangerous to health, safety or property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- Requires that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage throughout their intended life span;
- Controls the alteration of natural floodplains, their protective barriers and stream channels, which help accommodate or channel floodwaters;
- Prevents the construction of barriers which will divert floodwaters and subject other lands to greater flood hazards; and
- Controls development which would cause greater erosion or potential flood damage such as grading, dredging, filling, and excavation.

In addition to the changes to the Flood Damage Prevention Ordinance, the City participated in a Regional Flood Protection Plan which provided baseline modeling for new Flood Insurance Rate Maps within the next year.

A Comprehensive Stormwater Master Plan for the City was approved in 2018. This document identified areas within the City that have experienced flooding “hot spots” and identified infrastructure solutions to address. These projects and costs are implemented through a 10-year Capital Improvement Plan and funded through the City’s stormwater utility. This master plan document is updated every five (5) years.

In 2019, NOAA issued new precipitation information for the state of Texas known as Atlas 14. The City of San Marcos is in process of adopting this information for use in floodplain management and development requirements. These new standards will be used for new development and in the implementation of City projects.

The City also participates in the FEMA Community Rating System which, through local regulations and outreach efforts, can reduce the cost of flood insurance in the community. The City throughout the year and through various departments provides outreach to the community to increase their flood awareness. This year the City’s Emergency Management Coordinator was recognized nationally for a series of “prep” rallies held at San Marcos CISD schools during the month of September to teach kids how to prepare themselves and their families for emergencies.

e. Coordination of Mitigation Projects and Leveraging Resources

The City will maximize the impact of CDBG-MIT funds by identifying and leveraging other federal and non-federal funding sources for activities. The City of San Marcos has studies underway with the US Army Corps of Engineers on updates to hydrologic models for the City’s watersheds to

reflect the new Atlas 14 values. Coordination with Hays County on regional flood warning will result in a single vendor system of rain and flood gauges for emergency management and public notification. CDBG-MIT projects will leverage city Capital Improvement Program funds, state revolving loan funds and other federal and private grant funds to enhance the benefits of planned projects. Leveraged funds for CDBG-MIT activities will be identified in the DRGR system. The City will utilize existing relationships and strive to create new partnerships with other federal, state, regional and local agencies, private corporations, foundations, nonprofits, and other stakeholders to leverage all viable sources of funding. The City Council and Office of City Manager ensure coordination of CDBG- MIT program activities with other City departments to advance long-term resilience. This coordination will help to generate better outcomes by enhancing the benefits of CDBG-MIT funded activities.

The City regularly coordinates with Hays County on hazard mitigation planning, long term flood resilience and project development. The City also participates in efforts led by the Guadalupe Blanco River Authority, U.S. Army Corps of Engineers and USDA-Natural Resources Conservation Service, including projects related to flood control dams, channelization projects and regional watershed assessments.

The City will continue to strengthen these and other regional relationships for long term solutions for flooding from the Blanco River, whose flood impacts extend far beyond San Marcos. The new State Flood Plan and loan program will also be investigated as a tool to implement measures to maximize flood reduction benefits to entire watersheds.

f. Plans to Minimize Displacement

Activities funded through the CDBG-MIT allocation will be designed to eliminate or minimize the occurrence of displacement of persons and/or entities. However, if any proposed projects cause the displacement, the City will ensure that the assistance and protections are afforded to persons or entities under the Uniform Relocation Assistance and Real Property Acquisition Policies Act (URA) of 1970, and Section 104(d) of the Housing and Community Development Act of 1974, and by implementing the regulations under 24 CFR Part 570.496(a), subject to any waivers or alternative requirements provided by HUD. Also, in the event any displacement occurs, the City will make reasonable accommodations for displaced persons with disabilities in accordance with guidance outlined in Chapter 3 of HUD's Relocation Handbook (https://www.hud.gov/program_offices/administration/hudclips/handbooks/cpd/13780).

Given its priority to engage in voluntary acquisition and optional relocation activities to avoid repeated flood damage and improve floodplain management, the City accepts the HUD waiver of the Section 104(d) requirements, which assures uniform and equitable treatment by setting the URA and its implementation regulations, as the sole standard for relocation assistance under the Notice published at 84 FR 45838. Efforts to conduct voluntary buyouts for destroyed and extensively damaged buildings in a floodplain may not be subject to all provisions of the URA requirements.

g. Natural Infrastructure

The City of San Marcos has adopted regulations to encourage the use of green infrastructure and protect the natural function of floodplains from new development. These measures include but are not limited to:

- 20% impervious cover limitation in the Edwards Aquifer recharge zone to protect groundwater infiltration.
- Stream buffering requirements based upon the upstream watershed area to prevent development adjacent to waterways in order to maintain natural stream corridors and prevent the loss of natural floodplains.
- Water quality and detention requirements to maintain/mimic pre-development conditions.
- Stormwater Utility rates based upon impervious cover. Credit for the use of pervious materials.
- Tree protection ordinance and landscaping requirements with native plants.

Additionally, the City includes green infrastructure within City projects to reduce impervious cover, improve water and air quality and protect the environment. Examples include: rain gardens, biofiltration ponds, natural channel design, tree and landscape plantings and pervious surfaces.

h. Construction Standards

CDBG-MIT funds will address flood risk through infrastructure improvements, reducing the number of homes damaged and families impacted by potential future flooding. Because flooding not only has financial impacts for San Marcos, it also impacts the health and wellness of residents and neighborhoods. By protecting homes from flooding, there is a potential for an increase in property values and development, which will benefit the community.

The City of San Marcos will emphasize high quality, durability, energy efficiency, and sustainability of construction in its CDBG-MIT activities. The City's Engineering/CIP Department maintains quality construction standards for infrastructure projects through reviewing plans and monitoring construction work.

Green building standards and elevation requirements do not apply to San Marcos' CDBG-MIT activities because the activities will not rehabilitate, replace, construct, or elevate residential housing.

i. Operation and Maintenance Plan

CDBG-MIT regulations allow for flexibility in the use of program income to address on-going operations and maintenance of mitigation projects. If program income is received, the City may use income for eligible uses including repair, operation, and maintenance of publicly owned projects financed with CDBG-MIT funds. If no program income is received, the City of San Marcos plans to use local sources to fund the long-term operation and maintenance the projects constructed with CDBG-MIT.

Drainage Maintenance is responsible for the management of the City's Municipal Separate Storm Sewer System (MS4) permit and implementation of the Stormwater Management Plan (SWMP). This division also maintains and repairs the City's stormwater infrastructure system such as open drainage channels, storm drains and drainage outlets.

- Channel maintenance and repair
- Detention and water quality pond maintenance and repair
- Emergency response assistance
- Manages MS4 permit and implements Stormwater Management Plan
- Storm sewer system maintenance and repair
- Sweeps city streets

j. Cost Verification

Cost verification controls assure that construction costs are reasonable and consistent with market costs at the time and place of construction. Construction activities are based on sealed designs and an engineering estimate of probable costs. San Marco Engineering/CIP staff undertake the following activities:

- Manage preliminary and final engineering design, construction management, and inspection contracts.
- Manage construction awards.
- Construction management, administration and inspection services of projects.
- Construction phase appropriations.
- Project acceptance and close out actions.

The City's CDBG Infrastructure Policy and Procedures Manual requires documentation of the federal standard for procurement:

§200.323 Contract cost and price.

(a) The Non-Federal entity must perform a cost or price analysis in connection with every procurement action in excess of the Simplified Acquisition Threshold including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, the non-Federal entity must make independent estimates before receiving bids or proposals.

V. Public Feedback

The City is committed to incorporating residents' and stakeholders' comments into this Action Plan. In this document, the City has created a Citizen Participation Plan for CDBG-MIT, which includes citizen participation requirements for the lifetime of the grant.

a. Survey and Town Hall

The City's outreach strategy was to target the greatest number of residents and interested parties via social media and targeted ads. All survey materials were available in English and Spanish. To maintain accessibility, there were paper copies of the survey at the San Marcos Public Library and San Marcos Activity Center. Neighborhood Enhancement reached out to Neighborhood Commissioners across the city to share the link with their members or request paper copies if needed.

City staff also held a Town Hall meeting on Tuesday, October 29 from 10 a.m.-7 p.m. at the San Marcos Activity Center Multipurpose Room where staff were on-hand to answer questions and distribute the survey. The Communications Staff also sent out two press releases, one about the survey and one about the Town Hall. The survey was open from October 11-30, 2019, yielding 223 total responses (210 electronic and 13 paper). Respondents were asked to rank the potential mitigation activities. For a complete analysis of the survey, please see the Mitigation Survey Report (Appendix C). The top three responses by all respondents are as follows: preservation of land, addressing repeat loss properties, and evacuating.

b. Public Hearings for CDBG-MIT

The requirements for CDBG-MIT grantees mandate a minimum number of public hearings. For San Marcos, the minimum number is two, one during the development of the Action Plan and one after the publication of the Action Plan for public comment. Public hearings were held:

- In different locations to ensure geographic balance and accessibility
- In facilities that are physically accessible to persons with disabilities
- In compliance with civil rights requirements

Recordings of the hearings were posted on the City's mitigation webpage.

Table 31 CDBG-MIT Public Hearing Schedule

Public Hearing	Date	Location
First Public Hearing: Pre-Action Plan Publication	December 17, 2019	San Marcos City Hall 630 East Hopkins Street San Marcos, TX 78666
Second Public Hearing: Public Comment Period	TBD	TBD

Source: City of San Marcos Planning and Development Services Department

The first public hearing was held during the City Council meeting December 17, 2019, and included a presentation by City staff of the CDBG-MIT Action Plan funding categories. Following the presentation, residents were given the opportunity to voice their opinions and personal testimony regarding the CDBG-MIT funding. One public comment was received, and the City considered and incorporated it into this Action Plan. Notices and minutes of the hearings are in Appendix D.

Pending: Information on second public hearing.

c. Publication of Draft Action Plan

Before the City of San Marcos adopted the Action Plan for CDBG-MIT, the City published the Action Plan on the City's mitigation website: <https://sanmarcostx.gov/mitigation>. The City notified affected residents of the public hearings and the Draft Action Plan publication through electronic mailings, public notices, newsletters, contacts with neighborhood organizations, and/or through social media. The City prominently posted information about the draft plan on City's website, and the topic of mitigation is also navigable from this website.

The City will ensure that all residents have equal access to information about the Action Plan's programs, including persons with disabilities and limited English proficiency. The City will provide translations of the Action Plan into other languages or formats upon request.

The public comment period for the original publication of the Draft Action Plan was 45 days, from January 13, 2020 to February 27, 2020. The City of San Marcos accepted public comments regarding the Draft Action Plan. Comments received on the draft Action Plan and the City's response to each is located included the Appendix E of this document and will be

submitted to HUD.

d. Summary of Input

TBD

VI. Citizen Participation Plan for San Marcos' CDBG-MIT (CPP-MIT)

The purpose of the Citizen Participation Plan for San Marcos' Community Development Block Grant Mitigation (CDBG- MIT) is to establish a means by which residents of the City of San Marcos (City), public agencies, and other interested parties can actively participate in the implementation and assessment of documents related to CDBG-MIT activities. The City developed the CPP-MIT to meet the requirements of the CDBG-MIT funds and reflects the alternative requirements as specified by *84 FR 45838 and any subsequent notices*.

The CPP – MIT is a separate, distinct and tailored plan based upon and consistent with the City's *Citizen Participation Plan*, which describes public participation related to the consolidated planning process and entitlement grants. The City encourages citizen participation that emphasizes the involvement of low- and moderate-income residents, minority populations, persons with limited English proficiency, and persons with disabilities.

a. Availability and Accessibility of Records

During the term of the CDBG-MIT grant, the City will provide citizens and other interested parties with reasonable and timely access to information and records relating to the action plan and to the grantee's use of grant funds. This Action Plan and associated amendments and performance reports will be made available on City's website, and upon request from the City. In addition, these documents are available in a form accessible to persons with disabilities and those with limited English proficiency, upon request.

b. Citizen Advisory Group

The City of San Marcos will form one citizen advisory committee that will meet at least twice annually to provide increased transparency in the implementation of the CDBG-MIT funds, to solicit and respond to public comment and input regarding San Marcos' mitigation activities, and to serve as an on-going public forum to continuously inform San Marcos' CDBG-MIT projects and programs.

c. Public Website

The City maintains a public website which provides information for how CDBG-MIT funds are used, managed, and administered. It will include links to all CDBG-MIT Action Plans and amendments, performance reports, CDBG-MIT citizen participation requirements, and activity/program information for activities described in the CDBG-MIT Action Plan. It will also include details of all contracts and ongoing procurement policies.

The following items will be available on the Mitigation website (<https://sanmarcostx.gov/mitigation>):

- Action Plan and amendments
- Quarterly Performance Reports (QPRs)

- Procurement policies and procedures
- All executed contracts that will use CDBG-MIT funds
- The status of services or goods currently being procured

d. Amendments

Occasionally, it may be necessary for the City to update the Action Plan. Amendments to the Action Plan are divided into two categories: Substantial Amendments and Nonsubstantial Amendments. As amendments occur, both types of amendments are numbered sequentially and posted on the City's CDBG-MIT website <https://sanmarcostx.gov/mitigation>. Copies of amendments are available upon request to: cdbg@sanmarcostx.gov or 512-393-8230.

The most current version of the entire action plan will be accessible for viewing as a single document. Each amendment will have highlighted changes, and the beginning of amendments will include:

- Section identifying exactly what content is added, deleted, or changed
- Revised budget allocation table that reflects all funds and illustrates where funds are coming from and moving to, as amended and applicable
- Description of how amendment is consistent with the mitigation needs assessment

i. Substantial Amendment

The following criteria are used to determine what constitutes a Substantial Amendment to its approved Action Plan:

- The addition of a CDBG-MIT Covered Project
- A change in program benefit or eligibility criteria
- The addition or deletion of an activity
- A new allocation or reallocation of more than 25 percent of an activity in the Program Budget

Substantial Amendments are subject to a citizen participation process and require formal action by the City Council and submission to HUD. The City announces Substantial Amendments to the public through a public notice published in one or more newspapers of general circulation, for a period of 30 days, in order to provide opportunity for public review and comment regarding proposed Substantial Amendments. Notices will be available in English and may also be available in Spanish and other languages, as feasible. The City will consider all written and/or oral comments or views concerning proposed Substantial Amendments that are received during the comment period. A summary of these comments and views, including comments or views not accepted, and the reason why, along with the City's response to each, shall be submitted with each Substantial Amendment.

ii. Non-substantial Amendment

The City is not required to undertake public comment for an Action Plan amendment that is not considered a Substantial Amendment. The City will notify HUD of a Non-substantial Amendment at least five business days before the amendment becomes effective.

e. Application Status and Transparency

As applicable, the City of San Marcos will provide multiple methods of communication to provide applicants with timely information to determine the status of their application for assistance, including by phone, by mail, and in person. When competitively awarding CDBG-MIT funds, the City of San Marcos will publish on the website the eligibility requirements for the funding, all criteria to be used in the selection of application for funding-including the relative importance of each criterion, and the time frame for consideration of applications. The City will maintain documentation to demonstrate that each funded and unfunded application was reviewed and acted upon in accordance with the published eligibility requirements and funding criteria. Currently, no person, household, or business will receive direct benefits through the Local Flood Mitigation Program.

f. Citizen Complaints

Written complaints from the public related to this Action Plan (or its amendments), QPRs, or the City's activities or programs funded with CDBG-MIT, will receive careful consideration and will be answered in writing, or other effective method of communication, within 15 business days, where practicable.

Written complaints should be sent to:

Attn: Community Development Block Grant Division
City of San Marcos
Planning and Development Services Department
630 East Hopkins Street
San Marcos, TX 78666
Email: cdbg@sanmarcostx.gov
Phone: 512-393-8230

Complaints regarding fraud, waste, or abuse of government funds will be forwarded the Department of Housing and Urban Development Office of Inspector General (Phone: 1-800- 347-3735 or Email: hotline@hudoig.gov).

VII. Certifications

In accordance with the applicable statutes and regulations governing the CDBG-MIT funds, including 84 FR 45869, the City of San Marcos (the Grantee) certifies as follows:

- The Grantee certifies that it has in effect and is following a residential anti-displacement and relocation assistance plan in connection with any activity assisted with CDBG-MIT funding.
- The Grantee certifies its compliance with restrictions on lobbying required by 24 CFR part 87, together with disclosure forms, if required by part 87.
- The grantee certifies that the action plan is authorized under State and local law (as applicable) and that the grantee, and any entity or entities designated by the grantee, and any contractor, subrecipient, or designated public agency carrying out an activity with CDBG-MIT funds, possess(es) the legal authority to carry out the program for which it is seeking funding, in accordance with applicable HUD regulations and this

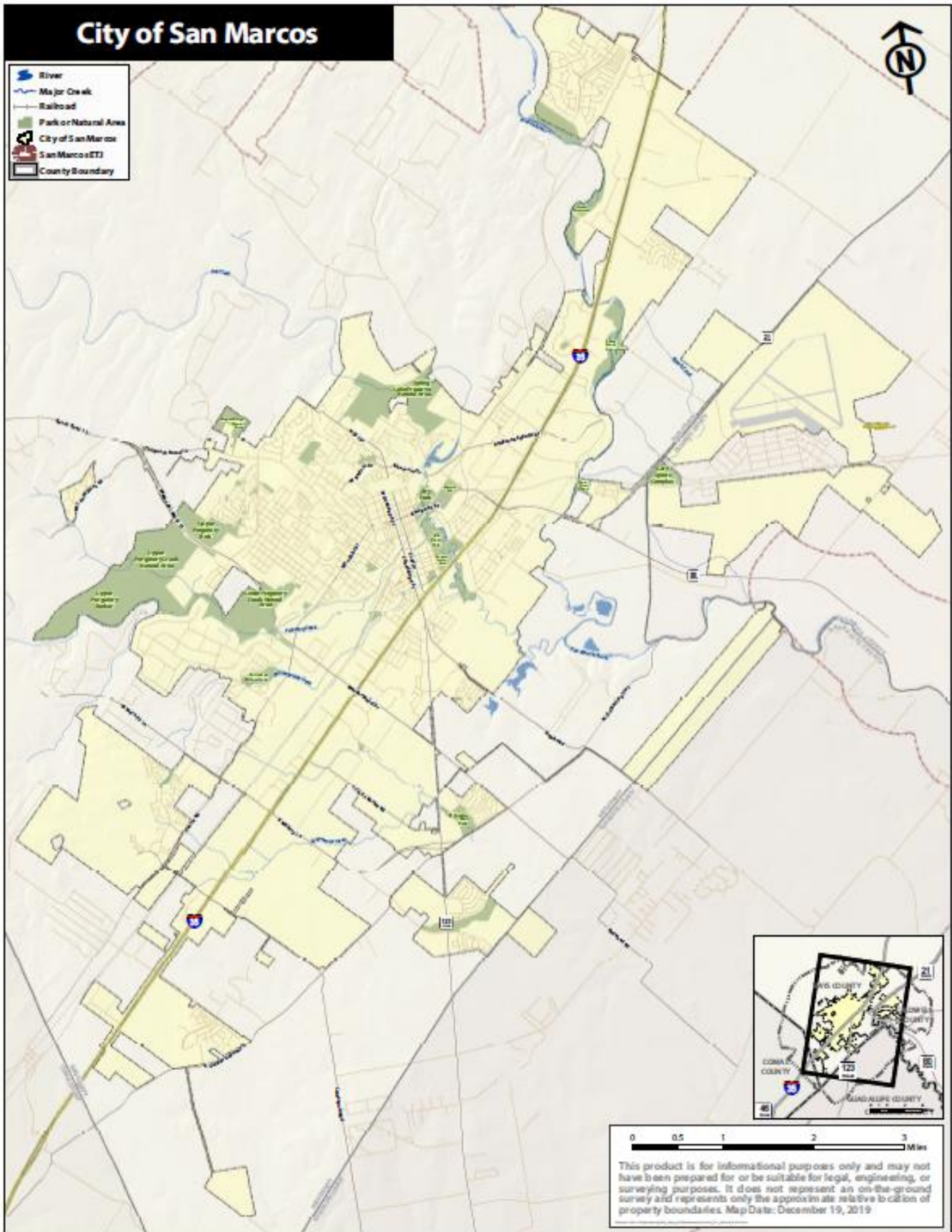
notice. The grantee certifies that activities to be undertaken with CDBG–MIT funds are consistent with its action plan.

- The Grantee certifies that it will comply with the acquisition and relocation requirements of the URA, as amended, and implementing regulations at 49 CFR part 24, except where waivers or alternative requirements are provided for CDBG-MIT funds.
- The Grantee certifies that it will comply with section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u), and implementing regulations at 24 CFR part 135.
- The Grantee certifies that it is following a detailed citizen participation plan that satisfies the requirements of 24 CFR 91.105 or 91.115, as applicable (except as provided for in notices providing waivers and alternative requirements for this grant). Also, each local government receiving assistance from a State grantee must follow a detailed citizen participation plan that satisfies the requirements of 24 CFR 570.486 (except as provided for in notices providing waivers and alternative requirements for this grant).
- The Grantee certifies that it is complying with each of the following criteria:
 - Funds will be used solely for necessary expenses related to mitigation activities, as applicable, in the most impacted and distressed areas for which the President declared a major disaster in 2015, 2016, or 2017 pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 U.S.C. 5121 et seq.).
 - With respect to activities expected to be assisted with CDBG–MIT funds, the relevant action plan has been developed to give priority to activities that will benefit low- and moderate-income families.
 - The aggregate use of CDBG–MIT funds shall principally benefit low- and moderate-income families in a manner that ensures that at least 50 percent (or another percentage permitted by HUD in a waiver published in an applicable Federal Register notice) of the CDBG– MIT grant amount is expended for activities that benefit such persons.
- The grantee will not attempt to recover any capital costs of public improvements assisted with CDBG–MIT funds by assessing any amount against properties owned and occupied by persons of low- and moderate-income, including any fee charged or assessment made as a condition of obtaining access to such public improvements, unless: (a) CDBG–MIT funds are used to pay the proportion of such fee or assessment that relates to the capital costs of such public improvements that are financed from revenue sources other than under this title; or (b) for purposes of assessing any amount against properties owned and occupied by persons of moderate income, the grantee certifies to the Secretary that it lacks sufficient CDBG funds (in any form) to comply with the requirements of clause (a). The Grantee certifies that it grant will conduct and carry out the grant in conformity with title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) and the Fair Housing Act (42 U.S.C. 3601–3619) and implementing regulations, and that it will affirmatively further fair housing.
- The Grantee certifies that it has adopted and is enforcing the following policies.

- A policy prohibiting the use of excessive force by law enforcement agencies within its jurisdiction against any individuals engaged in nonviolent civil rights demonstrations; and
- A policy of enforcing applicable State and local laws against physically barring entrance to or exit from a facility or location that is the subject of such nonviolent civil rights demonstrations within its jurisdiction.
- The grantee certifies that it (and any subrecipient or administering entity) currently has or will develop and maintain the capacity to carry out mitigation activities, as applicable, in a timely manner and that the grantee has reviewed the respective requirements of this notice. The grantee certifies to the accuracy of its Public Law 115–56 Financial Management and Grant Compliance certification checklist, or other recent certification submission, if approved by HUD, and related supporting documentation referenced at section V.A.1.a of this notice and its implementation plan and capacity assessment and related submissions to HUD referenced at section V.A.1.b.
- The Grantee certifies that it considered the following resources in the preparation of its action plan, as appropriate: FEMA Local Mitigation Planning Handbook: https://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf; DHS Office of Infrastructure Protection: <https://www.dhs.gov/sites/default/files/publications/ip-fact-sheet-508.pdf>; National Association of Counties, Improving Lifelines (2014): https://www.naco.org/sites/default/files/documents/NACo_ResilientCounties_Lifelines_Nov2014.pdf; the National Interagency Coordination Center (NICC) for coordinating the mobilization of resources for wildland fire: <https://www.nifc.gov/nicc/>; the U.S. Forest Service’s resources around wildland fire (<https://www.fs.fed.us/managing-land/fire/>); and HUD’s CPD Mapping tool: <https://egis.hud.gov/cpdmaps/>.
- The grantee certifies that it will not use CDBG–MIT funds for any activity in an area identified as flood prone for land use or hazard mitigation planning purposes by the State, local, or tribal government or delineated as a Special Flood Hazard Area (or 100-year floodplain) in FEMA’s most current flood advisory maps, unless it also ensures that the action is designed or modified to minimize harm to or within the floodplain, in accordance with Executive Order 11988 and 24 CFR part 55. The relevant data source for this provision is the State, local, and tribal government land use regulations and hazard mitigation plans and the latest issued FEMA data or guidance, which includes advisory data (such as Advisory Base Flood Elevations) or preliminary and final Flood Insurance Rate Maps.
- The Grantee certifies that its activities concerning lead-based paint will comply with the requirements of 24 CFR part 35, subparts A, B, J, K, and R.
- The Grantee certifies that it will comply with environmental requirements at 24 CFR Part 58.
- The Grantee certifies that it will comply with applicable laws.

VIII. Appendices

Appendix A: CDBG-MIT Eligible Areas



Appendix B: City of San Marcos/Hays County Hazard Mitigation Plan, 2018 Update (“The HMP”)

Appendix C: Outreach – Survey and Public Meetings

Appendix D: Outreach – Hearings and City Council Action

Appendix E: Outreach – Comment Period

Appendix F: Projection of Expenditures and Outcomes

Appendix G: Maps

Appendix H: SF-424