



City of Saginaw

JURISDICTIONAL ANNEX WITHIN THE TARRANT COUNTY
HAZARD MITIGATION ACTION PLAN

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Chapter 1: Introduction

1.1 Planning Process Point of Contact

The point of contact during the Tarrant County Hazard Mitigation Action Plan (HazMAP) planning process for the City of Saginaw was the Fire Chief/Emergency Management Coordinator.

1.2 Annex Organization

This annex has five chapters that satisfy mitigation requirements in 44 CFR Part 201:

Chapter 1: Introduction

Chapter 2: Planning Process

Chapter 3: Hazard Identification and Risk Assessment

Chapter 4: Capabilities Assessment

Chapter 5: Mitigation Strategy

The information provided in this annex is for the City of Saginaw alone. All pertinent information that is not identified in this annex is identified in the other sections of this HazMAP or within the respective appendices.

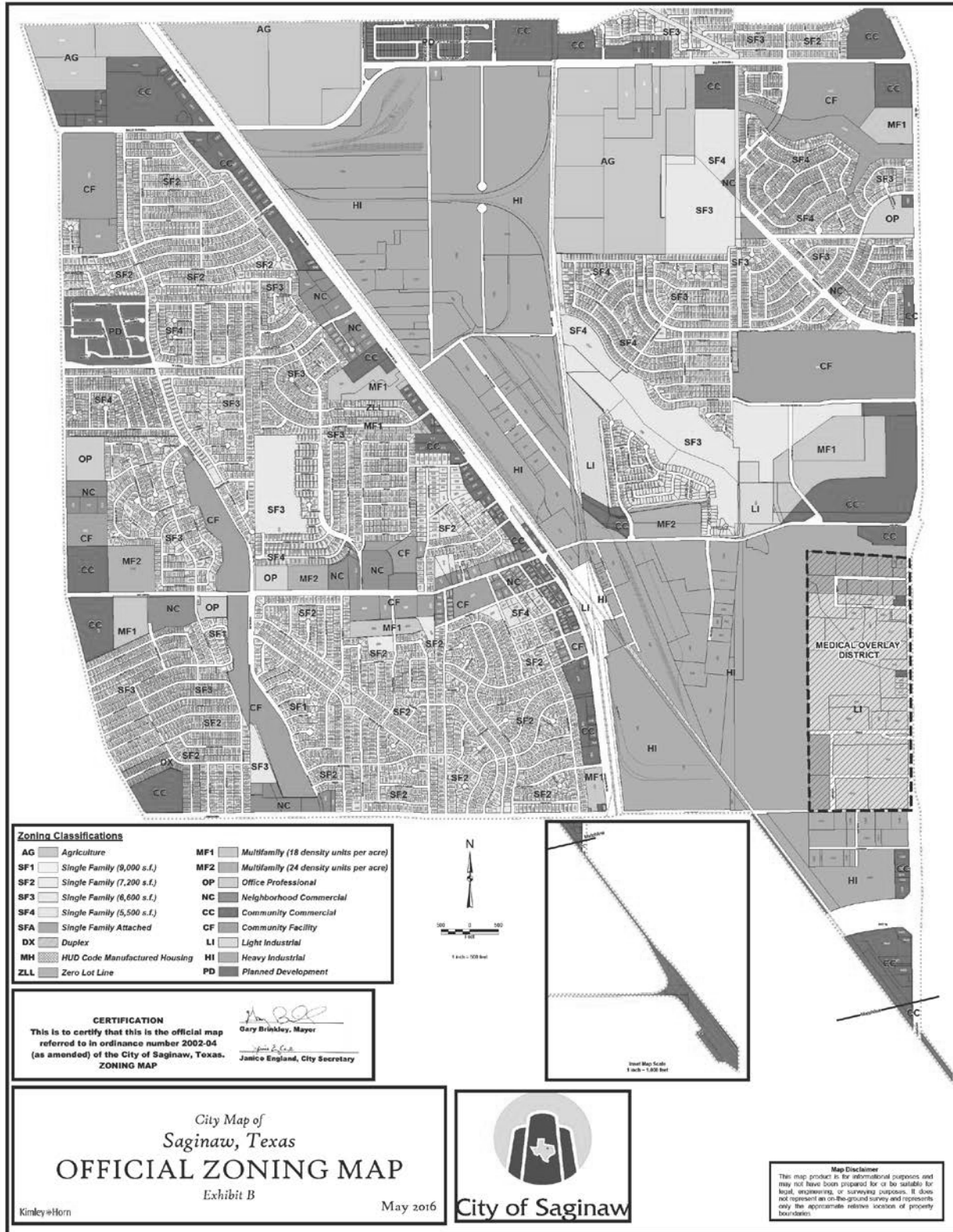
1.3 Hazard Mitigation Action Plan (HazMAP) Adoption

Once the Tarrant County HazMAP has received the designation “Approved Pending Local Adoption” from the Federal Emergency Management Agency (FEMA), the City of Saginaw will take the HazMAP to City Council for final public comment and local adoption. A copy of the resolution will be inserted into the HazMAP and held on file at the North Central Texas Council of governments (NCTCOG).

1.4 Supporting Maps

The following map provides an overview of the City of Saginaw:

- 2016 Official Zoning Map



Chapter 2: Planning Process

(In compliance with 201.6(c)(1))

2.1 Development and Adoption Process

To apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 (DMA 2000) implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Saginaw has historically implemented measures to reduce vulnerability to some hazards, passage of DMA 2000 helped city officials recognize the benefits of a long-term approach to hazard mitigation. This approach is achieved by a gradual decrease of hazard-associated impacts through the implementation of a hazard mitigation action plan (HazMAP). The city's involvement in the Tarrant County HazMAP represents the collective efforts of the Hazard Mitigation Planning Team (HMPT) members, all participating Local Planning Team (LPT) members, the public, and stakeholders.

The city developed this annex in accordance with Part 201.6(c)(5) of DMA 2000. This HazMAP and annex identifies hazards and mechanisms to minimize damages associated with these hazards.

2.2 Organizing the Planning Effort

A comprehensive approach was taken in developing the HazMAP. An open involvement process was established for the public and all stakeholders, which provided an opportunity for everyone to be involved in the planning process and make their views known. The public meeting was advertised with notices in the local newsletter and on social media.

Two teams worked simultaneously on this Tarrant County HazMAP:

1. **Hazard Mitigation Planning Team (HMPT):** This team consisted of points of contact from each participating jurisdiction. The HMPT met to discuss county-wide topics, including hazards and mitigation strategies. The points of contact were the leads of their Local Planning Team (LPT).
2. **Local Planning Team (LPT):** Each jurisdiction had a LPT that consisted of the Emergency Management Coordinator for that jurisdiction as well as designated representatives from within the jurisdiction. This team met to assess capabilities, hazards, and mitigation strategies within the jurisdiction.

2.2.1 Local Planning Team (LPT)

This annex within the Tarrant County HazMAP was developed by the City of Saginaw's Local Planning Team (LPT), with support from the North Central Texas Council of Governments (NCTCOG). The efforts of the LPT were led by the city's Fire Chief/Emergency Management Coordinator.

The LPT was assembled in 2017 with representatives from the City of Saginaw. The city acted as the plan development consultant, providing hazard mitigation planning services.

City of Saginaw Local Planning Team (LPT) Members for the 2020 HazMAP

Jurisdiction	Agency/Organization	Position	Role in LPT
City of Saginaw	Department of the City Manager	Assistant City Manager	General oversight, hazard identification, and plan development
City of Saginaw	Fire Department	Fire Chief/Emergency Management Coordinator	General oversight, hazard identification, and plan development
City of Saginaw	Police Department	Police Administration	Hazard Identification and plan development
City of Saginaw	Public Services Department	Public Services Superintendent	Hazard Identification and plan development
City of Saginaw	Public Services Department	Director of Public Services	Hazard Identification and plan development
City of Saginaw	Public Services Department	Head City Mechanic/Fleet Services	Hazard Identification and plan development
City of Saginaw	City Development Department	City Engineer	Hazard Identification and plan development
City of Saginaw	Fire Department	Division Chief/Fire Services	Hazard Identification and plan development
City of Saginaw	Fire Department	Division Chief/Fire Operations	Hazard Identification and plan development

In addition, NCTCOG's Emergency Preparedness Department participated in the following activities associated with development, approval, and adoption of the plan:

1. Prepared, based on community input and LPT direction, the first draft of the plan and provided technical writing assistance for review, editing, and formatting.
2. Submitted proposed plan to the Texas Division of Emergency Management (TDEM) and the Federal Emergency Management Agency (FEMA) for review and approval and completed any edits requested by these organizations.
3. Coordinated plan adoption processes with the city, TDEM, and FEMA.

Chapter 3: Hazard Identification and Risk Assessment

(In compliance with 201.6(c)(2)(i), 201.6(c)(2)(ii), 201.6(c)(2)(ii)(A), 201.6(c)(2)(ii)(B), 201.6(c)(2)(ii)(C), 201.6(c)(2)(iii), and 201.6(c)(3)(ii))

The following information serves to assist the city in determining and prioritizing appropriate mitigation action items to reduce losses from identified hazards.

3.1 Changes in Development since 2015

(In compliance with 201.6(d)(3))

Increasing Vulnerability	
New development in hazard-prone areas:	
There has been no recorded change since 2015.	
Decreasing Vulnerability	
Mitigation actions implemented to reduce risk or adopted codes to protect future development:	
A full list of completed mitigation action items are described in Chapter 5 of this annex.	

Declared Disaster Code	Incident Period	Date Declared	Description	Impact
DR-4266	March 7-March 29, 2016	March 19, 2016	Severe storms, tornadoes, and flooding.	There was property damage to both commercial and residential structures in the city.

3.2 Community Profile

The following tables reflect the community profile, vulnerable facilities in the jurisdiction, and the critical facilities and infrastructure that are exposed to the identified hazards and have the potential to be impacted. This information was gathered from the United States Census and from the City of Saginaw.

Community Profile from US Census Bureau Quick Facts (Source-www.census.gov)	
Population Estimates (V2016)	23,014
Persons under 5 years (%)	6.8
Persons 65 years and over (%)	9.2
Language other than English spoken at home (%)	19
With a disability, under age 65 (%)	7.6
Persons without health insurance, under age 65 (%)	12.5
Persons in poverty (%)	8.1
Median household income	\$81,070
Households, 2012-2016	6,836
Median value of owner-occupied housing units, 2012-2016	\$130,000

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The critical and vulnerable facilities listed below are in the hazard area for all or some of the hazards identified in the City of Saginaw.

City of Saginaw Critical and Vulnerable Facility/Asset Inventory					
Facility/Asset Name or Description and Address	Type of Asset	Capacity	Square Feet	Structure Value	Content Value
Fire Administration, City Emergency Operations Center, Fire Station 1 400 South Saginaw Boulevard	Government Facility	50 people	16,000	\$454,095	\$5,000,000
Tarrant County Fire Alarm Center 400 South Saginaw Boulevard	Emergency Communications Facility, Dispatch	5 people	3,000	Unknown	\$1,000,000
Gavilon Grain 425 South Fairmount	Food Products	100 people	400,000	\$2,214,160	Unknown
Con Agra Foods 221 South Fairmount	Food Processing	50 people	56,400	\$4,033,983	Unknown
CTI Chefco Foods 504 Sansom Boulevard	Food Processing	150 people	157,987	\$13,593,396	Unknown
CTI Bean Maker 500 Sansom Boulevard	Food Processing	50 people	72,512	\$3,045,504	Unknown
Standard Meat 455 Sansom Boulevard	Food Processing	100 people	77,702	\$3,270,180	Unknown
Ventura Foods 1100 Defiel Road	Food Processing	150 people	200,790	\$7,574,900	Unknown
Attebury Grain 624 Burlington Road	Food Products	50 people	50,000	\$860,318	Unknown
Cargill/Horizon Milling 401 East Industrial Avenue	Food Processing	100 people	64,607	\$3,544,266	Unknown

3.3 Natural Hazard Profiles

The City of Saginaw’s Local Planning Team (LPT) ranked potential hazards in order of risk, with 1 being the highest. Risk, for the purposes of hazard mitigation planning, is the potential for damage or loss created by the interaction of natural hazards with community assets. If a natural hazard does not and could not impact the City of Saginaw in any way, not applicable (N/A) is used as its rank and its reasoning is noted in the hazard profile section of this chapter.

Rank of Risk	Natural Hazard
N/A	Wildfire
1	Tornado
2	Thunderstorm (includes hail, wind, lightning)
3	Expansive Soils
4	Winter Storms
5	Earthquake
6	Flooding
7	Extreme Heat
8	Drought

The following terms are used to describe the geographic area affected, probability of future occurrence, and the maximum probable extent.

Geographic Area Affected

- Negligible: Less than 10 percent of planning area.
- Limited: 10 to 25 percent of planning area.
- Significant: 25 to 75 percent of planning area.
- Extensive: 75 to 100 percent of planning area.
 - Planning area refers to the entire City of Saginaw.

Probability of Future Occurrence

- Unlikely: Event possible in next 10 years.
- Occasional: Event possible in next 5 years.
- Likely: Event probable in next 3 years.
- Highly Likely: Event probable in next year.

Maximum Probable Extent (Magnitude/Strength of Hazard using the following extent scale)

- Minor: Limited classification on scientific scale, slow speed of onset or short duration of event.
- Medium: Moderate classification on scientific scale, moderate speed of onset or moderate duration of event.
- Major: Severe classification on scientific scale, fast speed of/immediate onset or long duration of event.

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Extent Scale			
	Minor	Medium	Major
Drought	PDSI -1.99 to 1.99+	PDSI -2.00 to -2.99	PDSI -3.00 to -5.00
Earthquake	Mercalli Scale: I-V Richter Scale: 0-4.8	Mercalli Scale: VI-VII Richter Scale: 4.9-6.1	Mercalli Scale: VIII-XII Richter Scale: 6.2-8.1+
Expansive Soils	EI Expansion Potential: 21-50 (Low) EI Expansion Potential: 0-21 (Very Low)	EI Expansion Potential: 51-90 (Medium)	EI Expansion Potential: 91-130 (High) EI Expansion Potential: >130 (Very High)
Extreme Heat	Heat Index 80F-105F	Heat Index 105F-129F	Heat Index >130F
Flooding	Outside of 100yr and 500yr Flood Zones, Zone A, AE, X	500yr Flood Zone, Zone X	100yr Flood Zone, Zone AE, A
Thunderstorm	Hail: H0-H4, 5-40mm Wind Force: 0-3 Knots: <1-10 LAL: 1-2	Hail: H5-H6, 30-60mm Wind Force: 4-6 Knots: 11-27 LAL: 3-4	Hail: H7-H10, 50->100mm Wind Force: 8-12 Knots: 28-64+ LAL: 5-6
Tornado	EF0	EF1-EF2	EF3-EF5
Wildfire	KBDI 0-200	KBDI 200-400	KBDI 600-800
Winter Storms	Temperatures 40F to 35F Wind chill 36F to 17F	Temperatures 30F to 20F Wind chill 25F to -4F	Temperatures 15F to -45F Wind chill 7F to -98F

The full description of each hazard identified is provided in Section 3 of this HazMAP.

Location: Drought, earthquakes, expansive soils, extreme heat, thunderstorms, tornadoes, and winter storms do not have geographic boundaries and can impact the entire county equally, which includes all participating jurisdictions. Wildfires can be expected to threaten rural and urban jurisdictions with undeveloped land. Flooding is a severe threat to jurisdictions containing 100-year floodplains or bodies of water.

The following hazards are listed in alphabetical order and describe the location and extent of each hazard, details of previous occurrences, probability data on future events, and vulnerability to each hazard.

3.3.1 Drought

Hazard Profile: Drought	
Category	Response
Risk Ranking	8
Geographic Area Affected	Significant
Probability of Future Occurrence	Likely
Maximum Probable Extent	Minor
Potential Impact	Property damage Loss of water supply Increases grassfire potential and intensity Negative impact on citizens, to include water restrictions and lack of drinkable water supply Impact on car washes, parks, and pools
Vulnerabilities	All populations, economy, structures, improved property, critical facilities and infrastructure, and natural environments are exposed to this hazard, though impacts are considered minimal due to the minor extent expected.

Jurisdiction's ground-water supply: There is overhead water storage in three locations throughout the city.

Any zoning districts which allow for agricultural uses such as commercial stables and barns, farms, and animal lots, which could be impacted by drought: No.

Describe any water restrictions used in your jurisdiction: In a period of drought, the City of Saginaw initiates water restrictions by setting days the public may water their lawns and other outside watering including washing cars, driveways, and all other non-essential water usage.

3.3.2 Earthquake

Hazard Profile: Earthquake	
Category	Response
Risk Ranking	5
Geographic Area Affected	Extensive
Probability of Future Occurrence	Unlikely
Maximum Probable Extent	Minor
Potential Impact	Injury or death Property and infrastructure damage Water contamination or loss via broken pipes Transportation and communication disruption or damage Increase in traffic accidents Building collapse Natural gas leak Misplaced residents Power outages Natural environments damage, to include protected species and critical habitats
Vulnerabilities	All populations, economy, structures, improved property, critical facilities and infrastructure, and natural environments are exposed to this hazard, though impacts are undetermined due the lack of historical data. With high-rise buildings being more susceptible to earthquakes, three major grain storage and production facilities could all sustain major damage and failure of the structures. The three major facilities are Horizon Milling, Attabury Grain, and Miller Milling. There is an extensive water and sewer system that, if damaged, could render the entire system non-working. The water system includes three overhead water storage facilities located throughout the city.

Past damage done to jurisdictional roads and critical infrastructure due to earthquakes, including where the damage occurred and how much it cost to fix: No prior earthquakes reported.

3.3.3 Expansive Soils

Hazard Profile: Expansive Soils	
Category	Response
Risk Ranking	3
Geographic Area Affected	Significant
Probability of Future Occurrence	Highly Likely
Maximum Probable Extent	Medium
Potential Impact	Property damage due to foundation damage Water contamination or loss via broken pipes Building and infrastructure damage Road damage Transportation delays due to road condition Damage to utility lines
Vulnerabilities	Expansive soils are a major consideration to all existing and future structures and infrastructure. All populations, economy, structures, improved property, critical facilities and infrastructure, and natural environments are exposed to this hazard.

Past damage done to jurisdictional roads and critical infrastructure due to expansive soils, including in what part of your jurisdiction the damage occurred: The City of Saginaw budgets and spends \$370,000 rebuilding and repairing roads and sidewalks due to heaving, separation, cracking, and sinking due to expansive soils. The damage is consistently spread across all portions of the city including, but not limited to, commercial and residential areas. The City of Saginaw does require a permitting and review process for all slab repairs and corrections. This is tracked through the building department. In pulling the recent statistics, the Building Department has had 45 permits pulled in the last 18 months with a total cost of repair of \$270,000. City buildings have not had a documented repair request over the last 10 years.

3.3.4. Extreme Heat

Hazard Profile: Extreme Heat	
Category	Response
Risk Ranking	7
Geographic Area Affected	Extensive
Probability of Future Occurrence	Occasional
Maximum Probable Extent	Minor
Potential Impact	Heatstroke or death. People should stay indoors to prevent heatstroke; elderly people who cannot afford air conditioning are at greatest risk Property damage Loss of water supply Increases grassfire potential and intensity Impact on logistics Power outages Road buckling Disruption in critical infrastructure operations Vehicle engine failure
Vulnerabilities	While extreme heat pose a serious threat to any population, issues with housing and mobility could make it difficult for the elderly to seek shelter in response to such a threat. The elderly, homeless, and outdoor laborers need to take proper precautions. All populations, economy, structures, improved property, critical facilities and infrastructure, and natural environments are exposed to this hazard.

Most vulnerable populations to extreme heat in your jurisdiction and their location within your jurisdiction: The elderly, very young people, and people with poor health are most at risk from extreme heat.

Are there cases of extreme heat exposure resulting from special events held in your jurisdiction? The City of Saginaw has no history of extreme heat problems. The city utilizes building codes, energy codes, and a strict outdoor event permitting process to help mitigate the effects of extreme heat situations.

Have any critical facilities in your jurisdiction experienced any impacts from extreme heat (e.g., power failure due to heat)? No.

3.3.5 Flooding

Hazard Profile: Flooding	
Category	Response
Risk Ranking	6
Geographic Area Affected	Limited
Probability of Future Occurrence	Occasional
Maximum Probable Extent	Minor
Potential Impact	Loss of electricity Loss of, or contamination of, water supply Loss of property Structure and infrastructure damage – flooded structures and eroded roads Misplaced residents Snakes migrate and mosquitoes increase Fire – as a result of loss of water supply Debris in transportation paths Emergency response delays Disruption of traffic can lead to impacts to the economy Natural environments damage, to include protected species and critical habitats
Vulnerabilities	Based on historical data, flooding has caused zero injuries and fatalities per year and is expected to have the same results in the future. All populations, economy, structures, improved property, critical facilities and infrastructure, and natural environments are exposed to this hazard. Fire Station 1 experiences minor water entry during high water events but the problem is mitigated by city staff.

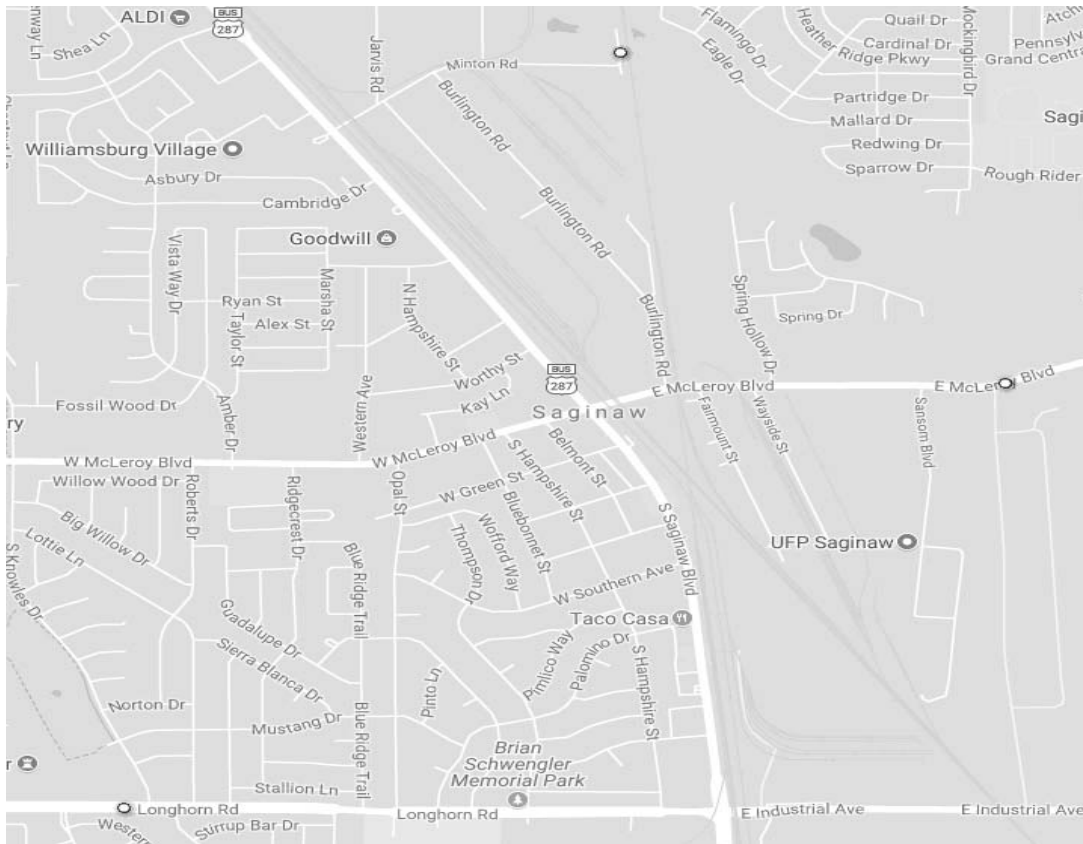
Past damage done to jurisdictional roads and critical infrastructure due to flooding, including where in your jurisdiction the damage occurred: No damage has been reported since 2015. The only city building that experiences problems with flooding is Fire Station 1, located at 400 South Saginaw Boulevard.

Does your jurisdiction require a permit for foundation repairs? If so, approximately how much money has been spent by citizens to repair properties damaged by flooding? No.

Intersections or traffic routes impacted by flooding: The problem areas in Saginaw due to flooding are the following intersections and roadways, West McLeroy and Knowles, State Highway 156 and Bailey Boswell, Lawson Road, and Industrial Boulevard, Business Highway 287 and Worthy Street, Jarvis Road and Brenda Road, Business Highway 287 and Palamino Drive, and East McLeroy Boulevard and Sansom Boulevard. See low water crossing below. These roads have the potential to flood.

Names of any creeks or rivers that flood: Big Fossil Creek and Little Fossil Creek.

Low Water Crossing: A low water crossing provides a type of bridge when water flow is low. Under high-flow conditions, water runs over the roadway and precludes vehicular traffic. This crossing can be dangerous when flooded. Crossing is identified with a yellow dot.



Road	Flooding Source	Low Water Crossing Type
Longhorn Road	Cement Creek West Fork	Vented Ford
McLeroy Boulevard	Little Fossil Creek	Vented Ford
Zephyr Road	Little Fossil Creek	Vented Ford

Low Water Crossing Types Defined:

Bridges are open-bottom structures with elevated decks. They may be designed with one or several piers. Low water bridges generally have greater capacity and are able to pass higher flows underneath the driving surface than most vented and unvented fords.

Vented fords have a driving surface elevated some distance above the streambed with culverts (vents) that enable low flows to pass beneath the roadbed. The vents can be one or more pipes, box culverts, or open-bottom arches. In streams carrying large amounts of debris, the driving surface over the vent may be removable, permitting debris to be cleared after a large flow event.

National Flood Insurance Program Compliance

Participation in the National Flood Insurance Program (NFIP) is based on a voluntary agreement between a community and the Federal Emergency Management Agency (FEMA). For communities that adopt a floodplain management ordinance to reduce flood risks to new construction, federally backed flood insurance is made available to property owners in the community. Compliance with the NFIP, however, extends beyond mere participation in the program. The three basic components of the NFIP include: 1) floodplain identification and mapping risk, 2) responsible floodplain management, and 3) flood insurance. The City of Saginaw is a participant in the NFIP and provides details about the community and their participation below. The following information was requested:

CID	480610#
Community Name	City of Saginaw
County	Tarrant County
Initial FHBM Identified	03/08/74
Initial FIRM Identified	09/17/80
Current Effective Map Date	09/25/09
Reg-Emer Date	09/17/80
Tribal	No

Source: <http://www.fema.gov/cis/TX.html>.

Who acts as your floodplain administrator/manager? Director of Public Services.

What specific flooding ordinances and plans does your jurisdiction have? The City of Saginaw has an adopted subdivision plan that is followed to account for the construction of all structures in or adjacent to any floodplain.

Repetitive and Severe Repetitive Loss Properties: There is currently 1 residential repetitive loss property and 0 severe repetitive loss properties within the City of Saginaw. **Repetitive loss properties** are those for which two or more losses of at least \$1,000 each have been paid under the National Flood Insurance Program (NFIP) within any 10-year period since 1978. **Severe repetitive loss properties** are residential properties that have at least four NFIP payments over \$5,000 each and the cumulative amount of such claims exceeds \$20,000, or at least two separate claims payments with the cumulative amount exceeding the market value of the building.

Residential Parcels Located in 100-year Floodplain	Percentage of Total Residential Parcels Located in 100-year Floodplain	Commercial and Industrial Parcels in 100-year Floodplain	Percentage of Commercial and Industrial Parcels in 100- year Floodplain
54	.74%	77	17%

Source: City of Saginaw and Kimly-Horn GIS (Geographic Information System).

Land Cover Type	Total Area in Jurisdiction (Acres)	Total Area in the 100-year Floodplain (Acres)	Percentage (%) of Area in the 100-year Floodplain
Commercial/Industrial	1636.6	433.6	26.5%
Residential	1302.7	10.7	<1%
Agriculture	1099.7	225.1	20.5%
Total	4039	669.4	16.57%

Source: City of Saginaw and Kimly-Horn GIS (Geographic Information System).

The following National Flood Insurance Program (NFIP) questions were answered to the best of the City of Saginaw's ability.

Insurance Summary		
NFIP Topic	Source of Information	Comments
How many NFIP policies are in the community? What is the total premium and coverage?	State NFIP Coordinator or FEMA NFIP Specialist	Policies in-force: 29 Insurance in-force: \$7,266,00 Written premium in-force: \$50,330
How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?	FEMA NFIP or Insurance Specialist	Since 1978: 7 claims have been filed. \$111,199.79 has been paid.
NFIP Topic	Source of Information	Comments
How many structures are exposed to flood risk within the community?	Community Floodplain Administrator (FPA)	At least 29 structures are at risk of flooding.
Describe any areas of flood risk with limited NFIP policy coverage	Community FPA and FEMA Insurance Specialist	No data available.
Staff Resources		
NFIP Topic	Source of Information	Comments
Is the Community FPA or NFIP Coordinator certified?	Community FPA	No.
Is floodplain management an auxiliary function?	Community FPA	Yes.
Provide an explanation of NFIP administration services (e.g. permit review, GIS, education or outreach, inspections, engineering capability)	Community FPA	Permit review, geographic information system, and inspections.

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What are the barriers to running an effective NFIP program in the community, if any?	Community FPA	No data available.
Compliance History		
NFIP Topic	Source of Information	Comments
Is the community in good standing with the NFIP?	State NFIP Coordinator, FEMA NFIP Specialist, community records	Yes.
Are there any outstanding compliance issues (i.e. current violations)?		No.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?		No data available.
Is a CAV or CAC scheduled or needed?		No.
Regulation		
NFIP Topic	Source of Information	Comments
When did the community enter the NFIP?	Community Status Book https://www.fema.gov/national-flood-insurance-program-community-status-book	09/17/80
Are the FIRMs digital or paper?	Community FPA	Digital and paper.
Do floodplain development regulations meet or exceed FEMA or state minimum requirements? If so, in what ways?	Community FPA	Yes. By building ordinance.
Provide an explanation of the permitting process.	Community FPA, State, FEMA NFIP	No data available.
Community Rating System (CRS)		
NFIP Topic	Source of Information	Comments
Does the community participate in CRS?	Community FPA, State, FEMA NFIP	No.

The City of Saginaw will continue to address the gaps in data over the next five years and expand the capabilities of the NFIP program by implementing NFIP-related mitigation actions identified in Chapter 5 of this annex.

3.3.6 Thunderstorm

Hazard Profile: Thunderstorm	
Category	Response
Risk Ranking	2
Geographic Area Affected	Significant
Probability of Future Occurrence	Highly Likely
Maximum Probable Extent	Medium
Potential Impact	Property damage to fences, vehicles, equipment, and roofs Transportation delays Injuries and deaths Debris from trees and damaged property Electrical grid problems Communication problems – phone and internet lines down Natural environments damage, to include protected species and critical habitats
Vulnerabilities	All populations, economy, structures, improved property, critical facilities and infrastructure, and natural environments are exposed to this hazard. The City of Saginaw economy could be greatly affected with the event of a major thunderstorm event. The city depends on revenue from the commercial and retail industry and the loss of those revenue streams would damage the economy of the city in a major way.

Past damage due to thunderstorms, and specifically, which hazard within the thunderstorm (hail, high wind, and lightning): Since 2015, there has been \$33,000 in damage due to high winds.

Number of homes lost due to lightning-induced fires: None.

3.3.7 Tornado

Hazard Profile: Tornado	
Category	Response
Risk Ranking	1
Geographic Area Affected	Extensive
Probability of Future Occurrence	Occasional
Maximum Probable Extent	Major
Potential Impact	Injury or death Power outage Blocked roadways from trees and damaged property Natural gas pipeline breaks – fire injuries, possible deaths Transportation disruption Rerouting traffic Loss of property Structure and infrastructure damage Misplaced residents Natural environments damage, to include protected species and critical habitats
Vulnerabilities	All populations, economy, structures, improved property, critical facilities and infrastructure, and natural environments are exposed to this hazard.

Past damage done to your jurisdiction's roads and critical infrastructure due to tornadoes, including where the damage occurred and how much it cost to repair: There have been no reports of a tornado since 2015, according to the National Centers for Environmental Information, though the City of Saginaw has record of an EF0 tornado on March of 2016 that caused over \$500,000 in property damage.

Is there an area of the city that is the most vulnerable to tornadoes? The city as a whole is flat and the entire city is vulnerable to a tornado event. The city has had many individual tornado shelters permitted over the past five years and the city is covered by an outdoor warning siren system.

3.3.8 Wildfire

Hazard Profile: Wildfire	
Category	Response
Risk Ranking	N/A
Geographic Area Affected	N/A
Probability of Future Occurrence	N/A
Maximum Probable Extent	N/A
Potential Impact	N/A
Vulnerabilities	Wildfires are not a threat to the City of Saginaw, for there is little open space in the city and the fire department does not anticipate a fire out of their control.

3.3.9 Winter Storm

Hazard Profile: Winter Storm	
Category	Response
Risk Ranking	4
Geographic Area Affected	Extensive
Probability of Future Occurrence	Likely
Maximum Probable Extent	Minor
Potential Impact	Structural damage Injuries or death Power outages Loss of ability to use roads for driving Increased traffic accidents Loss of heat Stranded travelers / motels at full capacity Tree debris create fuel load for fire hazard Delayed emergency response time Frozen/ busted pipes leading to loss of water Disruption of traffic Impacts to the economy Communication capabilities decrease
Vulnerabilities	Given the dynamic nature of winter storms, all populations, economy, structures, improved property, critical facilities and infrastructure, and natural environments in the city are exposed to this hazard.

Bridges and overpasses that can be impacted by a winter storm, including street names and their location within your jurisdiction: The City of Saginaw only has three bridges that are part of a major traffic and safety issue when they are exposed to a winter storm. Two of the bridges are part of the Highway/Loop 820 corridor and one bridge is on Meacham Boulevard, over the railroad switching yard.

What impacts are caused when these bridges and/or overpasses are impacted by winter storms? Minor traffic issues due to having to slow down to navigate iced over bridges, potential traffic accidents. When the bridges become impassable it causes major traffic congestion and the closure of a major highway.

3.4 Historical Events

The following, taken from the National Centers for Environmental Information, are natural hazard events that occurred within the City of Saginaw between 2015 and 2017. The material is organized by location and date.

Historical Events (Since 2015) from the National Centers for Environmental Information (www.ncdc.noaa.gov)								
Location	Date	Event Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage	Magnitude Type
Saginaw	11/17/2015	Thunderstorm Wind	35	0	0	\$1,000	\$0	EG
Saginaw	3/8/2016	Thunderstorm Wind	61	0	0	\$20,000	\$0	EG
Saginaw	3/8/2016	Hail	1	0	0	\$0	\$0	
Saginaw	3/8/2016	Thunderstorm Wind	60	0	0	\$5,000	\$0	EG
Saginaw	7/9/2016	Thunderstorm Wind	52	0	0	\$5,000	\$0	EG
Saginaw	7/28/2016	Thunderstorm Wind	56	0	0	\$0	\$0	EG
Saginaw	7/28/2016	Thunderstorm Wind	56	0	0	\$1,000	\$0	EG
Saginaw	7/28/2016	Thunderstorm Wind	52	0	0	\$1,000	\$0	EG
Total				0	0	\$33,000	\$0	

*EG-Wind Estimated Gusts

3.5 Overall Vulnerability

The City of Saginaw identified their greatest vulnerabilities and concerns:

- Buildings in Saginaw are most susceptible to the damages from tornadoes and thunderstorms.
- The grain storage and productions facilities are of utmost importance to protect from all hazards. The City of Saginaw has a very large portion of the city that is industrial. These areas are filled with major food producers and grain production. A hazard, such as an earthquake, could potentially force the closing of all of these structures due to the precise production techniques of these businesses.
- Foundation and road damage is a continual problem due to expansive soils.

Chapter 4: Capabilities Assessment

(In compliance with 201.6(c)(3))

The following capability assessment examines the ability of the city to implement and manage a comprehensive mitigation strategy. Strengths, weaknesses, and resources of the jurisdiction are identified as a means to develop an effective Hazard Mitigation Action Plan (HazMAP). The capabilities identified in this assessment were evaluated collectively to develop feasible recommendations, which support the implementation of effective mitigation activities.

A questionnaire was distributed to the City of Saginaw's Local Planning Team (LPT) to initiate this assessment. The survey included questions regarding existing plans, policies, and regulations that contribute to or hinder the ability to implement hazard mitigation activities, including: legal and regulatory capabilities; administrative and technical capabilities; and fiscal capabilities.

Planning and Regulatory Assessment		
Type of Plans	Have capability?	Does the plan address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Yes	Yes; Yes; Yes
Capital Improvement Plan	Yes	Yes; Yes; Yes
Economic Development Plan	Yes	Yes; Yes; Yes
Local Emergency Operations Plan	Yes	Yes; Yes; Yes
Continuity of Operations Plan	Yes	Yes; Yes; Yes
Transportation Plan	No	
Stormwater Management Plan	Yes	Yes; Yes; Yes
Community Wildfire Protection Plan	No	
Other Plans (e.g., disaster recovery, climate change adaptation)	No	
Land Use Planning and Ordinances	Have capability?	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning Ordinance	Yes	Yes; Yes
Subdivision Ordinance	Yes	Yes; Yes
Floodplain Ordinance	Yes	Yes; Yes
Flood Insurance Rate Maps	Yes	Yes; Yes
Natural Hazard Specific Ordinance (e.g., stormwater, wildfire)	Yes	Stormwater: Yes; Yes
Acquisition of land for open space and public recreation uses	Yes	Public parks: Yes; Yes

Tarrant County Hazard Mitigation Action Plan

Building Code, Permitting, and Inspections	Have capability?	
Building Code	Yes	Version/Year: IBC 2012
Building Code Effectiveness Grading Schedule (BGEGS) Score	No	
Fire Department ISO Rating	Yes	Rating: 2
Site Plan Review Requirements	Yes	Type(s) of requirement: staff, third party, board
Administrative and Technical Assessment		
Administration	Have capability?	Describe capability. Is coordination effective?
Planning Commission	Yes	Planning & Zoning Board; Yes
Mitigation Planning Committee	Yes	Planning and hazard assessment; Yes
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	Full time Public Works Department; Yes
Mutual Aid Agreements	Yes	Surrounding city and county departments; Yes
Staff	Have capability? FT/PT*	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	FT	Yes; Yes; Yes
Floodplain Administrator	PT	Public Works Director: Yes; Yes; Yes
Emergency Manager	PT	Fire Chief: Yes; Yes; Yes
Community Planner	PT	Public Works Director: Yes; Yes; Yes
Civil Engineer	PT	City contract: Yes; Yes; Yes
GIS Coordinator	PT	City contract: Yes; Yes; Yes
Other:	FT	Public Works Operations Manager: Yes; Yes; Yes
*Full-time (FT) or part-time (PT) position		
Technical	Have capability?	Describe capability. Has capability been used to assess or mitigate risk in the past?
Warning Systems/Services (e.g., Reverse 911, outdoor warning signals)	Yes	Outdoor warning sirens, CodeRed; Yes
Hazard data and information	Yes	Maintain pre-incident plans, Tier 2, yearly inspection logs; Yes
Grant writing	Yes	Fire Department staff; Yes
HaZUS analysis	No	
Other	No	

Education and Outreach Assessment		
Program or Organization	Have capability?	Describe program or organization and how it relates to disaster resilience and mitigation. Could the program or organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	Saginaw Community Emergency Response Team (C.E.R.T.), Saginaw Citizen Police Academy (CPA), and Community Link can all be utilized to assist in disaster situations and hazard prevention. Yes
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	Fire Department public events, preparedness fair, school visits, Fire Department Clown Program
Natural disaster or safety related school programs	Yes	In-school programs, multiple handouts, KnowWhat2Do; Yes
StormReady certification	No	
Firewise Communities Certification	No	
Public/private partnership initiatives addressing disaster-related issues	Yes	Community Link outreach programs; Yes
Other	No	
Financial Assessment		
Funding Resources	Have capability?	Has the funding resource been used in past? If yes, for what type of activities? Could the resource be used to fund future mitigation actions?
Capital Improvements project funding	Yes	Large capital improvements and emergencies; Yes
Authority to levy taxes for specific purposes	Yes	City Council has authority to increase property tax rate to state maximum; No
Fees for water, sewer, gas, and/or electric services	Yes	Water and sewer; Yes
Impact fees for new development	Yes	Water and wastewater projects; Yes
Stormwater utility fee	Yes	Monthly fees charged to residents and businesses; Yes
Incurrence of debt through general obligation bonds and/or special tax bonds	Yes	City Council has authority to issue all debt needs; Yes
Incur debt through private activities	Yes	City Council can incur debt from private banks; No
Community Development Block Grant (CDBG)	Yes	Some areas meet CDBG requirements; Yes

Other federal funding programs	No	
State funding programs	No	
Other	No	

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

Actions that can expand and improve existing authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures for mitigation actions, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, approving mitigation updates, and additions to existing plans as new needs are recognized. This includes creating multiple Safe Place locations at the city park to provide shelter during inclement weather.

Chapter 5: Mitigation Strategy

(In compliance with 201.6(c)(3)(i), 201.6(c)(3)(i), 201.6(c)(3)(ii), 201.6(c)(3)(iv), 201.6(c)(3)(iii), and 201.6(c)(4)(ii))

The mitigation strategy serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The Stafford Act directs local mitigation plans to describe hazard mitigation action and establish a strategy to implement those actions.¹ Therefore, all other requirements for a local mitigation plan (or hazard mitigation action plan) lead to and support the mitigation strategy.

5.1 Mitigation Goals

The Tarrant County Hazard Mitigation Planning Team (HMPT) collectively reviewed the extensive list of mitigation goals of the 2015 Hazard Mitigation Action Plan (HazMAP) and unanimously chose to streamline the mitigation goals for this update. Therefore, the new goals are to protect life and reduce bodily harm from natural hazards, and to lessen the impacts of natural hazards on property and the community through hazard mitigation.

5.2 2015 Action Items

The City of Saginaw's action items in the 2015 Tarrant County HazMAP were determined by the 2015 Local Planning Team (LPT). Below are the action items from the 2015 plan and the status of each action.

¹ Section 322(b), Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended, 42 U.S.C. 5165.

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
Severe Thunderstorms, High Winds, Tornadoes	Assist as many Saginaw citizens as possible in receiving a storm shelter.	Aggressively participate in the State of Texas Tornado Shelter Rebate Program.	Annually	Fire Department, Office of Emergency Management	\$0	\$100,000	Hazard Mitigation Grant Program (HMGP)
STATUS: In progress							
Severe Thunderstorms, High Winds, Tornadoes	Ensure critical facilities in Saginaw have adequate safe rooms to protect against high-wind events and tornadoes.	Evaluate the current conditions of critical facilities to determine which ones, if any, need safe rooms installed.	Annually	Fire Department, Office of Emergency Management	\$0	\$100,000	City budget, grant opportunities
		STATUS: In progress					
		Establish the size and space needed to shelter the population of the critical facility.	Annually	Fire Department, Office of Emergency Management	\$0	\$100,000	City budget, grant opportunities
		STATUS: In progress					
		Install safe rooms as needed in critical facilities.	Annually	Fire Department, Office of Emergency Management	\$100,000	\$100,000	City budget, grant opportunities
		STATUS: In progress					

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
Severe Thunderstorms, High Winds, Lightning, Tornadoes, Extreme Temperatures		Provide extreme weather mitigation information to citizens through all available social media outlets and city notification methods, including info regarding extreme heat, severe thunderstorms and tornadoes. Ensure the city website is kept up to date regarding extreme weather education and extreme weather mitigation activities.	Annually	Fire Department, Office of Emergency Management	\$1,000	\$1,000,000	City budget
	Distribute extreme weather mitigation information to Saginaw citizens.						
	STATUS: In progress						
Flooding	Decrease flood insurance premiums in Saginaw by participating in the Federal Emergency Management Agency's (FEMA) Community Rating System (CRS) program.	Work with city leadership and become a member of the CRS program.	1 year	Fire Department, Public Works Department, Building Department	\$5,000	\$25,000	Federal Emergency Management Agency (FEMA)

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
Flooding	Review and remove repetitive loss properties in Saginaw.	STATUS: Completed					
		Review repetitive loss properties and work with property owners to remove them using FEMA funding.	Annually	Fire Department, Public Works Department, Building Department	Unknown	Unknown	FEMA
		STATUS: In progress					
Hail	Develop a hail outreach program for the Saginaw citizens.	Develop hail outreach program that provides tips and pertinent information for ensuring the protection of property against hail.	Annually	Fire Department, Office of Emergency Management	\$500	\$1,000,000	City budget
		STATUS: In progress					
		Provide hail mitigation information to citizens through a social media campaign.	Annually	Fire Department, Office of Emergency Management	\$500	\$1,000,000	City budget
		STATUS: In progress					

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
		Provide hail mitigation information through the city website.	Annually	Fire Department, Office of Emergency Management	\$0	\$1,000,000	City budget
		STATUS: In progress					
Hail	Provide hail-resistant parking areas for Saginaw's city vehicles.	Evaluate the need for covered parking for city vehicles to protect them against hail.	Annually	Public Works Department	\$500	\$500	City budget, grant opportunities
		STATUS: Completed					
		Install awnings over parking areas as needed to protect city vehicles against hail.	Annually	Public Works Department	\$50,000	\$200,000	City budget, grant opportunities
		STATUS: Completed					
Lightning	Protect communication infrastructure in Saginaw from lightning damage.	Install lightning rods on existing and future communication infrastructure.	Annually	Fire Department, Police Department	\$10,000	\$250,000	City budget, grant opportunities
		STATUS: Completed					

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
Lightning	Ensure Saginaw critical facilities are protected against lightning damage.	Evaluate the hazards and risks posed by lightning in Saginaw.	Annually	Fire Department	\$500	\$500	City budget, grant opportunities
		STATUS: In progress					
		Install lightning rods and other protective equipment on critical facilities.	Annually	Office of Emergency Management	\$50,000	\$500,000	Unknown
Winter Storms	Improve Saginaw first responder capabilities to mitigate effects of severe winter storms.	STATUS: In progress					
		Provide/purchase more ice control capability for public works equipment.	Annually	Public Works Department	Unknown	Unknown	City budget, grant opportunities
		STATUS: Completed					
Winter Storms	Improve the City of Saginaw's capability to mitigate against severe winter storms.	Establish programs/shelters to protect the poor, ill, and elderly during extreme winter temperatures.	Annually	Fire Department, Office of Emergency Management	Unknown	Unknown	City budget, grant opportunities
		STATUS: In progress					
		Distribute severe winter weather mitigation literature at identified community events	Annually	Fire Department, Office of Emergency Management	Unknown	Unknown	City budget, grant opportunities

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
		and through the city website.					
		STATUS: In progress					
Drought	Review and aggressively enforce Saginaw's water use codes and ordinances and update as necessary to mitigate the effects of drought.	Review current code and ordinances for water conservation in Saginaw.	Annually	Public Works Department, Code Enforcement, Office of Emergency Management	Unknown	Unknown	City budget, grant opportunities
		STATUS: In progress					
		Develop and/or update water conservation enforcement ordinances to ensure effective practices during periods of drought.	Annually	Public Works Department, Code Enforcement, Office of Emergency Management	Unknown	Unknown	City budget, grant opportunities
		STATUS: Completed					
Drought	Upgrade water and irrigation systems to conserve water in Saginaw City facilities.	Install efficient irrigation systems in new and existing city facilities.	Annually	Public Works Department	\$50,000	\$250,000	City budget, grant opportunities
		STATUS: In progress					

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
		Update water appliances to newer water conservation design models.	Annually	Public Works Department	\$50,000	\$250,000	City budget, grant opportunities
		STATUS: In progress					
		Enact building permit process that encourages wildfire resistant construction.	Annually	Building Department	Unknown	Unknown	City budget, grant opportunities
		STATUS: Completed					
Wildfire	Mitigate wildfires by encouraging wildfire resistant construction and practices in the Saginaw.	Increase public education on how to reduce the risks from wildfires (construction, landscaping, etc.) with notifications, city website, and social media.	Annually	Building Department, Fire Department	Unknown	Unknown	City budget, grant opportunities
		STATUS: Completed					
Wildfire	Ensure adequate Saginaw wildfire response plans and procedures are in place.	Review current wildfire response plans and procedures. Coordinate with surrounding partner agencies for	Annually	Fire Department	Unknown	Unknown	City budget, grant opportunities

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
		automatic aid ensuring appropriate type and number of resources respond quickly.					
		STATUS: Completed					
Extreme Temperatures	Establish a plan for mitigating the negative effects of extreme temperatures within Saginaw.	Open cooling shelters and provide public information.	Annually	Fire Department, Office of Emergency Management	\$1,000	\$10,000	City budget, grant opportunities
		STATUS: In progress					
Extreme Temperatures	Establish extreme temperature mitigation plans for critical infrastructure in Saginaw.	Develop mitigation procedures for critical infrastructure when temperature extremes are experienced and shut down of non-critical infrastructure for ease on utilities.	Unknown	Unknown	Unknown	Unknown	City budget, grant opportunities
		STATUS: In progress					
Expansive Soils	Mitigate expansive soils in Saginaw.	Improve construction techniques through building code enhancements.	Annually	Building Department	Unknown	Unknown	City budget, grant opportunities

Tarrant County Hazard Mitigation Action Plan

Hazard Addressed	Objective	Action/Project Description	Projected Time to Completion	Department or Agency Responsible	Estimated Cost	Estimated Benefit	Funding Sources
		STATUS: In progress					
		Educate construction contractors, homeowners, and business owners about mitigation techniques. Seminars, notifications, training classes, city website, published ordinances.	Annually	Building Department	Unknown	Unknown	City budget, grant opportunities
		STATUS: In progress					

5.3 New Action Items

The City of Saginaw's action items were determined by the Local Planning Team for the 2020 Hazard Mitigation Action Plan (HazMAP). These actions include mitigation actions that qualify for mitigation funding as well as enforcement, maintenance, and response actions that the city has identified as opportunities to increase their resiliency to hazards.

During the capabilities assessment and hazard analysis, previously impacted assets and populations were analyzed to determine the highest probability of damage and potential of loss of life per hazard. As \$1 spent in mitigation saves a community an average of \$6 in recovery², we used this data to develop a cost-benefit analysis: *Estimated Cost* x 6 = **Estimated Benefit**.

Priority will go towards projects with the highest positive impact on community resilience, including life safety and property protection. Below are the action items for this HazMAP.

Hazard(s) Addressed	Flooding, Thunderstorms, Tornadoes
Enhance the coverage area of outdoor warnings with the addition of an outdoor warning siren and the replacement of any outdated outdoor warning sirens.	
Participating Jurisdiction:	City of Saginaw
Priority:	1
Estimated Cost:	\$55,000
Estimated Benefit:	\$330,000
Potential Funding Source(s):	Hazard Mitigation Grant Program (HMGP), city funds
Lead Agency/Department Responsible:	Office of Emergency Management, Fire Department
Implementation Schedule:	24 months

Hazard(s) Addressed	Drought, Earthquakes, Expansive Soils, Extreme Heat, Flooding, Thunderstorms, Tornadoes , Winter Storms
Eliminate the loss of power from critical city buildings with the installation of backup generators to existing and future buildings for consistent reliable power.	
Participating Jurisdiction:	City of Saginaw
Priority:	2
Estimated Cost:	\$115,000
Estimated Benefit:	\$690,000
Potential Funding Source(s):	HMGP, city funds
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	24 months

² Natural Hazard Mitigation Saves: 2017 Interim Report. National Institute of Building Science.
< <https://www.nibs.org/page/mitigationsaves> >

Hazard(s) Addressed	Drought, Earthquakes, Expansive Soils, Extreme Heat, Flooding, Thunderstorms, Tornadoes , Winter Storms
Identify and implement the newest International Code Council (ICC) building codes and fire codes to mitigate the damage from all identified hazards.	
Participating Jurisdiction:	City of Saginaw
Priority:	3
Estimated Cost:	\$1,500
Estimated Benefit:	\$9,000
Potential Funding Source(s):	City funds, city funding for staff time
Lead Agency/Department Responsible:	Building Department, Fire Department
Implementation Schedule:	12 months

Hazard(s) Addressed	Drought, Earthquakes, Expansive Soils, Extreme Heat, Flooding, Thunderstorms, Tornadoes , Winter Storms
Enhance the city CodeRed system to better serve the community with greater information and notification times.	
Participating Jurisdiction:	City of Saginaw
Priority:	4
Estimated Cost:	\$2,400
Estimated Benefit:	\$14,400
Potential Funding Source(s):	HMGP, city funds
Lead Agency/Department Responsible:	Office of Emergency Management, Fire Department
Implementation Schedule:	12 months

Hazard(s) Addressed	Drought, Earthquakes, Expansive Soils, Extreme Heat, Flooding, Thunderstorms, Tornadoes , Winter Storms
Enhance the comprehensive public education program both in schools and on a community level to include the recommended activities to mitigate the impact of each identified hazard.	
Participating Jurisdiction:	City of Saginaw
Priority:	5
Estimated Cost:	\$3,500
Estimated Benefit:	\$21,000
Potential Funding Source(s):	City funds, city funding for staff time
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	12 months

Hazard(s) Addressed	Drought
Enhance code enforcement materials to insure proper enforcement of water conservation procedures.	
Participating Jurisdiction:	City of Saginaw
Priority:	6
Estimated Cost:	\$1,800
Estimated Benefit:	\$10,800
Potential Funding Source(s):	City funds
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	6 months

Hazard(s) Addressed	Drought
Review City of Saginaw ordinance for water conservation and enhance ordinance, as needed.	
Participating Jurisdiction:	City of Saginaw
Priority:	7
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	City funds, city funding for staff time
Lead Agency/Department Responsible:	Environmental Services Department
Implementation Schedule:	18 months

Hazard(s) Addressed	Flooding
Schedule a Community Assistance Visit (CAV) by FEMA or a State agency on behalf of FEMA to assure that the city is adequately enforcing its floodplain management regulations.	
Participating Jurisdiction:	City of Saginaw
Priority:	8
Estimated Cost:	\$1,000
Estimated Benefit:	\$6,000
Potential Funding Source(s):	City general fund, hazard mitigation grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	24 months

Hazard(s) Addressed	Flooding
Require that the floodplain administrator be certified.	
Participating Jurisdiction:	City of Saginaw
Priority:	9
Estimated Cost:	\$2,000
Estimated Benefit:	\$12,000
Potential Funding Source(s):	City general fund, hazard mitigation grants
Lead Agency/Department Responsible:	Public Works Department
Implementation Schedule:	24 months

Hazard(s) Addressed	Flooding
Conduct NFIP community workshops to provide information and incentives for property owners to acquire flood insurance.	
Participating Jurisdiction:	City of Saginaw
Priority:	10
Estimated Cost:	\$500
Estimated Benefit:	\$3,000
Potential Funding Source(s):	City general fund, hazard mitigation grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	24 months

Hazard(s) Addressed	Flooding
Remove existing structures from flood-prone areas to minimize future flood losses by acquiring and demolishing or relocating structures from voluntary property owners and preserving land subject to repetitive flooding.	
Participating Jurisdiction:	City of Saginaw
Priority:	11
Estimated Cost:	\$1,000,000
Estimated Benefit:	\$6,000,000
Potential Funding Source(s):	City general fund, hazard mitigation grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	24 months

Hazard(s) Addressed	Flooding
Use bioengineered bank stabilization techniques and revetments to protect against flooding along streams, creeks, rivers, and lakes.	
Participating Jurisdiction:	City of Saginaw
Priority:	12
Estimated Cost:	\$1,000,000
Estimated Benefit:	\$6,000,000
Potential Funding Source(s):	City general fund, hazard mitigation grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	24 months

Hazard(s) Addressed	Earthquakes, Thunderstorms, Tornadoes
Require construction of safe rooms in new schools, daycares, and nursing homes.	
Participating Jurisdiction:	City of Saginaw
Priority:	13
Estimated Cost:	\$1,000,000
Estimated Benefit:	\$6,000,000
Potential Funding Source(s):	City general fund, hazard mitigation grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	24 months

Hazard(s) Addressed	Flooding, Thunderstorms, Tornadoes, Winter Storms
To protect power lines, either bury overhead power lines, ensure ordinances for proper vegetation management practices, replace wood poles with steel or composite ones, or reinforce utility poles with guy wires.	
Participating Jurisdiction:	City of Saginaw
Priority:	14
Estimated Cost:	\$300,000,000
Estimated Benefit:	\$1,200,000,000
Potential Funding Source(s):	City general fund, hazard mitigation grants
Lead Agency/Department Responsible:	Office of Emergency Management
Implementation Schedule:	24 months

5.4 Plan Incorporation into Existing Planning Mechanisms

Based on Requirement 201.6(c)(4)(ii) and the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for the city were carefully reviewed and considered when developing the mitigation actions for this plan. The Local Planning Team (LPT) will establish a process in which the mitigation strategy, goals, objectives, and actions outlined in this plan will be incorporated into the existing local planning strategies.

Once the plan is adopted, the LPT will coordinate implementation with the responsible parties in the city, as well as external stakeholders as needed.

The following steps will be taken in implementing this HazMAP into local plans:

1. Change is proposed by an elected official or other interested party.
2. Proposal is placed on the local agenda of the governing body.
3. Agenda is published at least 10 days in advance of the meeting at which it will be discussed, so members of the public have an opportunity to attend the discussion meeting. Publication may be made by posting the agenda on the city's website, in the city newsletter, or on a public bulletin board.
4. Proposal is discussed at the public meeting, including any comments by members of the public attendance.
5. Proposal is voted on by the governing body.
6. If the proposal is passed, the change is implemented by the appropriate local authority.

Existing planning mechanisms in which the HazMAP will be integrated are listed below.

Type of Plan	Department Responsible	Update Schedule	Actions to be Integrated	Integration Method
Comprehensive Master Plan and Capital Improvements Plan (CIP)	City Administration, Department Leaders	Every 5 years	Reference this HazMAP when developing the plan.	The leadership team will review this HazMAP to see which action items can be addressed with the fiscal and administrative capabilities of the city.
Parks, Recreation, and Open Space (PROS) Master Plan	City Administration, Department Heads	As Needed	Reference this HazMAP when developing the plan, with a focus on open space and outdoor mitigation activities.	The leadership team will review this HazMAP to see which action items can be addressed and an amendment may be necessary to include the action in the plan.

Although it is recognized that there are many possible benefits to integrating components of this Hazard Mitigation Action Plan (HazMAP) into other planning mechanisms, the LPT considers this HazMAP, including development and maintenance, to be the primary vehicle to ensure implementation of local hazard mitigation actions.

This completes the annex for the City of Saginaw. For additional information, see Appendices A and B.