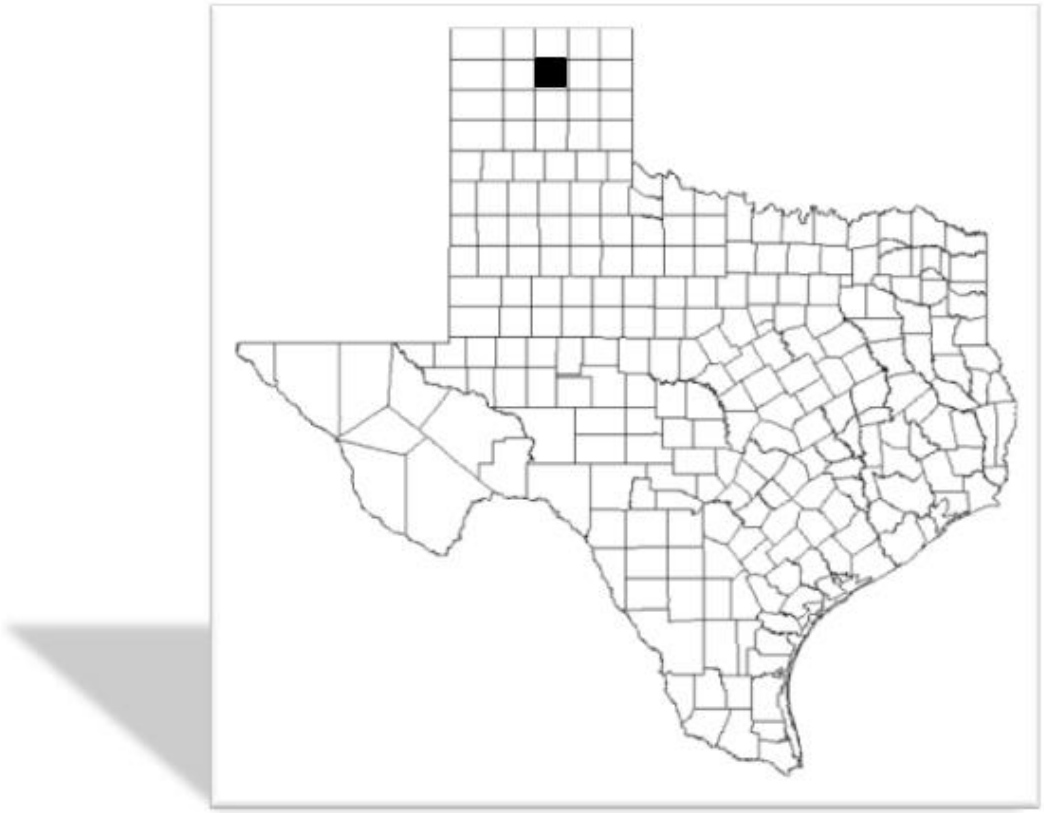
Hutchinson County
Mitigation Action Plan

Hutchinson County,
City of Borger, Fritch, Sanford & Stinnett
Borger ISD, Fritch-Sanford ISD,
Plemons-Stinnett-Phillips ISD & Spring Creek ISD



DEVELOPED BY THE HUTCHINSON COUNTY
HAZARD MITIGATION ACTION TEAM
February 1, 2022

Record of Changes

Change Number	Date of Change	Initials and Date Entered
P73 – Add Master Drain Plan	05/02/2019	Whisler 5/2/2019
P73 – Fire mitigation for residential	5/02/2019	Whisler 5/2/2019
P63 – Added NOAA Transmitter	03/03/2021	Whisler 03/03/2021
P70 – Generators to public shelter sites	03/03/2021	Whisler 03/03/2021

Record of Action

Item	Entities	By/Date
Hazard Mitigation Intro Email	All	Whisler 02/02/21
Emailed 2019 Hazmit	All	Whisler 02/05/21
NWS Consult on Data	NWS	Whisler 02/18/21
Generator Shelter Concept	Fritch (Brassfield)	Whisler/Brassfield 03/03/21
Community Survey Draft	B, S, F, Hutch	Whisler 04/28/21
Community Survey Draft	P66, BFD, BPD, HCSO, SPD, SFD	Whisler 06/24/21
Resent HazMit solicit feedback	All	Whisler 11/09/21
HazMit solicit feedback	BISD	Whisler 11/09/21
Meeting – Review action items	Borger Utility/Water/FD/PD	Whisler 11/15/21
Borger addition suggestions	Generator – Water Wellfields at Stinnett, NWWF, and portable	Marc Wilson 11/15/21
Borger addition suggestions	3rd Street Culvert (animal control area)	Jason Anderson 11/15/21
Admin Meeting	B-OEM, Fritch/Stinnett City Mgr	Whisler 12/16/2021

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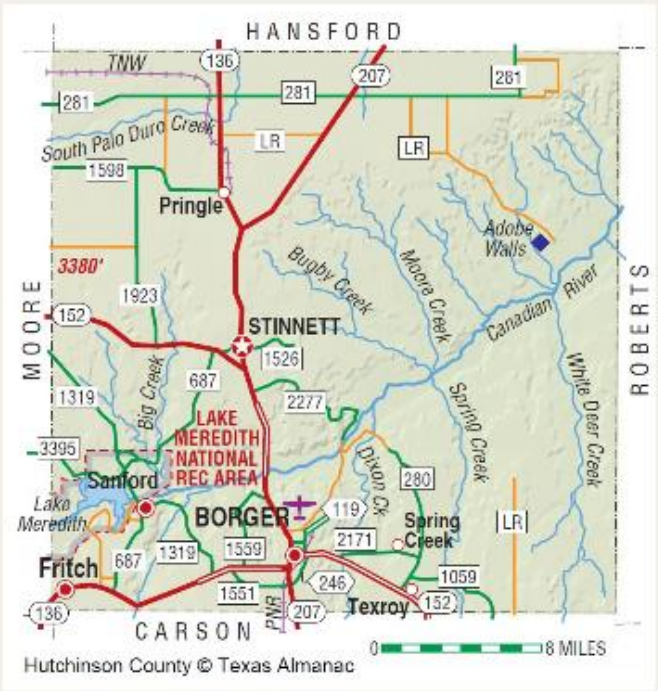
County Overview and Demographics Overview**:**

Hutchinson County, on the Panhandle's High Plains, is bordered on the north by Hansford County, on the east by Roberts County, on the south by Carson County, and on the west by Moore County. Its center point is at 35°50' north latitude and 101°20' west longitude. Stinnett, the county seat, is on the center of the county and about 60 miles due north east of Amarillo.

Hutchinson County comprises 895 square miles of plains and broken terrain; altitudes ranging from 2,750 to 3,400 feet above sea level. The Canadian River, fed by several small creeks, angles across the county from southwest to northeast; in the southwest it is dammed to form Lake Meredith. Broken land along the river and its tributaries forms fertile valleys. The northern part of the county is high rolling plain.

About $15 million average annual income in the county is derived from wheat, corn, alfalfa, and grain sorghums. Beef cattle, hogs, and poultry are also raised in the unincorporated areas, and irrigated land amounts to more than 40,000 acres. Since the 1920s, however, petroleum has been the chief industry; the southern part of Hutchinson County is the center of oil, gas, petrochemical, and synthetic-rubber production in the Panhandle.



Hutchinson County Map. Courtesy of the Texas Almanac. Image available on the Internet and included in accordance with Title 17 U.S.C. Section 107.

Hutchinson County has four school districts: Spring Creek ISD servicing Unincorporated Hutchinson County, Sanford – Fritch ISD located in the City of Fritch serving City of Fritch and Sanford, Plemons-Stinnett-Phillips ISD servicing the City of Stinnett, and Borger ISD servicing the City of Borger. Conoco Phillips Refinery located near Borger is the world's largest pump stations for natural gas, which supplies metropolitan areas west to Denver and east to Indianapolis ~~in located in the County~~. Critical State highways ~~236~~136, 152, and 207 which serve as primary thoroughfare merge at Borger, and several farm and ranch roads provide access to outlying communities.

Hutchinson Co. Land Use	City of Borger Land Use	City of Fritch Land Use	City of Stinnett Land Use	City of Sanford Land Use
Priv. Farmland 85%	Residential 70%	Residential 80%	Residential 80%	Residential 70%
Commercial 5%	Commercial 10%	Commercial 10%	Commercial 10%	Commercial 10%
Industrial 5%	Industrial 10 %	Industrial 4%	Industrial 5%	Industrial 10%
Public Lands 5%	Public 10 %	Public 6%	Public 5%	Public 10%

Document Organization

Provided below is brief explanation on the lay-out and content of this document. The sections included in this plan are:

Adoption

This plan was formally adopted by Hutchinson County, the City of Borger, Fritch, Sanford and Stinnett, after the document had been reviewed by both the Texas Division of Emergency Management (TDEM) and the Federal Emergency Management Agency (FEMA) to ensure it met current state and federal guidelines governing local MAPs.

Authorities

This section provides a description of the legal authorities under which this plan was developed.

Purpose

This section explains why the plan was written and identifies the benefits to the participating jurisdictions within the Hutchinson County area of having a current Hazard Mitigation Plan.

Element A – The Planning Process

This section explains how the plan was organized and the process followed in developing this document, including:

- Establishing the Mitigation Action Team (HuMAT): Identifies the process Hutchinson County, the City of Borger, Fritch, Sanford and Stinnett followed in establishing their mitigation action team.
- Establishing an Open Public Process: Identifies the steps HuMAT took to encourage public participation during the development of this plan.

Element B– Hazard Identification and Risk Assessment

This section identifies and analyzes the hazards that affect Hutchinson County-and their impacts on the County' jurisdictions

Hazards – Describes the hazards that impact Hutchinson County, the City of Borger, Fritch, Sanford and Stinnett.

History of Local Hazards – Provides historical and statistical data related to the specific hazards that have impacted the jurisdictions within Hutchinson County.

Risk Summary – Community priorities on specific hazards.

Vulnerability Worksheets – Provides a graphical representation of each jurisdiction's vulnerability to the identified hazards.

Loss Estimates – Provides an estimate of the impact each hazard would have on the critical infrastructure located within the County and its Cities.

Past Mitigation – Provides a summary view of previous mitigation efforts undertaken by the jurisdictions within Hutchinson County.

Development Trends – Provides an analysis of a growth trends within the County which were considered in developing the mitigation strategies discussed in Element C.

Element C– Mitigation Strategies

- Mitigation Goals and Objectives – Provides the framework for the development of the long-term and short-term strategies identified with the Mitigation Actions.
- Mitigation Actions – Describes the actions that each participating jurisdictions proposes to undertake in order to mitigate the impact of future hazard events.

Element D – Plan Review, Evaluation and Implementation

- Utilizing development patterns and new hazard or risk information; jurisdictions will evaluate progress on the action items and make changes based on new findings.
- Jurisdiction will resubmit plan for approval within 5 years.

Element E– Plan Adoption

- Plans will be adopted by each jurisdiction through their appropriate governing body. This adoption takes place after plan draft has been approved by state and FEMA for applicable content

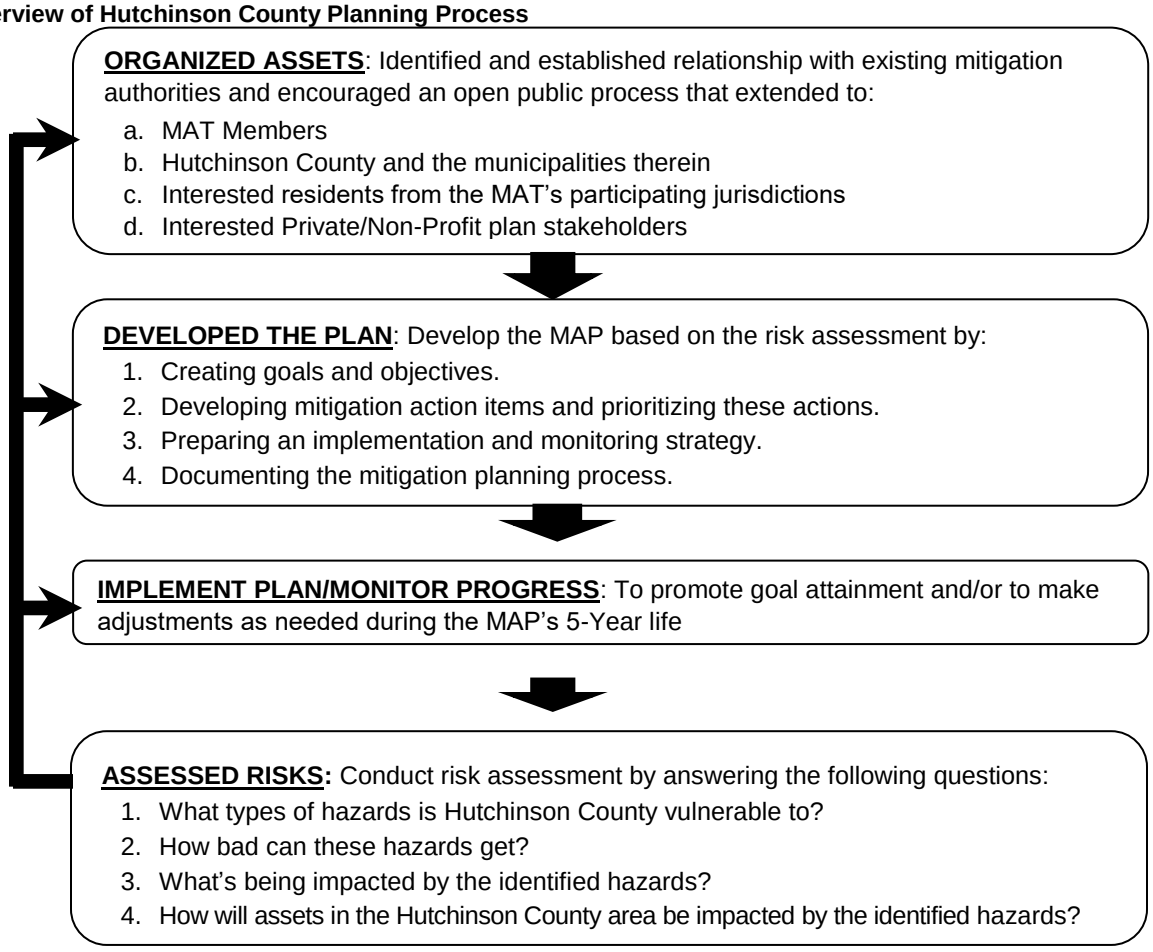
Element A - Planning Process

Plan Preparation (A1)

The Hazard Mitigation Plan participants are Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Spring Creek ISD and Plemons-Stinnett-Phillips ISD. Through their expertise in emergency management, engineering, administrative, public works, building and road maintenance, their contributions were critical in the plan development. The team also included stakeholders such as; local business owners, industry representatives, neighboring jurisdictions, regional and state partners. The list of mitigation team members is located on page 11.

This graphic below illustrates the steps taken by the Hutchinson County MAT in developing this document.

Overview of Hutchinson County Planning Process



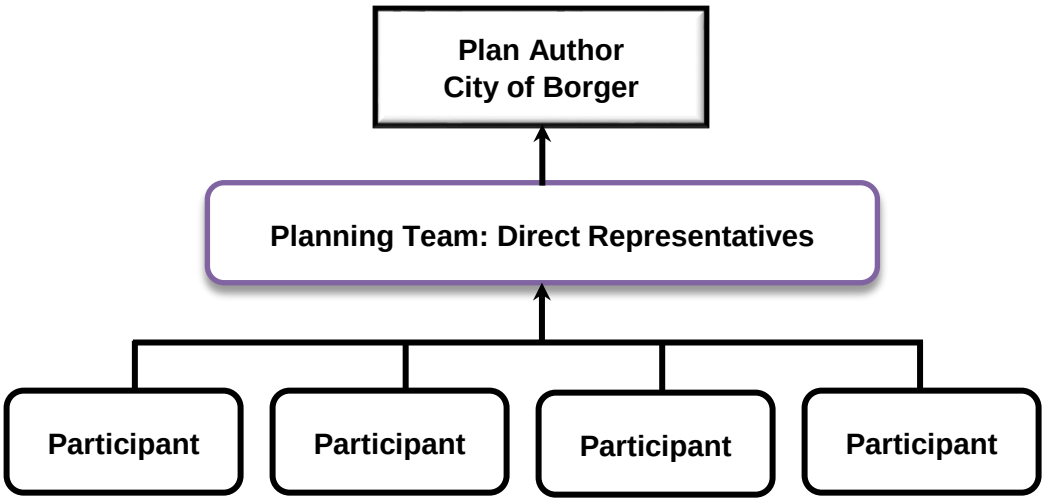
Planning Process

Date	Activity Description	Invitee/Attendees
02/02/2021	Initial invitation for MAT participation	Local government leaders, Municipal department heads, ISD Superintendents, Responder group leaders, Stake Holders, Regional and State Partners & Neighboring counties
02/05/2021	MAT Meeting Overview of the Hazard Mitigation Plan update.	Local government leaders, Municipal department heads, ISD Superintendents, Responder group leaders
02/18/2021	Consultation with Amarillo National Weather Service on weather data	City of Borger and National Weather Service
03/03/2021	Preliminary discussions with Borger and Fritch on Generator concept for City of Fritch	City of Borger, City of Fritch
06/24/2021	Development and review of Community Survey about hazard preparedness	Local government leaders, Municipal department heads, and industrial partners
06/25/2021	Community Natural Hazards Preparedness Survey published for public comment	All residents of Hutchinson County
12/16/2021	Review and solicitation of changes to Plan	Cities of Borger, Fritch, Stinnett, and Hutchinson County Officials
Feb TBD, 2021	Local jurisdictions provided plans to host public comment at open meetings, and passed resolution to adopt the 2022 revisions	Local Government jurisdictions
The public community survey was posted on line and further promoted through Amarillo, Borger, and Fritch news outlets. Due to pandemic restrictions, most meetings with listed agencies were held in-direct by web-meetings, email, and telephone.		

Establishing the Mitigation Action Team (A2)

The ***first*** Hutchinson County Hazard Mitigation Plan was approved on December 22, 2006. It has since been updated in 2012, 2017, and is currently in its 2022 revision. This process included reviewing previous mitigation strategies and determining the status of each action. In addition, due to turnover, the chairman began to actively recruit new members to begin the update process.

Hutchinson County Mitigation Action Team Hierarchy



At the outset of the version 2022 planning process, the City of Borger Emergency Management Coordinator emailed a solicitation to the other jurisdictions and plan stakeholder groups in their County; inviting their participation on the Hutchinson County Mitigation Action Team (MAT). In addition. Due to the COVID Pandemic, most meetings and dialog were conducted remotely.

Each of the participating jurisdictions made an effort to elicit involvement on the MAT from the various groups within their jurisdiction and neighboring communities. Particular focus was placed on inviting participation by the local school districts. Overall, the list of agencies / organizations thought to have a direct stake or interest in this MAP update process or that could somehow inform the planning process included:

Mitigation Action Team – Representatives from Participating Jurisdictions

Mitigation Action Team Members		
	Agency and Position	**Potential Stake, Interest or Contribution**
Hutchinson County	County Judge Office County Commissioners	County officials would have a stake in any mitigation actions undertaken by the County and would ultimately be responsible for recommending the update's adoption by the Commissioners' Court
	County Administrator Office County Flood Plain *Administrator*	The FPA could inform the MAT on matters related to SFHAs in Potter County and have an interest in flood mitigation actions proposed for the County
	County Road & Bridge *Superintendent*	R&B could inform the MAT on the impacts of natural hazards on the County's road system and have input on the development of proposed mitigation actions
	Sheriff's Office County Sheriff	SO could inform the MAT on public safety issues related to natural hazards and have input on the development of proposed mitigation actions
	County Appraisal District *Chief Appraiser*	The Appraisal District could inform loss value determinations made by the MAT
	Office of Emergency Mgmt. *County EMC*	The OEM could provide mitigation ideas and presumably, would be charged with carrying a number of the mitigation actions out
	Hospital District *Hospital CEO*	The Department could both inform and have a direct interest in the MAP's mitigation measures, particularly those that apply to mass casualties.
City of Borger, Fritch, Sanford & Stinnett	Elected Officials *Mayor*	City Officials would have a stake in any mitigation actions undertaken by the City and would ultimately be responsible for recommending the update's adoption by the City Council
	City Administration *City Managers*	City Administration would have a stake in any mitigation actions undertaken by the City and would ultimately be responsible for recommending the update's adoption by the City Council
	Building Safety Department *Borger Building Safety Dir.*	Would have an interest and potential stake in mitigation actions that would affect building codes and code enforcement
	Public Works *Public Works Director*	Could provide detail on how hazards and proposed mitigation actions could impact the City's utility systems
	Fire Department *Fire Chief*	The Department could both inform and have a direct interest in the MAP's mitigation measures, particularly those that apply to wildfires
	Office of Emergency Mgmt. *EMC*	The OEM could provide mitigation ideas and presumably, would be charged with carrying a number of the mitigation actions out
ISD's	Borger& Sanford-Fritch ISD, Plemons-Stinnett-Phillips & Spring Creek ISD Superintendent	Being located in the planning area, the IDS campuses would share the area's hazard concerns and could be benefited by the MAT's mitigation actions

Stakeholders		
	Agency and Position	**Potential Stake, Interest or Contribution**
Local Partners and Industry	Economic Development Corp. *EDC Executive Director*	The EDC resources could inform future economic development trends in the City
	Canadian River CRMWA Executive Director	CRMWA helps to regulate the use of the area's groundwater and could have an interest in the development of drought mitigation actions.
	Texas AgriLife Extension Potter & Randall County Extension Agent	AgriLife could inform some of the decisions that might impact area farmers/ranchers and help in promoting certain mitigation actions.
	Industry	Industry in the planning area would have a direct stake and interest in the outcome of this planning process
	THE PUBLIC	The residents of the planning area would have a direct stake and interest in the outcome of this planning process
	Neighboring Communities Carson County EMC Moore County EMC Gray County EMC	Jurisdictions that border the planning area have an interest in the outcome of this planning process and could contribute to the development of hazard profiling.
Regional, State & Federal Partners	Panhandle Regional Planning Commission (PRPC) *Regional Serv. Director*	Aside from assisting the MAT in writing this update, PRPC could provide data that would inform the actions/decisions of the MAT
	Amarillo Office of the National Weather Service (NWS) *Warning Coordinator* *Meteorologist*	The NWS could provide regionalized data with regard to past/forecasted weather trends that could inform the formation of mitigation actions
	Texas Forest Service (TFS) *Regional Fire Coord.*	TFS resources could inform the MAT's development of wildfire mitigation actions
	Parks and Wildlife Meredith Director	TFS resources could inform the MAT's development of wildfire mitigation actions
	Army Corps of Engineers (ACE) *SW Div.,Fort Worth, TX*	ACE resources could inform local flood control efforts with streambed/wetland data
	Texas State Data Center (TSDC) *On-line Resources*	TSDC resources could provide data to forecast future population growth in the APR Planning area
	Texas Water Development Board (TWDB) *On-line Resources*	TWDB resources could provide the City with severe repetitive loss data and inform actions focused on drought contingencies

In some form or fashion, all the participating jurisdictions/stakeholders listed above played a part in the MAP update process. State and federal agency participation was primarily obtained through the use of their websites. Information was gleaned from their sites to develop the hazard profiles found later in this document, to estimate future hazard impacts, for projecting future growth and development and for identifying potential actions that could be employed in mitigating the impacts of future hazard events in the planning area.

The MAT planning process was open throughout and with active participation from the public in all the meetings. Over 50 participated in planning area Household Natural/ Hazards Preparedness Survey and the attitudes and opinions reflected by the resident responses were considered as the mitigation actions in this MAP update were being developed. Residents were able to identify their jurisdiction by a zip code query within the survey.

In following FEMA's Local Mitigation Planning Handbook suggestions, the individuals invited to participate on the MAT brought certain skill sets or experiences to the process that helped to ensure the overall relevance of the plan. The types of MAT member contributions included:

- Emergency managers/first responders – had direct experience with past hazard events and existing preparedness measures, and/or had a direct line of communication with the State emergency management agency.
- Local community planners – were able to assist the planning team in understanding current, and future community development trends, the policies or activities that affect development, and the relationship between hazards and development.
- Mapping specialists – were able to analyze and interpret map data to support the planning process and communicate complex information, such as the locations of assets at risk in threat- or hazard-prone areas and estimates of damage for a particular disaster scenario.
- Public works/engineering staff – were able to identify current or projected problems for the community's infrastructure that could be addressed through capital improvements supported by the mitigation plan.
- Elected and executive officials – were familiar with the total needs of their jurisdiction and were able to communicate how the mitigation plan could support other social, economic, or environmental goals locally.
- Floodplain administrators – were able to provide information on local flood hazard maps, floodplain ordinance and actions that could be undertaken to support the goals of the National Flood Insurance Program and help reduce flood losses.
- Code Enforcement Officials – were able to help the team understand how local codes can be used in support of the Hutchinson County plan's mitigation goals.
- State/Federal Partners – were able to serve as a data resource; providing the MAT with relevant statistics, historical account, etc. that could be used to inform the planning process.

The table below lists current members of the MAT and describes the contributions each member made with the development of this document.

Hutchinson County Mitigation Action Team and Contributions

NAME	TITLE	JURISDICTION	CONTRIBUTION
Jason Whisler	EMC/Team Coordinator	Borger Office of Emergency Mgmt.	*Emergency Manager*; coordinated the MAT meetings, obtained data to profile hazards, provided background on past mitigation actions in the planning area; identified potential mitigation actions
Jerry Langwell	EMC/Ast. Team Coordinator	Hutchinson County Office of Emergency Mgmt.	*Emergency Manager*; coordinated the MAT meetings, obtained data to profile hazards, provided background on past mitigation actions in the planning area; identified potential mitigation actions
Garrett Spradling	City Manager	City of Borger	*Executive official*; helped the MAT in discerning the "P" (political) element in the STAPLE/E assessments of potential mitigation actions and with the development of mitigation actions
~~Robert Vinyard~~Karen Felker	Mayor	City of Borger	*Executive official*; helped the MAT in quantifying the "L" (legal) element of the STAPLE/E assessments and with the development of mitigation actions
Chris Ingram	Utility Maintenance	City of Borger	*Public works/engineering*; assisted the MAT in understanding some of the technical implications of proposed mitigation actions; particularly as they applied to key City infrastructure
~~Kenneth Petr~~Brandon Strope	~~City Engineer~~Assistant City Manager	City of Borger	*Floodplain administrators*; assisted with gathering hazard data, with identifying areas of flooding concern and with the development of mitigation to address flooding issues
Larry Byrd	Code Enforcement	City of Borger	*Code enforcement official*; familiarized the MAT with the City's current building code requirements / enforcement activities and assisted with the development of mitigation actions
Jason Pender	Fire Marshal	City of Borger	*Code Enforcement*; familiarized the MAT with the City's fire code/fire prevention activities and assisted with the development of mitigation actions
Emanual Dickson	Parks and Recreation Recreational Sup.	City of Borger	*Parks and Recreation*, familiarized the MAT with the concerns of outdoor events with high attendance. Information was provided to help develop mitigation actions.

NAME	TITLE	JURISDICTION	CONTRIBUTION
Troy Preas	Street Dept. Supervisor	City of Borger	*Public works/engineering*; assisted the MAT in understanding some of the technical implications of proposed mitigation actions; particularly as they applied to key City infrastructure
Jason Anderson	Refuse Supervisor	City of Borger	*Public works/engineering*; assisted the MAT in understanding some of the technical implications of proposed mitigation actions; particularly as they applied to key City infrastructure
Donnie Davis	Borger Police Dept. Police Chief	City of Borger	*Law Enforcement*; familiarized the MAT with the City's law enforcement prevention activities and assisted with the development of mitigation actions
Michael Galloway	Borger Fire Chief	City of Borger	*First responder*; assisted with gathering wildfire data and identification of potential wildfire mitigation actions
Amy Blansett	Borger ISD	Borger ISD	*ISD Representative*; actively participated in the MAT meetings and assisted with the development of mitigation actions for the ISD
David Brandon	Borger ISD ISD Board	Borger ISD	*ISD Representative*; actively participated in the MAT meetings and assisted with the development of mitigation actions for the ISD
Zeb Smith	Fritch Volunteer Fire Dept. Fire Chief	City of Fritch	*First responder*; assisted with gathering wildfire data and with the identification of potential mitigation actions
~~Monty Leggett~~Robert Chapmon	Fritch Police Dept Police Chief	City of Fritch	*Law Enforcement*; familiarized the MAT with the City's law enforcement prevention activities and assisted with the development of mitigation actions
Cindy Irwin	County Judge	Hutchinson County	*Elected official*; assisted with the development of mitigation actions for the County and presented the MAP to the Commissioners' Court for adoption
Corisa Earls	Police Chief	City of Stinnett	*Law Enforcement*; familiarized the MAT with the City's law enforcement prevention activities and assisted with the development of mitigation actions
Durk Downs	City Manager	City of Stinnett	*Executive official*; helped the MAT in discerning the "P" (political) element in the STAPLE/E assessments of potential mitigation actions and with the development of mitigation actions

Allan Wells	Fire Chief	City of Stinnett	*First responder*; assisted with gathering wildfire data and identification of potential wildfire mitigation actions
Bill Wiggins	Plemons-Stinnett-Phillips ISD ISD Supt.	City of Stinnett	*ISD Representative*; actively participated in the MAT meetings and assisted with the development of mitigation actions for the ISD
Kent Torbert	Plemons-Stinnett-Phillips ISD ISD Ast. Supt.	City of Stinnett	*ISD Representative*; actively participated in the MAT meetings and assisted with the development of mitigation actions for the ISD
Shawna Lamb	Spring Creek ISD Principal	Hutchinson County	*ISD Representative*; actively participated in the MAT meetings and assisted with the development of mitigation actions for the ISD
Don Bates	Golden Plains Hospital	Hospital District	*Healthcare:* actively participated in MAT meetings and assisted with the development of mitigation actions for the entire county.
Drew Brassfield	City Manager	City of Fritch	*Executive official*; helped the MAT in discerning the "P" (political) element in the STAPLE/E assessments of potential mitigation actions and with the development of mitigation actions
Mark Mitchell	Crutch Ranch Rancher	Hutchinson County	*First responder*; assisted with gathering wildfire data and identification of potential wildfire mitigation actions
~~Clint Lawton~~Jason Pender	Hutchinson County LEPC LEPC President	Hutchinson County Conoco Phillips	*Industry Partner*; providing data critical to the identification or hazards and their impacts
Mike Gittinger	Warning Coord. Meteorologist	Amarillo Office of the NWS	*State/Federal Partner*; providing data critical to the identification or hazards and their impacts
Chris Morris	Warning Coord. Meteorologist	Amarillo Office of the NWS	*State/Federal Partner*; providing data critical to the identification or hazards and their impacts
Mary Tolbert	American Red Cross Disaster Coord.	American Red Cross	*VOAD Partner*; providing data critical to the identification or hazards and their impacts

Establishing an Open Public Process (A3)

As previously noted, the development of this plan followed the requirements set out by FEMA under 44 CFR §201.6. One of the foundational pieces of those requirements calls for the public to be given ample opportunity to observe, if not participate, in the planning process. §201.6(b)(1) required the County to provide, *"(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*".

To that end, whenever a public MAT meeting was scheduled, postings to announce public meetings were placed at each city hall county, courthouse and made available to ISD information boards, for each of the participating jurisdiction, at least 72 hours prior to the meeting. The notice included a list of individuals who were suited to mitigation team service for each participating jurisdiction. The following information is an excerpt from the invitation:

NOTICE TO THE PUBLIC

The Hutchinson County Mitigation Action Team has scheduled a meeting on (date), at (time), in the (meeting room) of the Panhandle Regional Planning Commission (PRPC) Offices located at the 415 W. Eighth Avenue, Amarillo, TX 79101. The Hutchinson County Hazard Mitigation Plan is being updated. When completed, it will serve as a guide for implementing mitigation strategies which are intended to help reduce the human, economic, and environmental costs of natural disasters. The public is invited to attend. For more information, please contact (plan scribe), with the PRPC, at (806) 372-3381.

In addition, the MAT took advantage of another regional project funded by FEMA that allowed residents the opportunity to review the draft plan. The Panhandle Area Regional Information System (PARIS) is a virtual communications tool that serves the entire Panhandle region. Over the past four years, public mass notification tools have been added to PARIS courtesy of FEMA. These tools allow residents to subscribe to receive emergency alerts and information from their local jurisdictions.

In this instance, PARIS was used to send out notices to subscribed residents in planning area to inform them of the plan update process. The message contained a link to the draft version of the County's plan. Residents were then invited to read the plan and provide their comments and suggestions back to the MAT through the Team Coordinators Jerry Langwell and Jason Whisler.

The draft was made available for public comment both electronically, through PARIS, and physically at the Courthouses in Hutchinson County, at the City Halls in Borger, Fritch, Sanford and Stinnett, at the PRPC and in the public libraries in Borger, 72 hours in advance of the governing bodies, meetings. The final draft was discussed in open session during those meetings, with a call for public comment, before the adopting resolutions were considered and passed.

These adoption meetings were preceded with a different Notice to the Public which generally read as follows:

NOTICE OF A PUBLIC HEARING ON THE ADOPTION OF THE HUTCHINSON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

The Panhandle Regional Planning Commission (PRPC) will conduct a public hearing before considering final adoption of the recently completed 2016 Hutchinson County Hazard Mitigation Plan Update on at p.m. in the Board Room of the PRPC Offices located at 415 W Eighth Avenue in Amarillo, Texas. This plan incorporates mitigation actions intended to minimize the impacts of certain natural hazards on the residents of the planning area.

A copy of the plan is now available for review in the Office of the Borger and Hutchinson County Emergency Management during normal business hours or may be reviewed online at:

http://www.hutchinsoncnty.com and http://www.borgertx.gov

The meeting is open to the public and interested residents are encouraged to attend to offer feedback and comment.

Each jurisdiction posted their own customized notice; giving their residents the date/time on which their governing body would consider the plan adoption along with a location at which the plan could be physically reviewed locally.

The Hutchinson County Hazard Mitigation Plan will remain available to the public until it's replaced by the next 5-year update. The public will also be notified of and invited to the meetings when the MAT gathers to conduct its annual review of the MAP.

Existing Document Reviewed for Plan Development (A4)

The following sources were used in the development of this plan. Data was reviewed, evaluated and incorporated into the hazards, risk assessments, identifying vulnerabilities and development trends.

Documents and Databases	Documents and Databases
State of Texas Hazard Mitigation Plan	NOAA Storm Event Database
Hutchinson County EOP 2016	FEMA Flood Map Center
Regional Economic Recovery Plan 2016	Texas Water Development Board
Borger & Stinnett Code of Ordinances	Natural Disasters & Weather Extremes
Borger Drought Contingency Plan	FEMA Disaster Declarations
Texas A&M Forest Service Fire Reports	US Census American Fact Finder
Panhandle Nation – County Roads	Texas Association of Counties Profiles
Texas Panhandle Regional Water Plan	Del Rio Hazard Mitigation Plan
How to Reduce Drought Risk – NDM Center	

Continued Public Participation Process (A5)

The MAT will conduct annual public mitigation action strategy update presentations during the 5 year period. Each participating jurisdiction will host a local workshop and invite the public residing in their jurisdiction. A press release will be issued to the Borger News and Amarillo Globe News, the newspaper of regional readership in the Panhandle, in addition to internal newsletters and email list with the ISD's. County and City residents as well as the ISD student body and staff will have annual meetings to ensure public participation with the focus being on their own strategies. Two years prior to the expiration; the mitigation team will convene to update the existing plan with actions gleaned from the local meetings.

The MAP will be posted on regional shared portal, which will allow the public to access the document at any time. A point of contact is provided for every plan in the portal; the PRPC will be responsible for ensuring the contact list stays current. As an alternate, the PRPC'S contact information will also be provided to ensure that public inquiries and comments are properly channeled for processing to the appropriate County point of contact on a timely basis.

Monitoring (A6)

MAT participants will be responsible for evaluating the plan annually for updates to jurisdictional goals, objectives, and action items. If needed, these participants will coordinate through the MAT Co-chairmen to integrate these updates into the Plan. A record of those changes will be maintained in the plan. The MAT Co-chairmen will be responsible for monitoring the overall plan for updates on an annual basis.

Monitoring and evaluation involves the ongoing process of compiling information on the outcomes from the implementation of the hazard mitigation objectives. The goal is to determine whether the planning area's vulnerability has decreased as a result of the plan. When vulnerability has decreased as a result of identified mitigation actions, the plan participants will determine why and will implement successful mitigation actions in other locations. Where vulnerability has increased, or remained constant, the plan participants will identify if other potential mitigation strategies may be more successful.

Method and Schedule for Keeping Plan Current

Method and Schedule for Keeping Plan Current				
	How	**When**	**By Whom**	**POC**
Monitoring	Lead agency/departments will continually monitor action items as they are implemented. Through the Mitigation Action Item Monitoring Form, they will inform the MAT of the status of the action and target completion date.	Quarterly updates and upon completion	Responsible Departments identified for each action for each jurisdiction.	MAT Chair/s
Evaluate	The plan and action items will be evaluated on an annual basis to determine effectiveness of the programs. Participants will provide any new development of hazard history that may impact changes in priorities. Review of the overall goals and using the scoring criteria – will provide clear measurement of the actions.	Annually	Participating Jurisdictions, Responsible Departments, MAT Members	MAT Chair/s

Update	The MAT will update this plan every 5 years. However, through the annual evaluation, each participating jurisdiction will provide any changes to the existing plan to the MAT Chairmen. Two years prior to the expiration, all participating jurisdictions will begin the formal update process. The Formal process will begin with a county-wide meeting which will include all participating jurisdictions. Tasks will be established for each jurisdiction: 1) to review prior mitigation action items and 2) document hazards that have occurred in the last several years. Each participating jurisdiction will hold "jurisdictional" meetings to solicit feedback from the public during this process. Surveys will be extended to the entire county to determine changes in mitigation planning at the resident level. This process will culminate in the several meetings to review the information gleaned and to formally update plan. Plan will be submitted to the State for review and to FEMA for approval.	Every 5 years	Participating Jurisdictions, Responsible Departments, MAT Members	MAT Chair/s

The MAT will conduct an annual meeting intended for all plan participants for the purpose of monitoring and evaluating the progress being made in fulfilling the MAP's goals, objectives, and Mitigation Actions. The objectives of the annual MAT review will be:

- to identify mitigation activities that are in progress, have been deferred or been completed;
- to assess whether the MAP's current mitigations goals and objectives continue to address existing (at the time of the review) and expected conditions;
- to determine whether or not the nature and/or magnitude of each plan participant's risks have changed; and
- to determine, by plan participant, if resources are available and appropriate for implementing prioritized actions in the coming year.

Any changes made during the annual review process(es) will be noted on the Record of Changes found page vi of this document. As part of the monitoring of the mitigation actions, responsible parties will be provided the form below to update the MAT on the progress of strategies that have been implemented.

Sample Mitigation Action Item Monitor Form

Mitigation Action Item Monitoring Form (Sample)			
Date Submitted		**Dept. Responsible**	
Mitigation Action		**Installation of Additional Early Warning Sirens**	
Objectives		Provide early warning sirens to warn citizens of approaching weather dangers.	
Target		Erect 2 multidirectional sirens within the city limits	
Progress		1 multidirectional siren has been erected and tested in SW Borger at the corner of 11th and Bell. The second siren is delayed due to a lack of funding source	

Element B – Hazard Identification and Risk Assessment

The purpose of hazard mitigation is to reduce potential losses from future natural disasters. The intent of mitigation planning, therefore, is to maintain a process that leads to hazard mitigation actions. This mitigation plan will identify only natural hazards that impact our community and identify actions to reduce losses from those hazards and establish a coordinated process to implement the plan.

Hazards Analysis

Early in the update process, the committee completed an analysis of the plan and decided that much of the contents on hazard analysis remained relevant. As with the original plan, the committee for this update found the following natural hazards continue to be present and could have an effect to the planning area. **Natural Hazards**			
Drought	Flooding	Hail Storms	Tornado
Wildfire	Windstorms	Winter Storms	

The mitigation team studied the entire list of possible natural hazards that could affect the jurisdiction and found that while some hazards could be considered, historical data did not support the need to include the following hazards. Data of the following hazards found that the possibility of a future event would have less than a 1.5% chance of occurring in the next 65 years, therefore, the risk is negligible, or that history has never recorded any such event for the jurisdiction and the event is not likely to occur in the next 5 years.

- Lightning
- Earthquake-1.5% chance of occurring in next 65 years.
- Dam/Levee Failure (*Although included in the 2006 plan, dams have historically posed no risk to the county. The highest dam was constructed to create a man-made lake. Due to years of drought the depth of this lake makes it highly unlikely to contribute to a dam failure.)*

Hutchinson County is located in the Texas Panhandle the possibility of the following hazards occurring in the city are highly unlikely and were not considered to pose a risk to the jurisdictions.

- Hurricanes/Tropical Storms
- Coastal Erosion
- Expansive Soils
- Land subsidence

Some of these hazards are interconnected (e.g., droughts create more fuel for wildfires) while some hazards could be characterized as elements of a broader hazard agent. For example, hail and severe winds can be produced by thunderstorms and they may all occur during a single thunderstorm event. It should also be noted that some hazards, such as severe winter storms, may impact a large area and cause little damage, while other hazards, such as a tornadoes, may impact a small area but cause extensive damage.

The 2006 Hazard Mitigation Plan included Severe Thunderstorms. It was determined that the product of a severe thunderstorm is what contributes to property damage. Therefore, Hail and Windstorms as bi-products of a Severe Thunderstorm will be profiled separately in the 2016 plan to better represent cause and effect. **Severe Thunderstorms <u>will not</u> be profiled in this plan.**

The Authors of this plan recognize the significance of industrial, technological, and man-made hazards that pose a threat to both residents and property. Specific plans that address the recognition and response procedures of those hazards can be found in the following documents:

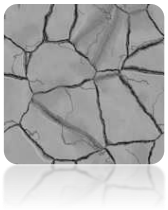
- Hutchinson County 2016 Emergency Operations Plan
- LEPC – Community Emergency Response Plan
- Airport Response Plan, Aviation Disaster Plan
- Water Response Checklist
- Train: Panhandle Northern Railroad Response Plan
- Pipeline Emergency Response Guidelines
- FAD – Regional Foreign Animal Disease Plan
- Industry: Phillips Conoco Agrium, Sid Richardson, Orion Carbon Response Plans

The following man-made hazards can be found in the planning area:

Industrial/Technological/Man-made Hazards				
Hazard	**Frequency of Occurrence**	**Warning Time**	**Geographic Extent**	**Potential Impact**
Hazardous Materials Release	Likely	None-Minimal	Localized	Major
Pipeline Explosion	Likely	None-Minimal	Localized	Major
Railcar Incident	Likely	None-Minimal	Localized	Major
Potable Water Failure	Likely	None-Minimal	Localized	Mineor
Aircraft Accident	~~Unlikely~~Likely	None-Minimal	Localized	Minor
Foreign Animal Disease	Unlikely	More than 12 hours	Localized to Region	Major

Natural Hazard Profile (B1, B2, B3)

Drought



Description

A **Drought** is, "*a period of unusually dry weather that persists long enough to cause environmental or economic problems, such as crop damage and water supply shortages."* Extreme weather such as heat waves, heavy downpours and droughts are expected to accompanying climate change.

Droughts are frequently classified as one of following four types:

Meteorological – Drought defined by the level of "dryness" when compared to an average, or normal amount of precipitation over a given period of time.

Agricultural - Agricultural droughts relate common characteristics of drought to their specific agricultural-related impacts. Emphasis tends to be placed on factors such as soil water deficits, water needs based on differing stages of crop development, and water reservoir levels.

Anticipating the range of future droughts that could impact the entire planning are, the MAT then considered the effects those events might have. The table below describes the impacts the various stages of drought could potentially have on the planning area.

Drought Severity Classification

		Ranges					
Category	**Description**	**Possible Impacts**	**Palmer Drought Index**	**CPC Soil Moisture Model (Percentiles)**	**USGS Weekly Streamflow (Percentiles**	**Standardized Precipitation Index (SPI)**	**Objective Short & Long-term Drought Indicator Blends (Percentiles)**
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9	21-30	21-30	-0.5 to -0.7	21-30
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9	11-20	11-20	-0.8 to -1.2	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9	6-10	6-10	-1.3 to -1.5	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9	3-5	3-5	-1.6 to -1.9	3-5
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0-2	0-2	-2.0 or less	0-2

Short-term drought indicator blends focus on 1-3 month precipitation. Long-term blends focus on 6-60 months. Additional indices used, mainly during the growing season, include the USDA/NASS Topsoil Moisture, Keetch-Byram Drought Index (KBDI), and NOAA/NESDIS satellite Vegetation Health Indices. Indices used primarily during the snow season and in the West include snow water content, river basin precipitation, and the Surface Water Supply Index (SWSI). Other indicators include groundwater levels, reservoir storage, and pasture/range conditions.

Source: http://droughtmonitor.unl.edu/classify.htm

Location

Most of the Panhandle region, including Hutchinson County, has shown significant improvement in the last 4 years.

Drought conditions can affect the entire planning area equally.

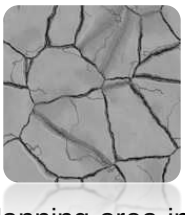
Extent and Previous Occurrences

Hutchinson County experienced exceptionally drought conditions (D4) in 2012, ~~&~~ 2013, 2014, 2015, and 2018 due to the limited amount of rainfall experienced in 2011 with an average of only 7 inches of rain. 2013 resulted in 12 months of moderate to extreme drought conditions. ~~-~~Therefore, the entire planning area can experience up to a D4.

Jurisdiction	Vulnerabilities & Impact
Unincorporated Area & Spring Creek ISD	• All residents/homes/property are vulnerable to the secondary impacts of drought which is wildfire. In extreme drought conditions grass land is more susceptible to catch on fire from sparks from railcars, cigarette butts and transformer malfunctions with little to limited structures to stop the spread. • Landscape: Spring Creek ISD – (1 facility) does not have drought resistant vegetation and is vulnerable to dry and lack of water conditions. The impact of drought to the ISD is increased water use to maintain the existing landscape. • Crops & Agricultural accounts/economy: 85% of the "unincorporated" area is private farmland with a county annual income of over $15 million in agricultural accounts, crop damage is likely to occur in the event of a drought .Decreased cattle profits due to increased supplemental feed due to loss of grasses.
Borger & Borger ISD	• Vegetation – Landscape/lawn/garden: Around 8 city buildings and 3 recreation venues as well as to those located in Golden Plains Community Hospital, Borger Healthcare Assisted Living Center, Caprock Nursing and Rehabilitation Center and Golden Years Assisted Living do not all have drought resistant vegetation and would require increased water use to maintain. Impact would be an increase of water usage, increased cost of maintenance and decrease of available water for other purposes. • Damage landscape and lawns to residential homes. • Landscape - Borger ISD 6 Campuses – does not have drought resistant vegetation and is vulnerable to dry and lack of water conditions. The impact of a drought to the ISD is increased water use to maintain the existing landscape.
Fritch & Sanford-Fritch ISD	• Damage to landscape and lawns around 2 city buildings and 1 recreation venues. Increased water use to compensate. • Landscape and lawn damage to Fritch Medical Clinic • 3 Sanford-Fritch ISD Campuses, damage to landscape. Increased water use to maintain existing landscape.
Sanford	• Damage to landscape and lawns around ~~-~~1 city buildings and 1 recreation venues. Increased water use to maintain existing landscape.

Jurisdiction	Vulnerabilities & Impact
Stinnett & Plemons-Stinnett-Phillips ISD	• Damage to landscape and lawns around ~~-~~3 city and 1 county building and 2 recreation venues. Increased water use to maintain existing landscape. • Damage to landscape/lawn Stinnett Medical Clinic • 3 Plemons-Stinnett-Phillips ISD Campuses, damage to landscape. Increased water use to maintain existing landscape.

Probability of Future Events



Historical patterns are assumed to be a dominant factor in determining future drought events. Based upon the historical instances of drought events which have occurred in the area during the last 10 years, droughts of one magnitude or another occurred ~~in 7~~10 out of 10 of those years.

Based on this data, the MAT estimates the probability for a drought in the entire planning area in any given year to be 80.00%, a 10% increase from the previous 2017 revision.

Years in the Record Span ~~2006~~2011-~~2016~~2021	No. of Years in the Span in which the Event occurred	Computation	Future Probability of 1 or more events per Year
10	~~7~~8	(10/8~~7~~) * 100 =	~~70.00%~~80.00%

Flooding

Description

According to the NFIP, a **Flood** is defined as "*A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from: 1) Overflow of inland or tidal waters; 2) Unusual and rapid accumulation or runoff of surface waters from any source; or, 3) Mudflow* (Mudflow is the collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.)" Flash Flooding is what typically impacts the planning area.

Flash Floods:

A flash flood generally results from a torrential rain on a relatively small drainage area. Runoff from these intense rainfalls results in high flood waters that can destroy roads, bridges, homes, buildings and other community developments. Discharges quickly reach a maximum and diminish almost as rapidly.

Flash floods are a potential source of destruction and a threat to public safety in areas where the terrain is steep, surface runoff rates are high, streams flow in narrow canyons and gullies, or severe thunderstorms stall over an area. The historical instances of flooding that have occurred within the planning area are all flash flood types of events. Therefore, flash flooding will be addressed within this plan.

Location

While riverine flooding could *potentially* occur in the area, particularly at points like the Canadian River in southwest Hutchinson County, the odds of such an event occurring are fairly improbable. The Canadian River no longer flows freely due to the number of dams that have been built along the river, both in Texas and in New Mexico. When significant rainfalls occur in the Canadian's watershed, the river will rise but in recent memory, it has not left its natural embankments. Much of the rainwater runoff is now being absorbed before it reaches the river due to land use changes in the watershed. For this reason, riverine floods will not be addressed within this plan.

Unlike droughts, winter storms, severe thunderstorms and other such hazards that can impact potentially the entire planning area, flash flooding can often be more location specific based on watersheds, terrain, surface imperviousness and the availability of drainage structures. The City of Borger sees flash flooding on 7th and Cedar, along W. Stevens and the 1300 block of Sterling. The City of Stinnett is most affected by flash flooding at 5th St. and Stewart St. The City of Fritch has the most significant flash flooding along Hwy 136 from Lakeview Dr to Robey Avenue. Borger ISD located on 600 W 1st St, Borger TX, Fritch ISD located on 536 Eagle Blvd, Fritch TX, and Stinnett Plemons ISD located on 600 S Stewart Ave, Stinnett TX all experience flash flooding at their main entrances due to inadequate gutters and small culverts.

The unincorporated areas of the county, the City of Sanford and Spring Creek ISD have adequate drainage; therefore, their risk to flash flooding is negligible. As a result these participants will not be profiling flood.

Extent

Following excessive rainfall; Borger, Fritch, Stinnett and their respected ISD's can frequently experience flash flooding resulting in 2 feet of water due to runoff that exceeds the drainage

system capacities in lower elevations. Low lying areas on heavily traveled county roads such as Hwy 136 and Hwy 152 can also experience flash flooding conditions which is a contributing factor to vehicle accidents and road closures.

Impact

In the planning area, the depth of any flooding event will be dependent upon factors such as the location, intensity and duration of the rainfall event, the steepness/imperviousness of the effected watershed(s), the gradients of the jurisdiction's SFHAs, the condition of the local drainage system, weather events that precede the rainfall event and other such variables. Several of the narrative descriptions in the "Previous Occurrences" section demonstrate how flood depth can be affected by these variables.

Jurisdiction	Vulnerabilities
Borger & Borger ISD	• City streets can suffer infrastructure damage due to swift running water and accumulated rainfall that exceeds the Borger drainage system capabilities. • All homes and residents on 7th and Cedar, along W. Stevens and the 1300 block of Sterling are susceptible to flash flooding and injuries • Hwy 136 & 152 low lying areas, contributing factor to vehicle accidents and road closure. • 9 homes in Borger have previously experienced damage from flash flooding. • Borger H.S. parking lot and Johnson Park Football field are vulnerable to flash flooding from city road runoff. Damage to turf and increased parking lot repairs are expected.
Fritch & Sanford-Fritch ISD	• City drainage system & their capabilities are vulnerable to becoming ineffective during flood events because of inadequate funding and poor development to withstand the heavy water flow of a flood event. • 3 homes in Fritch have previously experienced damage from flash flooding. • Hwy 136 from Lakeview Dr. to Robey Avenue • Flash flooding runoff from Eagle Blvd. can impact the Fritch High School parking lot and ISD Admin bldg.. Damage to ISD foundation and increased repairs are expected.
Stinnett & Plemons-Stinnett-Phillips ISD	• City drainage systems & their capabilities are vulnerable to becoming ineffective during flood events because of inadequate funding and poor development to withstand the heavy water flow of a flood event. • 2 businesses have previously experienced damage from flash flooding. • All homes, residents and businesses on 5th St. and Stewart St. • Plemons-Stinnett-Phillips H.S. football field, baseball/softball fields are vulnerable to flash flooding from S. Stewart Ave. runoff. Damage to turf on the field and reoccurring repair cost expected.

Vulnerable properties/facilities could sustain repeated damage in these cities due to rainfall that exceeds the drainage system capabilities or due to runoff. Flash flooding could also be a contributing factor to accidents on vulnerable roads, resident injuries, and exposure to unsanitary health conditions due ineffective drainage system.

Probability of Future Events

Historical patterns are assumed to be a dominant factor in determining future flooding events. Based upon the historical instances of flooding events that have occurred in the area during the last 10 years, Hutchinson County has experienced at least one flooding event in 6 of those years. Based on this data, the MAT estimates that in any given year, there's a 28% chance that the county will experience one or more flooding events.

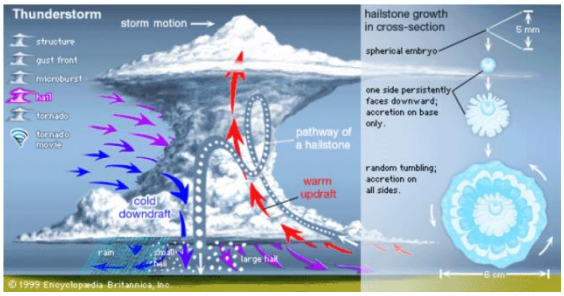
Probability of Future Events	Years in Record Span 2011-2021	No. of Events in the Span	Computation	Future Probability of 1 or more events year
Unincorporated Area & Spring Creek ISD	10	4	(10/4) * 100=	40.00%
Borger & Borger ISD	10	3	(10/3) * 100=	30.00%
Fritch & Fritch ISD	10	3	(10/3) * 100=	30.00%
Sanford	10	1	(10/1) * 100=	10.00%
Stinnett & Plemons-Stinnett-Phillips ISD	10	3	(10/3) * 100=	30.00%

Hail

Description

Hail is a form of solid precipitation. It consists of balls or irregular lumps of ice, each of which is called a hailstone. A **Hailstorm** is, "*any storm that produces hailstones that reach the ground*." Hail is produced by ice crystals that form in a low pressure front due to the rapid rising of warm air into the upper atmosphere and subsequent cooling of the air mass. Hail usually falls as shaped masses of ice greater than 0.25 inches in diameter. The size of the hail can be directly correlated with the size of the thunderstorm.

Hailstorms are an outgrowth of severe thunderstorms. People outdoors would be the most likely victims during a hailstorm, but the biggest threat would come from large hailstones and damage they would cause to property.



The table below provides definition to the various sizes or categories of hail and the potential damage that can be caused by hail of that size.

NWS/TORRO Hail Scale

Combined NOAA/TORRO Hailstorm Intensity Scales				
Size Code	**Intensity Category**	**Typical Hail Diameter (inches)**	**Approximate Size**	**Typical Damage Impacts**
H0	Hard Hail	up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33-0.60	Marble or Mothball	Slight damage to plants, crops
H2	Potentially Damaging	0.60-0.80	Dime or grape	Significant damage to fruit, crops, vegetation
H3	Severe	0.80-1.20	Nickel to Quarter	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	1.2-1.6	Half Dollar to Ping Pong Ball	Widespread glass damage, vehicle bodywork damage
H5	Destructive	1.6-2.0	Silver dollar to Golf Ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	2.0-2.4	Lime or Egg	Aircraft bodywork dented, brick walls pitted
H7	Very destructive	2.4-3.0	Tennis ball	Severe roof damage, risk of serious injuries
H8	Very destructive	3.0-3.5	Baseball to Orange	Severe damage to aircraft bodywork
H9	Super Hailstorms	3.5-4.0	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	4+	Softball and up	Extensive structural damage. Risk of severe/fatal injuries to persons in the open

Source: www.noaa.gov and www.torro.org

Location

The entire planning area can anticipate frequent hailstorms that can contribute to property and crop damage.

Extent

While the average size of hail encountered throughout the planning area, measured by the diameter, is 1.34", there have been many occurrences when the diameter measured 1.75" and as high as 2.50" a range of H5-H7 on the combined NOAA/TORRO Hailstorm Intensity Scale. Therefore, the entire planning area can experience up to a H7, with typical hail diameter of 2.4-3.0 inches.

Impact

The entire planning area can be impacted by hail. No matter the size of the hail – the largest losses seen through any size of hail is vehicular damage, amounting to hundreds of thousands of dollars in claims, many times what could be considered repetitive loss depending on the age and repair history.

Hail can cause considerable damage to crops and property. Injuries and deaths can occur as direct result both to people and to livestock who are not under shelter. Hail damage to both vehicles and buildings (glass) can minimize work for government. Repairs can cause a significant reduction in workforce as employees are without transportation to go to work due to reparation of vehicles or waiting for contractors to conduct home repairs.

Jurisdiction	Vulnerabilities
Unincorporated Area & Spring Creek ISD	• 1 Radio tower, communications system not covered or shielded, impact could be loss/interruption of communications • Windshield and body damage to vehicles on county roads and highways are vulnerable to hailstorm because they have to travel longer before reaching shelter. Impacts of damaged windshields could cause accidents and put the driver and passenger lives at risk. • Spring Creek ISD – 1 campus. Damage to roofs, windows and school buses traveling on county roads or parked in uncovered lot. • Crops & Agricultural accounts/economy: 85% of the "unincorporated" area is private farmland with a county annual income of over $15 million in agricultural accounts; crop damage is likely to occur in the event of hail.
Borger & Borger ISD	• Roof and window damage to critical city facilities to include city hall, police & fire department, community building, youth center & pool, Vehicle service/storage area, and several other city owned properties • Vehicle body and glass Windows: Specifically damage to Borger emergency response vehicles and public works vehicles required to still be out on the roads responding to calls during hailstorm events. • County Dome Building roof damage • Damage to roofs, windows entry coverings to Golden Plains Community Hospital, Borger Healthcare Assisted Living Center,

	Caprock Nursing and Rehabilitation Center and Golden Years Assisted living. • 6 Borger ISD Campuses – damage to roofs, windows and school buses
Fritch & Sanford-Fritch ISD	• Critical Facilities - City hall, police department, fire department, ems building, library, community building, city barn, specifically roof and glass windows of each facility. Impact from shattered glass could lead to injuries and/or work stoppage. • Vehicle body and glass Windows: Specifically damage to Fritch emergency response vehicles and public works vehicles required to respond to calls during hailstorm events. Economic impact. • Roof and window damage to Fritch Medical Clinic • 3 Sanford-Fritch ISD Campuses, damage to roofs, windows and school buses. Impact could cause school closures, accidents, staff/student injuries.
Sanford	• Damage to roof and windows of critical facilities: city hall, fire department, community building, city barn • Damage to Vehicle body and glass windows of Fritch emergency response vehicles and public works vehicles required to respond to calls during hailstorm events. Employees are also vulnerable to hail while responding to calls. Loss of life or injury possible.
Stinnett & Plemons-Stinnett-Phillips ISD	• Damage to roof and windows on critical city facilities to include city hall, police & fire department, community building. Impact is potential work stoppage, injury of building staff. • Vehicle service/storage area without roof or cover for vehicles • County Courthouse and County Jail roof and window damage • Damage to body and windows of vehicles to include: responder services and public works. Vulnerable employees that can be struck by hail while responding, possible injuries or loss of life. • Damage to roof and windows of the Stinnett Medical Clinic • 3 Plemons-Stinnett-Phillips ISD Campuses, damage to roofs, windows and school buses leading to potential injury of students, accidents, and economic impact as well.

Probability of Future Events

Specific damage loss numbers as reported by NOAA Storm Events Database were used to produce the data for the estimation of future loss. It is important to understand that the true financial impact due to hailstorms are difficult to state. Property damage information for residents who make insurance claims to home insurance or vehicle insurance are typically not included in the Storm Event data. Therefore, you can make the conclusion that the property damage is probably double the reported range.

Probability of Future Events	Years in Record Span	No. of Events in the Span	Computation	Future Probability of 1 or more events year
Unincorporated Area & Spring Creek ISD	10	10	(10/10) * 100=	100.0%
Borger & Borger ISD	10	47	(10/47) * 100=	470.00%
Fritch & Fritch ISD	10	18	(10/41) * 100=	410.00%
Sanford	10	8	(10/11) * 100=	110.00%
Stinnett & PSP ISD	10	13	(10/23) * 100=	230.00%

Previous Occurrences

Location	Date	MAGNITUDE
PRINGLE	4/26/2011	0.75
STINNETT	2/2/2012	1
STINNETT	2/2/2012	1
SANFORD	3/18/2012	0.88
FRITCH	4/11/2012	1
FRITCH	4/11/2012	1.75
BORGER	4/11/2012	0.88
FRITCH	4/11/2012	1.75
FRITCH	4/11/2012	1.75
HUTCHINSON CO ARPT	4/29/2012	1
BORGER	4/29/2012	0.88
BORGER	4/29/2012	1
BORGER	4/29/2012	1.25
BORGER	4/29/2012	1
BORGER	4/29/2012	1.75
BORGER	4/29/2012	1
PRINGLE	6/4/2012	1
STINNETT	6/14/2012	0.88
SANFORD	9/5/2012	0.88
BORGER	6/7/2013	1.75
BORGER	6/7/2013	1.75
BORGER	6/7/2013	1.75
FRITCH	6/8/2013	1
FRITCH	8/8/2013	1.75
FRITCH	8/8/2013	1.25
FRITCH	8/8/2013	1.25
STINNETT	8/14/2013	1.75
STINNETT	8/14/2013	1
SANFORD	8/14/2013	1.75
SANFORD	8/14/2013	1.75

FRITCH	8/14/2013	1
FRITCH	7/22/2014	1
FRITCH	7/22/2014	1
FRITCH	7/22/2014	1.75
BORGER	8/8/2014	1
BORGER	8/8/2014	0.75
BORGER	4/16/2015	2.75
BORGER	5/3/2015	0.88
BORGER	5/27/2015	2
FRITCH	6/14/2015	0.88
STINNETT	4/28/2016	1.75
STINNETT	4/28/2016	1.75
FRITCH	4/28/2016	0.75
FRITCH	4/28/2016	1
FRITCH	4/28/2016	1
FRITCH	4/28/2016	1
FRITCH	4/28/2016	1.25
FRITCH	4/28/2016	1
FRITCH	4/28/2016	1.75
HUTCHINSON CO ARPT	4/28/2016	1
BORGER	4/28/2016	1
BORGER	4/28/2016	1
BORGER	4/28/2016	1.75
BORGER	5/11/2016	1
BORGER	5/11/2016	0.88
PRINGLE	5/16/2016	1
STINNETT	5/24/2016	1.75
STINNETT	5/24/2016	1.75
FRITCH	5/29/2016	0.88
BORGER	5/29/2016	1.75
FRITCH	5/31/2016	0.88
STINNETT	3/31/2017	1
STINNETT	4/21/2017	1.5
FRITCH	4/21/2017	1.25
FRITCH	4/21/2017	1
PRINGLE	5/2/2017	1
BORGER	5/2/2017	1
BORGER	5/2/2017	1
HUTCHINSON CO ARPT	5/2/2017	1.5
HUTCHINSON CO ARPT	5/2/2017	0.88
BORGER	5/3/2017	0.88

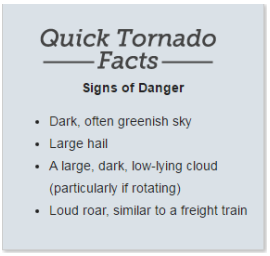
FRITCH	5/10/2017	1
FRITCH	5/15/2017	1
FRITCH	5/15/2017	1
SANFORD	5/15/2017	1
SANFORD	5/15/2017	1
STINNETT	5/15/2017	2.5
STINNETT	5/15/2017	1.5
STINNETT	5/15/2017	1.5
STINNETT	5/15/2017	2
STINNETT	5/15/2017	2.5
STINNETT	5/15/2017	2.75
PRINGLE	5/15/2017	2.5
STINNETT	5/15/2017	1.75
PRINGLE	5/27/2017	1
PRINGLE	8/17/2017	1.5
PRINGLE	5/15/2018	1
FRITCH	5/17/2018	1.25
FRITCH	5/17/2018	1.25
FRITCH	5/17/2018	1
FRITCH	5/17/2018	1.25
SANFORD	5/17/2018	1.75
HUTCHINSON CO ARPT	5/17/2018	2
BORGER	5/17/2018	2
HUTCHINSON CO ARPT	5/17/2018	2
PRINGLE	5/28/2018	1
PRINGLE	5/28/2018	1.75
SANFORD	6/12/2018	1
PRINGLE	8/17/2018	1.75
STINNETT	8/17/2018	1
BORGER	4/3/2019	1
BORGER	4/30/2019	0.75
BORGER	4/30/2019	0.75
PRINGLE	5/5/2019	2
FRITCH	5/7/2019	2.75
STINNETT	5/7/2019	1.75
PRINGLE	5/7/2019	1.5
FRITCH	5/7/2019	0.75
FRITCH	5/7/2019	1.25
SANFORD	5/7/2019	1
HUTCHINSON CO ARPT	5/7/2019	1.75
BORGER	5/7/2019	0.75

PRINGLE	5/20/2019	1.75
HUTCHINSON CO ARPT	5/20/2019	1
STINNETT	5/20/2019	1
BORGER	5/23/2019	0.88
BORGER	5/23/2019	1
BORGER	5/23/2019	1.25
BORGER	5/23/2019	1
BORGER	5/23/2019	0.88
BORGER	5/23/2019	1
BORGER	5/25/2019	1
BORGER	5/25/2019	1
FRITCH	5/26/2019	1
BORGER	6/18/2019	1.75
BORGER	6/18/2019	1
HUTCHINSON CO ARPT	6/18/2019	1.75
BORGER	6/18/2019	1.5
BORGER	6/18/2019	3
BORGER	6/18/2019	2
FRITCH	4/22/2020	1.5
BORGER	4/22/2020	1.5
STINNETT	4/22/2020	1
BORGER	6/19/2020	1
STINNETT	6/22/2020	1
SANFORD	6/22/2020	1.25
FRITCH	6/22/2020	1
FRITCH	6/22/2020	1
FRITCH	6/22/2020	0.75
FRITCH	3/12/2021	1.25
FRITCH	3/12/2021	0.88
SANFORD	3/12/2021	1.25
HUTCHINSON CO ARPT	3/12/2021	1.25
BORGER	3/16/2021	0.88
BORGER	5/18/2021	1
BORGER	8/21/2021	0.88

Tornado

Description

A **tornado** appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with whirling winds that can reach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long. Some tornadoes are clearly visible, while rain or nearby low-hanging clouds obscure others. Occasionally, tornadoes develop so rapidly that little, if any, advance warning is possible.



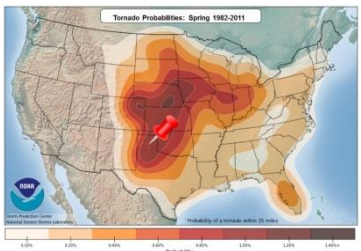
Each year, an average of over 1,000 tornadoes are reported nationwide, resulting in an average of 80 deaths and 1,500 injuries. They are more likely to occur during the spring and early summer months of March through June and can occur at any time of day, but are likely to form in the late afternoon and early evening.

The Enhanced Fujita (EF) Scale for tornadoes was developed to measure tornado strength and associated damages; it is divided into six categories from zero to five representing increasing degrees of damage. Overall, most tornadoes (around 77 percent) in the U.S. are considered weak (EF0 or EF1) and about 95 percent of all U.S. tornadoes are below EF3 intensity. The remaining small percentage of tornadoes are categorized as violent (EF3 and above).

Enhanced Fujita (EF) Scale

Enhanced Fujita (EF) Scale		
Enhanced Fujita Category	**Wind Speed (mph)**	**Potential Damage**
EF0	65-85	**Light damage** Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF1	86-110	**Moderate damage** Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	**Considerable damage** Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136-165	**Severe damage** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	166-200	**Devastating damage** Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	>200	**Incredible damage** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd.); high-rise buildings have significant structural deformation; incredible phenomena will occur.

Location



The **entire** planning area is located in the middle of "Tornado Alley" making it highly susceptible to tornados. Since 1990 the planning area has experiences nearly one tornado a year.

Extent

The worst tornado to impact the planning area occurred on June 27, 1992 and struck the city of Fritch causing over $25 million in damage. 750 homes and businesses were destroyed.

The National Weather Service reported that this twister reached wind speeds of up to 260 MPH making it a F4 tornado. One year later, most of the homes either were repaired or in the process of being rebuilt. Residential damage to homes either owned or rented contributed to the relocation of 47 students during the year, the first drop in enrollment in Fritch ISD in years.

Although we have only experienced an F4 all participating jurisdictions may experience up to an EF5.

Impact

Recorded EF1 tornados in the planning area, have destroyed mobile homes, heavily damaged vehicles, fences and power poles; while the EF2 tornados have snapped power poles, lifted vehicles, moved large fuel tanks and stripped trees.

Tornado impacts on basic services can be devastating. Damage to businesses and residents can be immense, but a significant vulnerability can be the loss of basic services and a safe environment following a tornado.

Examples of potential losses are:

• Damage to infrastructure (e.g., storage tanks, hydrants, residential plumbing fixtures, distribution system) from a tornadic event can result in loss of service and/or reduced pressure throughout the system
• Restricted access to the facility due to debris and damaged roads
• Loss of power and communication lines
• Potential contamination due to chemical leaks from ruptured containers
• Severe water and pressure loss due to ruptured service lines in damaged buildings and broken fire hydrants from airborne debris

Jurisdiction	Vulnerabilities
Unincorporated Area & Spring Creek ISD	• Power lines, transformers, transformer banks and power stations. • Electric City - large power station supporting Phillips 66. • Tier 2 chemical facilities , Phillips 66, Chevron – Petroleum and Chemical Refineries, Agrium – Fertilizer • 1 Radio tower, communications system • Vehicles to include: county road and bridge • 2 critical bridges (one is the top of the Sanford Dam), damage to both of them would significantly impact mutual aid and EMS assistance. • Spring Creek ISD – 1 campus. School buses

Borger & Borger ISD	• Critical city facilities to include city hall, police & fire department, community building, youth center &pool, Vehicle service/storage area, and several other city owned properties valued over $15 Million. • Vehicles to include: responder services and public works. • County Dome Building • 3 elevated water tanks, 2 water towers, 4 ground water tanks, 9 above ground waterwells, Wastewater plants, 4 water treatment pump stations, solid waste transfer station • 2 Radio towers, communications system and radar equipment. • Power lines, transformers & transformer banks and several power stations. • Golden Plains Community Hospital, Borger Healthcare Assisted Living Center, Caprock Nursing and Rehabilitation Center and Golden Years Assisted living. • 6 Borger ISD Campuses, School buses
Fritch & Sanford-Fritch ISD	• 1 water tower, 1 above ground, 1 water treatment facility, 4 lift stations, solid waste transfer station • Critical city hall, police department, fire department, ems building, library, community building, city barn • Vehicles to include: responder services and public works. • Power lines, transmission lines, transformers, transformer bank • 1 Radio tower and communications system • Fritch Medical Clinic • 3 Sanford-Fritch ISD Campuses, School buses
Sanford	• 1 water tower, contract hire for water treatment and residential septic systems • Critical facilities: city hall, fire department, community building, city barn • Vehicles to include: responder services and public works. • Power lines, transmission lines, transformers, transformer bank
Stinnett & Plemons-Stinnett-Phillips ISD	• Critical city facilities to include city hall, police & fire department, community building, youth center &pool, Vehicle service/storage area • County Courthouse and County Jail • Vehicles to include: responder services and public works. • 1 elevated water tanks, 1 water towers, 2 above ground waterwells, 1 water treatment pump stations, 1 solid waste transfer station • 1 Radio towers, communications system and radar equipment. • Power lines, transformers & transformer banks • Stinnett Medical Clinic • 3 Plemons-Stinnett-Phillips ISD Campuses, School buses

Probability of Future Events

Historical patterns are assumed to be a dominate factor in determining future tornado events. Based upon the historical instances of tornado events that have occurred with the planning area during the last 10 years, the annual probability of occurrence for these events and vulnerability are depicted below. The entire planning area lies in a high risk zone for tornados. By adding tornados that have occurred within a 25 mi radius to the county the probability increases to over 100%.

Probability of Future Events	**Years in Record Span 2016-2021**	**No. of Events in the Span**	**Computation**	**Future Probability of 1 or more events year**
Unincorporated Area & Spring Creek ISD	10	5	(10/5) * 100=	50%
Borger & Borger ISD	10	0	(10/0) * 100=	0.0%
Fritch & Fritch ISD	10	0	(10/0) * 100=	0.00%
Sanford	10	0	(10/0) * 100=	0.00%
Stinnett & Plemons-Stinnett-Phillips ISD	10	1	(10/1) * 100=	10.00%

Previous Occurrences

Location	**Y**	**Mag**	**PrD**	**Damage Impact Narrative**
PRINGLE	2013	F0	0.00K	20 second tornado photographed near Pringle. No damage
Unincorporated	2015	F0	0.00K	Tornado witnessed 9 miles northeast of Borger.
Pringle	2016	FU	0.00K	Tornado witnessed by NWS, lasting 3 minutes
Pringle	2019	FU		Tornado survey found tornado touchdown, open field
Unincorporated	2019	F0		Tornado touchdown 3 miles north of Borger, minor roof damage
Stinnett	2019	F0	0.00K	Cone tornado touchdown 3 minutes Canadian River Valley

Wildfire

Description

A **Wildfire** is "*An uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavy fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work together to increase risk of loss*."

Wildfires are part of the natural management of the Earth's ecosystems, but may also be caused by human factors. Wildfires may be described as follows:

- Wildfire - A fire occurring in a wildland area (e.g., grasslands, forests, brush lands). An exception to this definition is a prescribed burn.
- Prescription Burning ("Controlled Burning") – The process of igniting fires under selected conditions, in accordance with strict parameters. For example, this fire may be undertaken by land management agencies is.

Fire probability depends on local weather conditions, outdoor activities such as camping, debris burning, and construction, and the degree of public cooperation with fire prevention measures. Drought conditions and other natural disasters (e.g., tornadoes, hurricanes, etc.) increase the probability of wildfires by producing fuel in both urban and rural settings. Fire probability may be determined by using the Keetch-Byram Drought Index (KBDI)

The result of this system is a drought index number ranging from 0 to 800 that accurately describes the amount of moisture that is missing. A rating of zero defines the point where there is no moisture deficiency and 800 is the maximum drought possible.

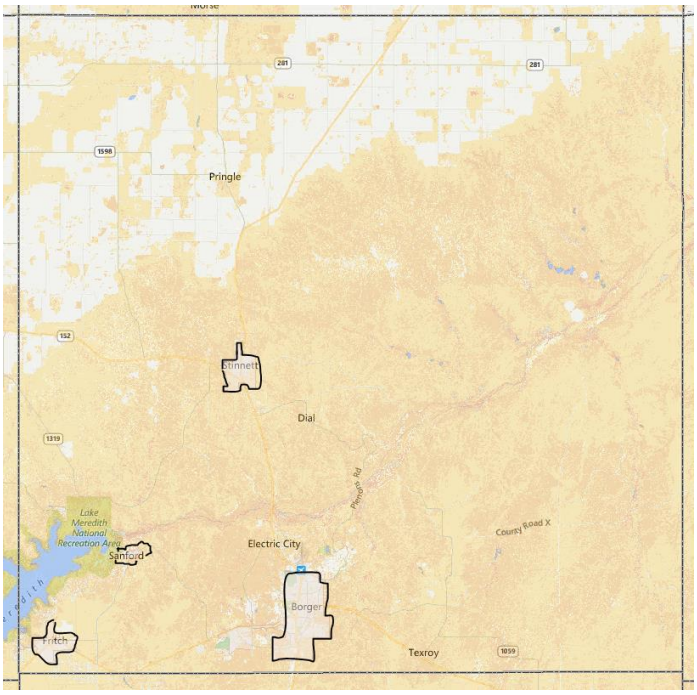
Keetch-Byram Drought Index

Keetch-Byram Drought Index	
Drought Index #	**Potential Fire Behavior**
0 - 200	Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.
200 - 400	Fires more readily burn and will carry across an area with no gaps. Heavier fuels will still not readily ignite and burn. Also, expect smoldering and the resulting smoke to carry into and possibly through the night.
400 - 600	Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
600 - 800	Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn thorough the night and heavier fuels will actively burn and contribute to fire intensity.

Source: http://www.wfas.us/content/view/32/49/

Location

The Wildfire Threat for Hutchinson County and the cities within is significant. The Fire Threat Map of the Hutchinson County boundaries shown below clearly indicates in yellow the vulnerability for the entire planning area, with a small exception in white, which is the location of a canyon, all incorporated parts of each participating city, including the ISD's within, as well as the majority of the unincorporated county, is at risk for wildfire. As with Tornadoes, borders do not stop fires and many fires begin in the open areas of the counties to the west, where the wind quickly blows them into the planning area.



Extent

Wildfires in the county can expect to be as large as 500,000 acres. Due to the high winds and low vegetation, these fires can swiftly grow to sizes that make it very difficult to control even with air support.

Vulnerability and Impact

Populated areas in Hutchinson County are at extreme risk due to the open range to the south and west. Heavy fuels in the neighboring counties and hazardous terrain which limit the ability to stop forward movement also put each participating cities population at risk. Seasonal strong winds traditionally blow from the west or southwest contribute to spreading the fire.

The impact of a wildfire is typically in direct relationship to weather conditions. Extreme winds that tend to be prevalent in the planning area plus dry fire fuels can escalate the size of a wildfire in minutes. Even with well-trained firefighters and mutual aid – winds can move the fire at over 35 MPH. The damage caused by these fires is typically in open range lands, but can easily consume cattle, fencing and rural homesteads making them vulnerable.

Due to the similar characteristics of each participating jurisdiction, the entire planning are can be impacted in the following ways:

- Loss of power and communication lines
- Severe water and pressure loss due to high use of water resources.
- Loss of cattle and miles of fencing.
- Highway dangers due to blowing smoke
- Death and injuries to responder due to fast moving fire or changing winds.

Jurisdiction	Vulnerabilities
Unincorporated Area & Spring Creek ISD	• Wildfires that reach the Tier 2 chemical ~~facilities ,~~facilities, Phillips 66, Chevron – Petroleum and Chemical Refineries, Agrium – Fertilizer can cause extensive damage to the facilities infrastructure, thus being the impetus for additional hazards. • Spring Creek ISD – 1 campus. • Private farmland (85% of the unincorporated area) can experience crop loss and cattle and replacing fencing
Borger & Borger ISD	• Critical city facilities to include city hall, police & fire department, community building, youth center &pool, Vehicle service/storage area, and several other city owned properties valued over $15 Million. • County Dome Building • 4 ground water tanks, 9 above ground waterwells, • Power lines, transformers & transformer banks and several power stations. • Golden Plains Community Hospital, Borger Healthcare Assisted Living Center, Caprock Nursing and Rehabilitation Center and Golden Years Assisted living. • 6 Borger ISD Campuses
Fritch & Sanford-Fritch ISD	• 1 above ground water tank • Critical city hall, police department, fire department, ems building, library, community building, city barn • Power lines, transmission lines, transformers, transformer bank • Fritch Medical Clinic • 3 Sanford-Fritch ISD Campuses
Sanford	• Critical facilities: city hall, fire department, community building, city barn • Vehicles to include: responder services and public works. • Power lines, transmission lines, transformers, transformer bank
Stinnett & Plemons-Stinnett-Phillips ISD	• Critical city facilities to include city hall, police & fire department, community building, youth center &pool, Vehicle service/storage area • County Courthouse and County Jail • 1 elevated water tanks, 2 above ground waterwells, • Power lines, transformers & transformer banks • Stinnett Medical Clinic • 3 Plemons-Stinnett-Phillips ISD Campuses

The Conoco Phillips Refinery is located near Borger, wildfire could cause significant economic damage if the poly-pipes were burned. Cattle Industry losses were proven to be significant after the million acre fire – not only the cattle but the extreme amount of fencing destroyed, and loss of grazing lands that resulted in ranchers having to buy feed. Replacement fencing can cost over $10,000/mile. The grazing land after the 2006 million acre fire took 5 years to recover. Forcing ranchers to either not keep cattle or supplemental feed.

Probability of Future Events

Wildfires occur with high frequency in the planning area. This vulnerability and the annual probability of occurrence for these events are estimated as follows.

Probability of Future Events	Years in Record Span 2011-2021	No. of Events in the Span	Computation	Future Probability of 1 or more events year
Unincorporated Area & Spring Creek ISD	10	719	(10/719) * 100=	7190.00%
The City of Borger, Fritch, Sanford & Stinnett and Borger ISD, Fritch ISD & Plemons-Stinnett –Phillips ISD	Fritch Highs School, Plemons-Stinnett-Phillips High School is located on the edges of town and is more susceptible to an uncontrolled fire. Spring Creek ISD is located in an unincorporated part of the county and while vegetation is limited, lack of development around the campus places them at a high risk. A wildfire event threatening any of the incorporated cities and ISD's			
Incorporated cities and the ISD's within the planning area can be affected, but in the last 10 years have had a zero history of occurrence. Continued wildfire mitigation and affective fire suppression response has contributed to a the incorporated areas ISD's having a negligible affect.				

Wildfire Partial History (2011-2021)

Date	Inj	$	Narrative
1/8/2011	0	0	The Conoco Wildfire started around 1547 CST about six miles north northeast of Borger Texas in Hutchinson county. The wildfire was located just east of Plemmons Road and just southeast of the County Road V split and was contained by 2200 CST. The wildfire consumed three hundred and fifty-six acres. Although two homes and two other structures were threatened, there was no report of damages or injuries.
2/27/2011	5	200000	The So Close Wildfire began about six miles south southwest of Borger Texas in Hutchinson County around 1214 CST. The wildfire was caused by trains and consumed an estimated twenty-one thousand and five hundred acres. There were about fifty to one hundred homes which were threatened but saved. There were approximately twenty other structures which were lost. Also, there were five injuries reported and four near misses. The wildfire was contained around 0600 CST on February 28.
3/16/2011	0	0	The Bugbee Creek Wildfire began two miles northwest of Sanford Texas in Hutchinson County around 1400 CST. The wildfire threatened three or four homes and also two oil and gas wells. There were no reports of damage or injuries. The wildfire consumed an estimated three hundred acres and is being investigated as arson. The wildfire started just before 1400 CST about two miles north of the Sanford Dam just off Farm to Market Road 687. The wildfire was contained around 1650 CST.
5/19/2011	0	0	The Texas Forest Service reported that the Pettit Ranch Wildfire threatened three homes and were evacuated. The wildfire began about one mile east southeast of Sanford Texas in Hutchinson County at approximately 1330CST. The three homes were saved and there were no reports of damages or injuries. The wildfire consumed a measured nine hundred acres and the cause of the wildfire was determined to be illegal burning of electrical wire. The wildfire was reported to be contained around 2000CST.
5/29/2011	0	0	The Texas Forest Service reported that the Reimer Wildfire began about four miles south of Stinnett Texas in Hutchinson County around 1424CST. The wildfire consumed an estimated four hundred and fifty to five hundred acres. The wildfire threatened five homes along with the town of Stinnett Texas which resulted in an evacuation order to be issued. The wildfire was moving north and northeast toward Stinnett. No damage or injuries were reported and the wildfire was contained around 1830CST.
7/13/2011	0	0	The S. Duncan #2 Wildfire began around 0249 CST about eleven miles north of Skellytown Texas in Hutchinson County. The wildfire was caused by the burning of leaves and other debris. The wildfire consumed an estimated seven hundred acres. There was a report that one home was threatened, however the home was not damaged or destroyed. There were also no reports of injuries or fatalities. The wildfire was contained around 1300 CST.

8/1/2011	0	0	The Texas Forest Service reported that the Turkey Track Wildfire began about seven miles east of Stinnett Texas in Hutchinson County around 1246 CST. The wildfire threatened three homes and four other structures along with oil wells, pipelines, and power lines. However, no damages were reported. There were also no reports of injuries. A measured three thousand and sixty-one acres were consumed by the wildfire. The cause of the wildfire was still under investigation. The wildfire was controlled on August 3 at 1900 CST.
8/2/2011	0	0	The Texas Forest Service reported that the Bar P Wildfire began around 1830 CST about seven miles north of Skellytown Texas in Hutchinson County. There were no reports of damages or injuries and the wildfire consumed a measured one thousand and fourteen acres. The wildfire had a perimeter of four hundred and ninety-four chains. The wildfire was contained on August 3 at 1900 CST.
2/18/2014	0	0	The Turkey Track Wildfire began on February 18, 2014 in Hutchinson county on the Turkey Track Ranch around 1350CST about seventeen miles east northeast of Stinnett Texas. The large wildfire consumed an estimated six hundred acres which threatened four homes and ten other structures. However, no structures were damaged or lost. There were also no reports of injuries or fatalities but there was one near miss. The cause of the wildfire was determined to be from downed power lines. A total of thirteen fire departments and other fire agencies responded to the wildfire including the National Park Service, personnel from the Crutch Ranch and the Big Creek Ranch, a Texas Department of Public Safety helicopter, a privately owned helicopter which spotted for the fire fighters and a third helicopter which performed water drops along with crews from Spearman, Gruver, Skellytown, Stinnett, Fritch and Borger. The wildfire was contained around 2000CST.
5/11/2014	0	0	The North 136 Wildfire began around 0734CST in Hutchinson county about four miles northwest of Stinnett Texas. The wildfire consumed an estimated four hundred and twenty and was caused by downed power lines. There was one home that was threatened but saved and there were no homes or other structures lost. There were no reports of injuries or fatalities. The wildfire was contained around 1330CST and a total of six fire departments and other agencies responded to the wildfire including the Texas A&M Forest Service.
5/11/2014	0	10000000	The Double Diamond Wildfire began around 1520CST in Hutchinson county about two miles northwest of Fritch near the Harbor Bay area of Lake Meredith National Recreational Area. The wildfire consumed an estimated two thousand five hundred and eighty-three acres and was caused by a child playing with matches in an abandoned shed. A total of three hundred and sixty-eight structures were damaged or lost including two hundred and twenty-five homes that were destroyed along with one hundred and forty-three other structures. Also, a total of one hundred and forty-seven vehicles were destroyed. There was one report of a fatality from a heart attack that was indirectly related to the wildfire, however there were no reports of any injuries. The wildfire reportedly cased an estimated ten million or more dollars in property losses. The wildfire was finally contained between 1000CST to 1100CST on May 14. There were a total of thirty-seven fire departments that responded to the wildfire including the Texas A&M Forest Service.
12/20/2015	1	0	The Sunday Evening wildfire began around 1912CST about four miles southeast of Pringle Texas in the central Texas Panhandle or just east of County Road 12 and State Highway 207 and was moving in a northeasterly direction. The wildfire consumed two thousand one hundred and ninety-seven acres and was caused by downed power lines. One home was threatened but saved and there were no reports of homes or any other structures being damaged or lost. There were also no reports of damage to any farm fencing or livestock. There was one report of an injury, however there were no reports of fatalities. Although the wildfire was contained around 0730CST on Monday December 21, the wildfire rekindled again by 1500CST on Monday December 21. The wildfire was finally contained by 1840CST on Monday December 21. A portion of the wildfire was located in the Canadian River breaks making it extremely difficult for firefighters and fire trucks to gain access to the wildfire because of the rugged terrain. A total of eleven fire departments and other fire agencies, including the Texas Forest Service, the National Park Service at Lake Meredith, and multiple personnel from area ranches, responded to the wildfire. The Texas Forest Service provided dozers and other heavy equipment to assist with wildfire operations.
12/26/2015	0	0	The Christmas After wildfire began around 1430CST about three miles northeast of Stinnett, Texas in central Hutchinson county east of County Road 11 and north of Farm to Market Road 1526. The wildfire consumed an estimated three hundred acres and was caused by downed power lines. There were no reports of homes or any other structures being threatened and no homes or other structures were damaged or lost. There were also no reports of injuries or fatalities. The wildfire was contained around 0130CST to 0200CST on Sunday

			December 27. A total of nine fire departments and other fire agencies responded to the wildfire including the Texas Forest Service.
2/19/2016	0	25000	The Triangle Fire wildfire began around 1530CST about three miles northwest of Sanford Texas in Hutchinson county. The wildfire consumed a measured two hundred and ninety-eight acres and was determined to be caused by a trailer that became disconnected from the hitch. A total of seven homes and eight other structures were threatened by the wildfire but were saved, however three structures were lost. There were no reports of injuries or fatalities. A total of six fire departments and other fire agencies including the Texas A&M Forest Service responded to the wildfire. The wildfire was finally contained around 2130CST.
2/22/2016	0	0	The Gina 5 wildfire began around 1205CST about seven miles north northwest of Sanford Texas in Hutchinson county. The wildfire consumed approximately seven hundred acres and was determined to be caused by a cutting torch. There were no homes or other structures threatened and no homes or other structures were damaged or destroyed. There were no reports of injuries or fatalities. A total of seven fire departments or other fire agencies responded to the wildfire which was contained between 1600 to 1630CST.
3/23/2016	0	0	The Crutch Complex Wildfire is actually two wildfires that became one wildfire complex. The first and largest wildfire from the complex was the Crutch Wildfire which began around 1038CST approximately seven miles northwest of Skellytown Texas in Hutchinson county. The wildfire consumed forty-four thousand six hundred and eighty-six acres in Carson, Hutchinson, Roberts and Gray counties. There were two abandoned homes and two other structures which were destroyed. Another three homes and one other structure were saved. There there were no reports of injuries or fatalities however there were four near misses. There were two Texas Forest Service task forces, fire supervisors, and two single engine air tankers or SEATs that were assigned to this wildfire. An additional two task forces arrived later to relieve the Texas Forest Service resources that worked through the night on this wildfire. The cause of this wildfire was downed power lines. There were a total of ten fire departments or other fire agencies including the Texas Forest Service that responded to the wildfire. The wildfire was finally contained by 1100CST on March 25.||The second wildfire was the Arrington Wildfire which began in Gray county about six miles northwest of Pampa Texas and consumed ten acres before becoming absorbed into the Crutch Wildfire. There were no reports of damages, injuries or fatalities from this wildfire.
7/22/2017	0	0	Combination of a recent dry spell and lightning led to a large wildfire in about seventeen miles north northeast of Skellytown in Hutchinson County.
7/24/2017	0	0	The County Road 20 Wildfire began in Hutchinson County about fourteen miles east of Pringle Texas around 1530CST. The wildfire consumed approximately four thousand acres. There were no reports of any homes or other structures threatened or destroyed and there were also no reports of any injuries or fatalities. The Texas A&M Forest Service responded to the wildfire including several other fire departments and other agencies. The wildfire was contained by 1800CST on July 25.
3/23/2018	1	0	The Airport Wildfire began around 1300CST about two miles north of Borger Texas in Hutchinson County near the Hutchinson County Airport. The wildfire consumed approximately one thousand acres. There were no reports of any homes or other structures threatened, damaged or destroyed by the wildfire. There was a report of one injury however no fatalities were reported. There were a total of nine fire departments and other fire agencies that responded to the wildfire including the Texas A&M Forest Service. The wildfire was contained around 0100CST on March 24.
4/12/2018	0	0	The Bentley Wildfire began around 1710CST about two miles west of Stinnett Texas in Hutchinson County. The wildfire was caused by downed power lines and consumed two hundred and eleven acres. There were twenty-five homes threatened by the wildfire but were saved. There were no reports of any homes or other structures damaged or destroyed by the wildfire. There were no reports of any injuries or fatalities. The Texas A&M Forest Service responded to the wildfire which was contained around 2300CST.
4/16/2018	0	0	The High Plains Wildfire began around 1204CST about three miles north northeast of Fritch Texas in Hutchinson County. The wildfire consumed approximately five hundred and one acres. There was a report that fourteen homes and eight other structures were threatened by the wildfire, however no homes or other structures were destroyed. There were no reports of any injuries or fatalities. The Texas A&M Forest Service responded to the wildfire which was contained around 1800CST on April 18.
3/13/2019	0	0	The Bugbee Wildfire began around 1145CST about seven miles northwest of Sanford Texas in Hutchinson County near Farm to Market Road 1319 and Farm to Market Road 3395. There were approximately fifty homes that were threatened by the wildfire along with about twenty other structures but they were

			saved. There were no homes or other structures damaged or destroyed by the wildfire. There was one near miss reported but no reports of any injuries or fatalities. The wildfire consumed approximately two thousand seven hundred acres. The wildfire was determined to have been caused by downed power lines. There were a total of eleven fire departments and other fire agencies that responded to the wildfire including the Texas A&M Forest Service. The wildfire was contained around 1800CST.
11/26/2019	0	0	The Brittain Ranch Wildfire began around 1230CST about five miles north northeast of Stinnett Texas in Hutchinson County. The cause of the wildfire was determined to be from downed power lines. The wildfire consumed approximately two thousand acres. There was a report of two homes and three other structures threatened but saved. There were no reports of any homes or other structures damaged or destroyed by the wildfire. There were also no reports of any injuries or fatalities. The wildfire was brought under control around 1800CST. The Borger Fire Department, Crutch Ranch VFD, Fritch VFD, Spearman VFD, Stinnett VFD, Hardin County ESD #5, and the Texas A&M Forest Service responded to the wildfire.
7/11/2020	0	0	The Lightning West wildfire began about twelve miles east southeast of Plemons Texas in Hutchinson County around 1650CST. The wildfire consumed six thousand five hundred and ten acres. The cause of the wildfire was determined to be from lightning. There were two homes and two other structures threatened by the wildfire but were saved. There were also no reports of any injuries or fatalities. The Texas A&M Forest Service along with the Booker VFD, the Fritch VFD, Hardin County ESD #5, the Skellytown VFD, Borger Fire Department, Crutch Ranch VFD, the Hoover VFD, Miami/Roberts County VFD, Panhandle Fire Department, Perryton Fire Department, and White Deer VFD responded to the wildfire. The wildfire was contained around 2000CST on July 12 and brought under control around 1500CST on July 16.
7/11/2020	1	0	The Campbell Road wildfire began around 1801CST about twelve miles north northeast of Skellytown Texas in Hutchinson County. There was a report that one home was threatened by the wildfire but was saved, otherwise there were no reports of any homes or other structures threatened. There was a report of one injury, however no fatalities were reported. The wildfire consumed thirty-one hundred acres and spread into western Roberts County where the Texas A&M Forest Service received a request for assistance. The cause of the wildfire was determined to be from lightning. The Skellytown VFD, the Booker VFD, the Hoover VFD, the Miami/Roberts County VFD, the Panhandle Fire Department, the Perryton Fire Department, the White Deer VFD, and the Texas A&M Forest Service responded to the wildfire. The wildfire was contained and controlled by 1500CST on July 13.
11/18/2020	0	0	The 1299 wildfire began about seven miles north of Lake Meredith near Farm to Market Road 1913 and Farm to Market Road 3395 in Hutchinson County Texas around 1130CST. The wildfire consumed seven hundred and seven acres, There were no reports of any homes or other structures lost or damaged and there were also no reports of any injuries or fatalities. The Borger Fire Department responded to the wildfire which was brought under control around 1600CST.

Previous Occurrences

There are no previous occurrences of a wildfire event in the incorporated area (participating cities or ISD's). However, the unincorporated area of Hutchinson County has since 2006 experienced several wildfires every year. During 2006-2001the county saw 7 deaths, 27 injuries and over $10.253 million in property damage. The most costly fires since 2006 are reflected in the table below.

Location	Date	Injured	Death	Damage/Impact
Unincorporated	3/12/2006	12	7	$49.9M
Unincorporated	1/5/2008	5	0	$25K
Unincorporated	1/6/2008	4	0	$3K
Unincorporated	2/27/2011	5	0	$200K
Unincorporated	5/11/2014	0	0	$10M
Unincorporated	2/19/2016	0	0	$25k

Stinnett Grass Fire

March 6, 1991 massive grass fires, fueled by 45 mph winds roared across about 10 miles of Hutchinson County, destroying almost everything in its path, including 19 homes, four bards, and damaging three other homes. Approximately 600 people were evacuated from their homes.

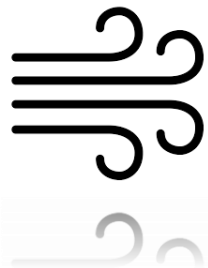
Million Acre Wildfire Fire

During March 12--20, 2006, wildfires burned approximately 1 million acres in the Panhandle region of Texas, advancing 45 miles in 9 hours, with dense smoke and flames up to 11 feet. The two largest fires, which together extended into nine counties, resulted from power lines downed by sustained winds of 46 mph and gusts up to 53 mph. The wildfires destroyed more than 89 structures, with losses estimated at $16 million. The fires caused evacuations in eight communities with a total population of 4,072. Twelve deaths (seven directly related and five indirectly related) were considered related to the wildfires.

The **Double Diamond Wildfire** began around 3:20 PM in Hutchinson County about two miles northwest of Fritch near Harbor Bay area of Lake Meredith National Recreation Area. The wildfire consumed an estimated 2,583 acres. A total of 368 structures were damaged or lost including 225 homes. Also, a total of 147 vehicles were destroyed. There was one report of fatality from a heart attack that was indirectly related to the wildfire, however there were no reports of any injuries. The wildfire reportedly caused an estimated ten million or more dollars in property losses. There were a total of 37 fire departments that responded including the Texas A&M Forest Service.

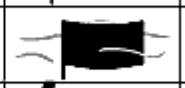
Windstorms

Description



Winds begin with differences in air pressures. Pressure that is higher at one place than another sets up a force pushing from high pressure towards low pressure. The greater the difference in pressures the stronger the force. Wind is used to describe the prevailing direction from which the wind is blowing with the speed given usually in miles per hour or knots. A Wind Advisory is issued when winds are forecast to be sustained at 25 to 39 mph and/or gusts to 57 mph. Windstorms may present themselves in many forms such as high winds or downbursts. A major concern of a wind storm is wind speed and duration. It may be a 2 minute average speed or an instantaneous speed. The problems that windstorms create can be damaged roof top equipment, broken windows, and down powerlines. The **Beaufort Scale** is a a system for estimating wind strengths based on the effects wind has on the physical environment. This scale is provided below.

Beaufort Scale

Beaufort number	Wind Speed (mph)	Seaman's term		Effects on Land
0	Under 1	Calm		Calm; smoke rises vertically.
1	1-3	Light Air		Smoke drift indicates wind direction; vanes do not move.
2	4-7	Light Breeze		Wind felt on face; leaves rustle; vanes begin to move.
3	8-12	Gentle Breeze		Leaves, small twigs in constant motion; light flags extended.
4	13-18	Moderate Breeze		Dust, leaves and loose paper raised up; small branches move.
5	19-24	Fresh Breeze		Small trees begin to sway.
6	25-31	Strong Breeze		Large branches of trees in motion; whistling heard in wires.
7	32-38	Moderate Gale		Whole trees in motion; resistance felt in walking against the wind.
8	39-46	Fresh Gale		Twigs and small branches broken off trees.
9	47-54	Strong Gale		Slight structural damage occurs; slate blown from roofs.
10	55-63	Whole Gale		Seldom experienced on land; trees broken; structural damage occurs.
11	64-72	Storm		Very rarely experienced on land; usually with widespread damage.
12	73 or higher	Hurricane Force		Violence and destruction.

In addition to the windstorms derived from thunderstorms or sustained high winds due to other conditions, the following specific wind activities could also occur.

Macroburst is a convections downdraft with an affected outflow area of at least 2.5 miles wide and peak winds lasting between 5 to 20 minutes. Macro burst may cause tornado-force damage of up to EF3 intensity.

Microburst is a convective downdraft with an affected outflow are of less than 2.5 miles wide and peak winds lasting less than 5 minutes. Microbursts may induce dangerous horizontal/vertical wind shears, which can adversely affect aircraft performance and cause property damage.

Burst Swaths can range from about 50 to 150 years in length. The damage they produce may resemble that caused by a tornado.

Red Flag Warnings are frequently issued in the planning area when the conditions are ideal for wildland fire combustion, and rapid spread. These warnings are typically sent out when the conditions stated are coupled with high or erratic winds. The Red Flag Warning becomes a critical statemetn for firefighting agences.

Location

Hutchinson County's proximity to mountainous areas to the west, contribute to development of low pressure systems near the area in fall, winter and spring months. This leads to very windy periods during this time frame, and it is not uncommon to have wind gusts of 45 to 55 mph associated with low pressure systems in advance of and/or behind cold fronts. In most extreme cases, winds have gusted to 60-70 mph. These windy conditions combined with dry conditions in the area can help spark rapidly moving wild fires in the region especially during dry and drought years.

It cannot be predicted when or where a windstorm will occur, but the entire planning area can be impacted.

Extent

All participating jurisdictions in the planning area can anticipate winds in excess of 40 mph several times during the year which is an eight or higher on the Beaufort scale.

Impact

Wind can cause considerable damage to property. Injuries and deaths can occur as direct result both to people due to flying debris. High Winds can cause severe visibility issues on highways, contributing to deadly vehicle accidents. Damage to roof mounted equipment including communications equipment can put the jurisdiction at risk due to inability to reach public services.

With the type of force that can be applied, as described from the Beaufort Scale, homes and the mobile homes will always be the first to sustain damage, and possible injury from loose debris such as sheet metal or fallen trees. Since critical facilities are constructed to withstand at least medium forces, damage would be to roof mounted equipment, roof and landscaping to some degree.

Since the intensity of the various types of windstorms can generate the damage force of a F3 tornado, this would cause considerable damage. Roofs would be torn off well-constructed houses; older

foundations of frame homes would shift; mobile homes would be completely destroyed; large trees would be snapped or uprooted; light object missiles would be generated; and cars lifted off the ground.

A thunderstorm wind on April 6, 2001 was clocked at over 108 kts. In the city of Borger. The wind was so strong that it pulled two large metal storage tanks off the ground. A motorhome was overturned and two barns were destroyed. Half a roof was town off a house and electric poles and lines for 2 miles were snapped.

Straight wind damage on February 24, 2007 in Fritch caused extensive roof and porch damage to many homes. A carport was torn free and went airborne, crossing Hwy 136 and narrowly missing 2 vehicles.

A June 27, 2013 thunderstorm produced a 94 mph microburst in the county near Borger. This microburst blew a roof off a metal building causing damage to three vehicles nearby. A two mile swath of damage was observed from this microburst. The County airport suffered damage to 2 of the hangers.

Jurisdiction	Vulnerabilities
Unincorporated Area & Spring Creek ISD	• Power lines, transformers, transformer banks and power stations. • 1 Radio tower, communications system • Precinct barns and road and bridge equipment due to roof damage • Spring Creek ISD – 1 campus, roof damage
Borger & Borger ISD	• Critical city facilities to include city hall, police & fire department, community building, youth center &pool, Vehicle service/storage area. Roof loss can damage contents and making offices unsafe for use. • County Dome Building room damage • 3 elevated water tanks, 2 water towers, • 2 Radio towers, communications system and radar equipment. • Power lines, transformers & transformer banks and several power stations. • Golden Plains Community Hospital, Borger Healthcare Assisted Living Center, Caprock Nursing and Rehabilitation Center and Golden Years Assisted living roof damage • 6 Borger ISD Campuses roof damage.
Fritch & Sanford-Fritch ISD	• 1 water tower, 1 above ground • Critical city hall, police department, fire department, ems building, library, community building, city barn roof damage. • Power lines, transmission lines, transformers, transformer bank • 1 Radio tower and communications system • Fritch Medical Clinic roof damage • 3 Sanford-Fritch ISD Campuses roof damage.

Sanford	• 1 water tower • Critical facilities: city hall, fire department, community building, city barn roof damage • Power lines, transmission lines, transformers, transformer bank
Stinnett & Plemons-Stinnett-Phillips ISD	• Critical city facilities to include city hall, police & fire department, community building, youth center &pool, Vehicle service/storage area • County Courthouse and County Jail roof damage. • 1 elevated water tanks, 1 water towers • 1 Radio towers, communications system and radar equipment. • Power lines, transformers & transformer banks • Stinnett Medical Clinic roof damage • 3 Plemons-Stinnett-Phillips ISD Campuses roof damage

Probability of Future Events

Based on data collected in the Storm Event Database, the planning area experienced 47 significant wind events over the last 10 years. Future wind events with damage will be expected to occur, with a future probability of 91% for more than one wind event per year. Unlike most weather events, wind is widespread and not calculated by specific jurisdictions, but rather countywide.

Previous Occurrences

Year	Number of Wind Warnings
2011	4
2012	2
2013	1
2014	3
2015	0
2016	3
2017	2
2018	1
2019	9
2020	11
2021	11

Winter Storm

Description

A **Winter Storm** is, "…*an event in which the varieties of precipitation are formed that only occur at low temperatures, such as snow or sleet, or a rainstorm where ground temperatures are low enough to allow ice to form (i.e. freezing rain). In temperate continental climates, these storms are not necessarily restricted to the winter season, but may occur in the late autumn and early spring as well*." The difference between a blizzard and winter storms lies in the presence and strength of winds. Blizzards are massive snow storms with strong winds.

The chart below distinguishes a number of the chief characteristics of both types of storms.

Comparison of Blizzard to a Winter Storm

	BLIZZARD	WINTER STORM
Occurrence:	Winter	Winter, spring, autumn
Characteristics:	Severe storm with strong winds, severe temperatures and heavy snow.	Cold storm with low temperature, sleet, snow, rain and ice formations can be seen throughout the planning area
Economic impact:	Blizzards harm local economies and cause paralysis of normal life for days.	Infections due to frostbites, death from hypothermia, power outage, car accidents on slippery roads, fires, carbon monoxide poisoning etc. lead to disruption of life until conditions improve.
Effect:	Blizzard gives rise to a white out with minimum visibility.	Avalanches, cornices and spring flooding are common in winter storms.
Types:	Traditional and ground blizzards	Snow storm, Freezing rain storm or wintry mixes.
Forms of precipitation:	Snow	Snow, rime, ice pellets, rain, graupel (snow pellets)

Source: http://www.diffen.com/difference/Blizzard_vs_Winter_Storm

Winter storms that impact the entire planning area can include:

Freezing Rain - Rain that falls on a surface with a temperature below freezing, forming a glaze of ice. Even small accumulations of ice can cause a significant hazard, especially on power lines and trees.

Heavy Snow Snowfall accumulating to 4" or more in depth in 12 hours or less; or snowfall accumulating to 6" or more in depth in 24 hours or less

Blizzard Conditions- Considerable falling or blowing snow with winds in excess of 25 mph and visibilities of less than ¼ for at least 3 hours.

The SPIA index chart allow for a community to prepare for a winter or an ice storm event. These events are infrequent but can cause damage. The primary areas of concern are on bridges, roadways and utility infrastructure including electric and natural gas supply lines.

Sperry-Piltz Ice Accumulation Index

The Sperry-Piltz Ice Accumulation Index, or "SPIA Index" – Copyright, February, 2009

ICE DAMAGE INDEX	DAMAGE AND IMPACT DESCRIPTIONS
0	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
4	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

Location

Winter storms can affect the entire planning area often and with enough severity to be a threat to people and property. Generally, the winter storm season runs from late November to mid-March, although severe winter weather has occurred as early as October and as late as May in some locations.

Extent

The entire planning area can be impacted by extreme icing, heavy snow and white out-blizzard conditions due to high winds. Ice accumulations on power lines and trees can exceed 2" and result in millions of dollars to the electrical coops. Snow accumulations can reach 3 feet overall with 10-12 foot drifts resulting from extreme wind conditions. High winds exceeding 40 MPH have contributed to road closures including heavily traveled IH 40 and IH27.

Impact

Due to the winds that occur on a regular basis, Not only are the residents a risk for frequent electrical outages due to lines down or transformer damage – roads are greatly impacted with freezing ice and blowing snow.

On February 24, 2013 the entire planning area experience a blizzard that dumped over 17" of snow in a 4 hour period. Snow drifts were in excess of 6' in some location and roads were impassable for over 48 hours. This storm resulted in over $660K in property damage.

On January 15, 2017 the entire planning area was subjected to an ice storm that resulted in over $5 million in electrical pole damage with areas of Hutchinson county being without electricity for over 72 hours. A staggering number of trees were impacted and the county continues to pick up limbs for chipping or burning to reduce fire fuel in the county.

Jurisdiction	Vulnerabilities
Unincorporated Area & Spring Creek ISD	• Loss of electricity due to power lines, transformers, transformer banks and power stations being damaged due to accumulating ice. • 1 Radio tower, communications system damage due to ice. • Impassable county roads due to snow or ice • Spring Creek ISD – 1 campus – damage to roofs, bus accidents. School closure due to electrical outage.
Borger & Borger ISD	• Critical city facilities to include city hall, police & fire department, community building, Vehicle service/storage area. Roof loss due to heavy snow, electrical outage. • Wastewater plants, 4 water treatment pump stations, solid waste transfer station electrical outage – long term use of generators. • County Dome Building room damage • 2 Radio towers, communications system, radar equipment due to ice damage. • Power lines, transformers & transformer banks and several power stations damage due to ice. • Golden Plains Community Hospital, Borger Healthcare Assisted Living Center, Caprock Nursing and Rehabilitation Center and Golden Years Assisted, living electrical outages • 6 Borger ISD Campuses roof damage, bus accidents. School closure due to electrical outage.
Fritch & Sanford-Fritch ISD	• Critical city hall, police department, fire department, ems building, library, community building, city barn roof damage, electrical outage • Power lines, transmission lines, transformers, transformer bank • 1 Radio tower and communications system from ice. • Fritch Medical Clinic roof damage • 3 Sanford-Fritch ISD Campuses roof damage, bus accidents. School closure due to electrical outage.
Sanford	• Critical facilities: city hall, fire department, community building, city barn roof damage and electrical outage • Power lines, transmission lines, transformers, due to ice damage.
Stinnett & Plemons-Stinnett-Phillips ISD	• Critical city facilities to include city hall, police & fire department, community building, damage to roof due to heavy snow and electrical outage. • Water treatment pump stations, 1 solid waste transfer station loss of electricity and prolong use of generator. • County Courthouse and County Jail roof damage and electrical outage • 1 Radio towers, communications system and radar equipment ice damage • Power lines, transformers damage due to ice • Stinnett Medical Clinic roof damage, electrical outage. • 3 Plemons-Stinnett-Phillips ISD Campuses roof damage, bus accidents. School closure due to electrical outage.

Probability of Future Events

Historical patterns are assumed to be a dominant factor in determining future winter storm events. Based upon the historical instances of winter storm events that have occurred in the area during the last 10 years, the annual probability of occurrence for these events was estimated as follows.

Since 2011, at least one winter storm occurred in the planning area in each of those 10 years. Based on this data, the MAT estimates the probability for a winter storm in any given year to be around 440%.

Probability of Future Events	Years in Record Span 2011-2021	No. of Events in the Span	Computation	Future Probability of 1 or more events year
Unincorporated Area	10	5	(10/5) * 100=	50.00%
All other jurisdictions within the planning area can experience the same effect as the unincorporated area. The probability of future occurrence can be anticipated to impact all jurisdictions significantly at once every year.				

Previous Occurrences

The table below summarizes the winter storm events recorded for the planning area between the years 2006 and 2016. During that 10-year span, the planning area witnessed 37 separate severe winter storm events.

Severe Winter Storm Highlights for the Planning Area: 2006 - 2016

Report Year	No. of Events	No. of Deaths	No. of Injuries	Prevalent Impact
2013	1	0	0	7 inches snow
2015	1	0	0	5-6 inches snow
2018	1	0	0	6-7 inches snow
2020	1	0	0	Sleet and freezing rain (1-2 inches)
2021	1	0	0	4-6 inches of snow, white out conditions

NFIP Insured Structures and Severe Repetitive Loss (B4):

Through the Severe Repetitive Loss (SRL) Grant Program FEMA provides federal funding to assist to states and communities in implementing mitigation measures to reduce or eliminate the long-term risk of flood damage to severe repetitive loss residential structures insured under the National Flood Insurance Program (NFIP). The TWDB administers the SRL grant program for the State of Texas.

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

a) covered under the NFIP and have at least four (4) flood related damage claim payments (building and contents) over $5,000.00 each, and the cumulative amount of such claims payments exceed $20,000; or

b) for which at least two (2) separate claim payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

According to the NFIP, between 1978 and 2016, there have been a total of 0 flood damage claims made in the planning area.

Vulnerable Assets and Potential Losses:

The table displays total population, building counts, and building values, summarized for Hutchinson. Building counts and values are also presented by their occupancy type.

List of Critical Infrastructure/Key Resources (CI/KR)

	Hutchinson County		City of Borger		City of Fritch		City of Sanford		City of Stinnett	
Facilities/People	**No.**	**PV**	**No.**	**PV**	**No.**	**PV**	**No.**	**PV**	**No.**	**PV**
Critical Facilities										
Government Admin	1	1.1 M	1	1.5 M	1	66 K	1	12 K	1	95 K
Law Enforcement	1	Same as above	1	1.5 M	1	32 K	0		1	Same as above
Fire Stations	0		1	1.2 M	1	132 K	1	25 K	1	19 K
Hospitals	1	10.6 M								
Schools	1	94 M	1	700 M	1	186 M	0		1	1.2 B
Special Facilities										
Nursing Homes	0		3	6 M	0		0		0	

The table above provides estimates of the current Present Values (PV) of some of the more critical infrastructure in the planning area. It should be noted that based on current construction costs, it could easily cost 2 – 3 times the present value to replace structures identified on this list.

Worst case scenarios can be developed that could result in the loss of any number of the critical facilities listed on the above table generating millions in loss values. The MAT was able to use a historical perspective to not only measure the impact of past events but to predict the potential for future annualized losses; assuming the cycle of natural hazards continues to occur in the entire planning area.

Element C – Mitigation Strategy

Existing Authorities, Policies, Programs and Resources (C1):

Existing Plans and Ordinances

Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, drainage, wildfire	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other: Annual Budget Review
Hutchison County	N	N	N	Y	N	N	N	N	N	Y	Y	N	Y	Y
City of Borger *Home Rule*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
City of Fritch *Home Rule*	Y	Y	Y	N	N	Y	N	Y	Y	Y	Y	N	Y	Y
City of Sanford *General Law*	N	N	N	N	N	N	N	N	N	Y	Y	N	N	Y
City of Stinnett *Home Rule*	N	Y	N	N	N	Y	N	N	N	Y	Y	N	N	Y
ISD's	NA	NA	NA	NA	NA	NA	Yes	Yes	NA	Yes	Yes	NA	NA	Yes

This table summarizes the current authorities and capabilities that could support each jurisdiction's efforts to implement the mitigation actions they've identified in this document. The matrix lists common planning tools/mechanisms which FEMA suggests as being contributive to local mitigation activities. In Texas, general law cities like the City of Sanford are somewhat limited in their ability to use this range of mechanisms. A general law city can only do what the legislature, through law, allows them to do.

As a home rule the City of Borger, Fritch and Stinnett do possess the ability to adopt and enforce codes, zoning restrictions, subdivision regulations and other such prohibitions. Borger has a code enforcement department. Both Fritch and Stinnett are in the process of developing a one-man code department.

The most powerful mechanism available to them is motivating the public by improving their understanding of the natural hazards they face and by providing them with practical, cost-effective, actions that can be self-implemented to reduce their risks to those hazards should be one of the most effective tools each can use in achieving their mitigation goals in their jurisdiction.

Although funding to create or expand code and zoning enforcement positions may be limited, each jurisdiction can still utilize the table above to discuss methods on implementing no or low cost strategies for planning mechanisms such as formal capital improvement or comprehensive plans.

The ability for each jurisdiction to expand on the capabilities they currently have will be addressed below:

The unincorporated area (County) will continue to develop strong programs to mitigate wildfires and to educate the public on wildfire dangers. With the cooperation of area fire departments, the county will improve their ability to control fuels to prevent fires.

The city of Borger will continue to expand their capabilities by reviewing flooding issues and strengthening their new development policies for flooding mitigation.

The City of Fritch is expanding their staff capabilities by beginning to build a new code department. Through this department, the City can review new development request and ensure that old infrastructure within the city does not create a hazard.

The City of Stinnett is also expanding their staff capabilities by beginning to build a new code department. The code enforcement officer will work with the city council to review existing ordinances and make changes based on hazard identification and new development.

The City of Sanford's city council will expand on their ordinance capabilities by strengthening their existing ordinances to mitigate identified hazards. While new development within the city limits is not anticipated – structure updates can be encouraged to utilize hazard resistant materials.

National Flood Insurance Program (NFIP) (C2)

As described later in this document, flooding occurs occasionally within the County with most of these events being flash floods. Two of the jurisdictions covered by this plan are currently participating in the NFIP. The FPA list below is current as of August of 2016

County Flood Plan Administrators

CID	Community	Status	Firm Status	Map Date	Flood Plain Adminr. (FPA) & Title
480373	Hutchinson County	**Not Participating**	Never Mapped	01/10/78	CEO Faye Blanks FPA David Willard
480374	City of Borger	**Participating**	Revised	02/02/96	CEO Jeff Brain FPA Kenneth Potr POC Jimmy Harder
480875	City of Fritch	**Participating**	Never Mapped	07/16/76	CEO Kevin Keener FPA
481876	City of Sanford	**Not Participating**	Never Mapped	8/13/76	CEO Red Ormon FPA Red Ormon
480375	City of Stinnett	**Not Participating**	All Zone C & X. No published FIRM		CEO Billy Murphy FPA Mark Anderson

Hutchinson County

Hutchinson County currently does not participate in the NFIP program. Over the life of this plan they will review participation and determine if this would be appropriate for unincorporated communities.

City of Borger

The City of Borger participates in the National Flood Insurance Program (NFIP) and will continue to comply with all related regulatory requirements. The ordinance is enforced through requirements set forth by the City's zoning ordinance. It provides a means for prohibiting or restricting development within special flood hazard areas. This ordinance seeks to prevent property loss, insure human safety, and enable the safe and natural flow of streams. The Utilities/Engineering Department will continue to review development proposals for consistency with the ordinance.

City of Fritch

The City of Fritch participates in the National Flood Insurance Program (NFIP) and will continue to comply with all related regulatory requirements. The ordinance is enforced through requirements set forth by the City's zoning ordinance. It provides a means for prohibiting or restricting development within special flood hazard areas. This ordinance seeks to prevent property loss, insure human safety, and enable the safe and natural flow of streams. The Code Enforcement Department will continue to review development proposals for consistency with the ordinance.

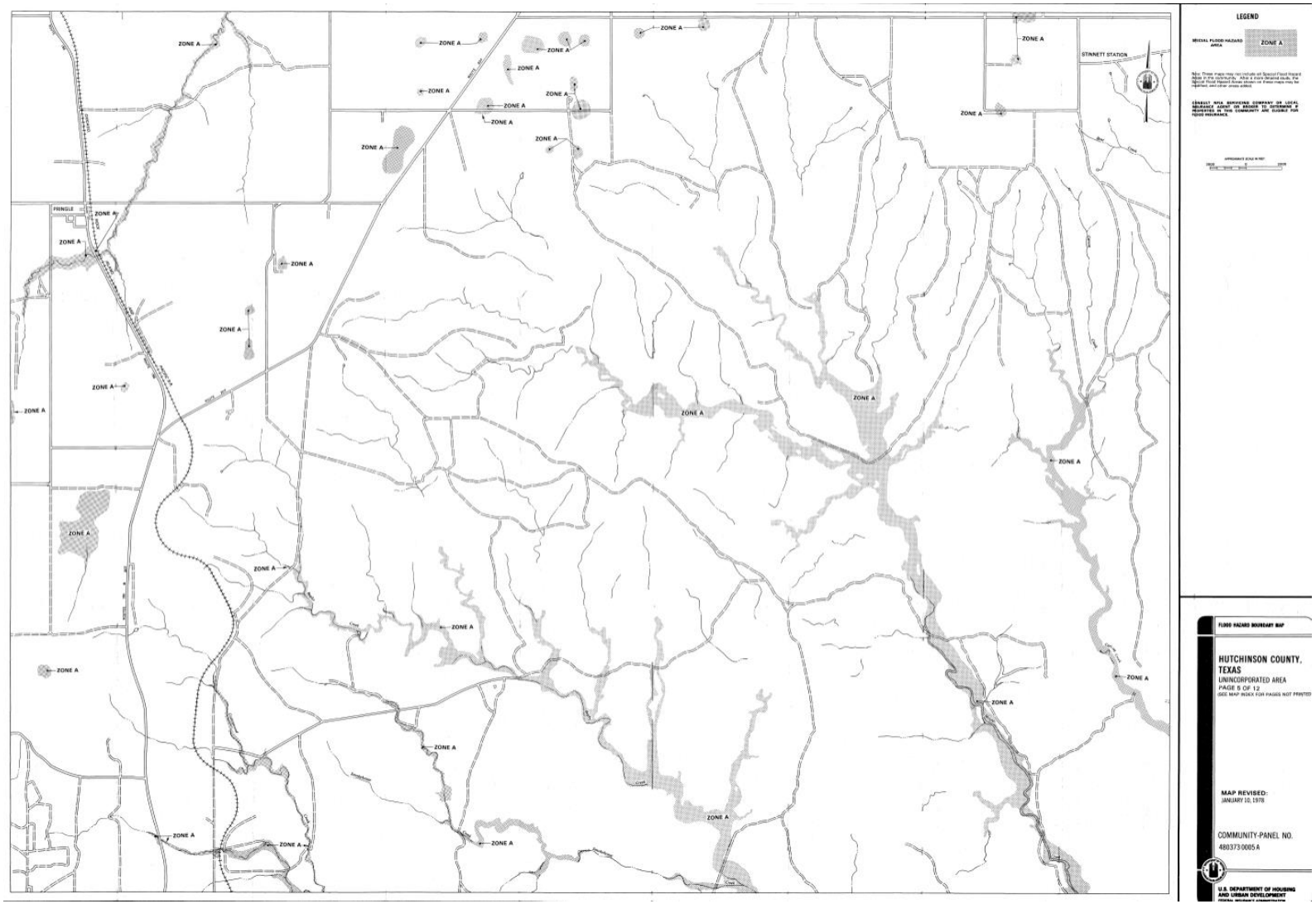
City of Sanford & Stinnett

Neither of these cities participates in the NFIP program. Over the life of this plan they will review participation and determine if this would be appropriate for their communities.

Stinnett has recently staffed a Code Enforcement Department which will review all existing codes and potentially adopting new ordinances that may cover flood prone areas.

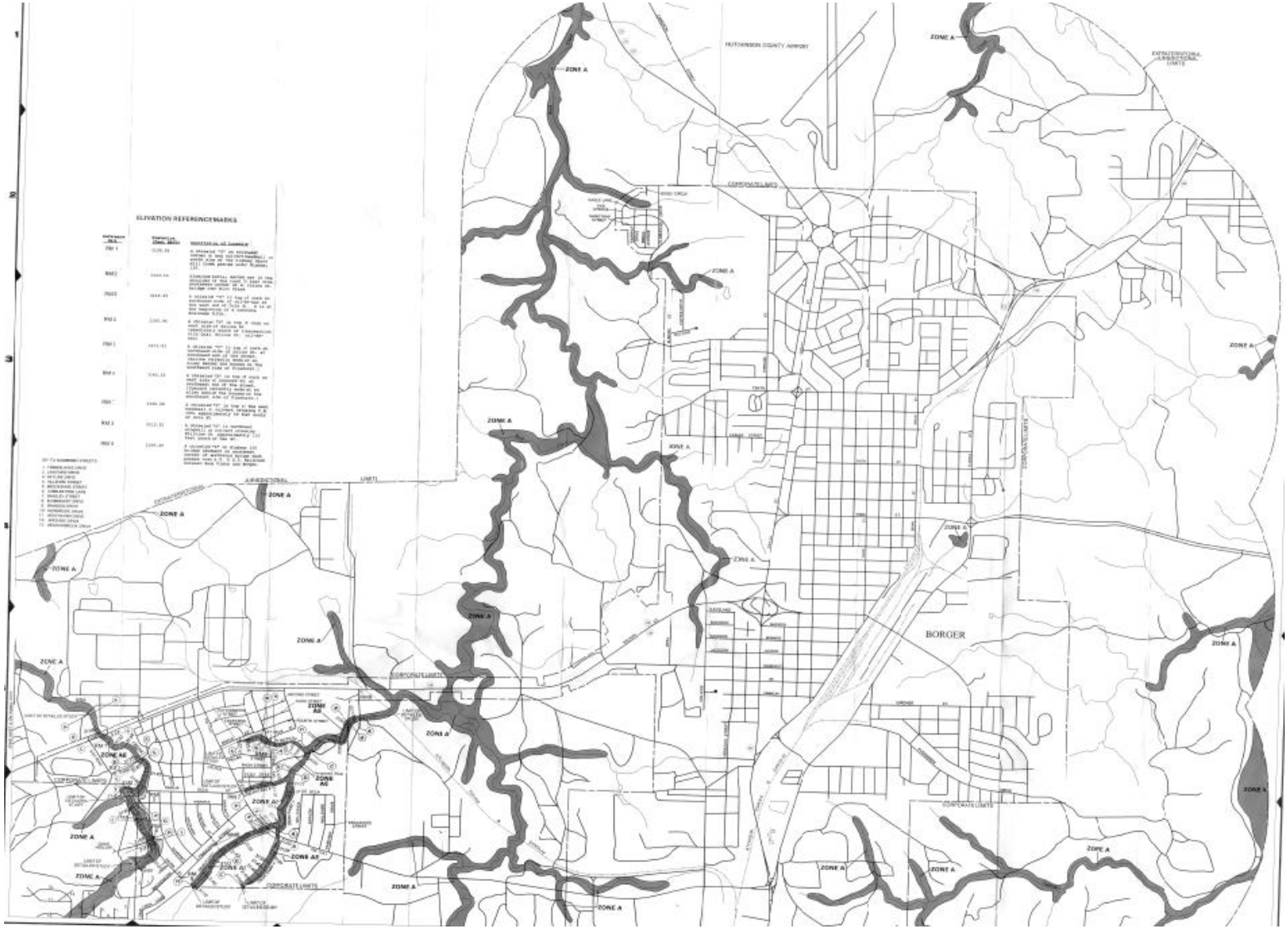
Hutchinson County

Hutchinson County does not participate in NFIP. Although the online information claims that they have never been mapped, the FEMA site shows this map dated 1/10/78.



City of Borger Flood Map

Borger does participate in NFIP and was mapped on 2/2/1996.



Goals to Reduce/Avoid Long –Term Vulnerabilities (C3)

The goals and objectives of this MAP reflect goals similar to those found in the State of Texas Mitigation Plan and the National Flood Insurance Program.

The MAT began the development of the updated MAP by agreeing to a common set of goals and objectives, flexible enough they could be used to formulate customized mitigation actions for local implementation. The goals and objectives of the planning area are provided below.

Goal 1: Protect public health and safety

Objective 1.1: Advise the public about health and safety precautions to guard against injury and loss of life from hazards.

Objective 1.2: Maximize the use of modern technology to provide adequate warning, communication, and mitigation of hazards events.

Objective 1.3: Reduce the danger to, and enhance protection of, dangerous areas during hazard events.

Objective 1.4: Protect critical infrastructure facilities and critical services.

Goal 2: Protect existing and new properties

Objective 2.1: Use the most cost-effective approaches to protect existing and new building and public infrastructure from hazards.

Objective 2.2: Work to develop local guidance to ensure that development will not inadvertently endanger the public or increase threats to existing and new properties.

Goal 3*:* Increase public understanding, support, and demand for hazard mitigation

Objective 3.1: Increase public awareness of the full range of natural and man-made hazards they face.

Objective 3.2: Educate the public on actions they can take to prevent or reduce the loss of life or property from all hazards.

Objective 3.3: Publicize and encourage the adoption of appropriate hazard mitigation measures.

Objective 3.4: Encourage public policy to promote mitigation activities among the local jurisdictions.

Goal 4: Promote growth in a sustainable manner.

Objective 4.1: Incorporate hazard mitigation into the long-range planning and development activities

Objective 4.2: Encourage developers to voluntarily use codes and standards that will help to prevent the creation of future hazards to life and property

Goal 5: Maximize the use of outside sources of funding

Objective 5.1: Maximize the use of outside sources of funding

Objective 5.2: Maximize participation of residents in protecting their welfare and their properties

Objective 5.3: Maximize insurance coverage to provide financial protection against hazard events

Criteria for Prioritizing Actions

Considering detailed benefit/cost or cost-effectiveness analysis for every possible mitigation activity can be time consuming and may not always be practical. In using the criteria and scoring below, the MAT was able to consistently score each action as High, Medium or Low.

Evaluation Worksheet		
Rank each of the criteria with a -1, 0, or 1 using the following scale: • 1 = Highly effective or feasible • 0 = Neutral • -1 = Ineffective or not feasible		
Score	**Criteria**	**Description**
	Life Safety	How effective will the action be at protecting lives and preventing injuries?
	Property Protection	How significant will the actin be at eliminating or reducing damage to structures and infrastructure?
	Technical	Is the mitigation action technical feasible? Is it a long-term solution?
	Political	Is there overall public support for the mitigation action? Is there the political will to support it?
	Legal	Does the community have the authority to implement the action?
	Environmental	What are the potential environmental impacts of the action? Will it comply with environmental regulations
	Social	Will the proposed action adversely affect one segment of the population?
	Administrative	Does the community have the personnel and administrative capabilities to implement the action and maintain it?
	Local Champion	Is there a strong advocate for the action or project among local departments and agencies that will support the action's implementation?
	Other Community Objectives	Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation?
	Total Score	
Score Key High = 6-10 Medium = 3-5 Low = <3		

Mitigation Action Items (C4/5)

Hazard Addressed	Drought
Integrate the use of water efficient fixtures, appliances and systems (e.g., low-flow toilets, faucet aerators, on-demand recirculation system) into new/existing construction projects to reduce water consumption	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.2, 4.1
Priority (High, Medium, Low):	Medium
Estimated Cost:	TBD
Potential Funding Source(s):	Grant Funds, Local budget, Volunteer Hours, Business Donations
Lead Agency/Department Responsible:	County Commissioners Court, City Management, ISD Superintendent
Implementation Schedule:	5-year
Cost Effectiveness: Using water-efficient equipment and smart conservation techniques will reduce the amount of water being used at jurisdiction facilities. In time, the reduction in the jurisdiction's monthly water bills will more than offset the costs of the equipment.	
Discussion: The use of LEED-like construction practices is becoming more prevalent nationwide. The evidence is clear that water conservation is practical and cost-effective. The jurisdiction should be a leader in this regard; demonstrating that these practices will not only work at government facilities but also residential homes.	

Hazards Addressed	**Drought, Hailstorm, Severe Winter Storm, Tornado, Wildfire, Windstorms** ***(Flood for Borger, Fritch and Stinnett)***
Educate the public on mitigation strategies for all hazards.	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.1, 1.2, 3.1, 3.2, 3.3, 3.4, 5.2
Priority (High, Medium, Low):	High
Estimated Cost:	$1,000
Potential Funding Source(s):	Local budget, Grant funds, Volunteer Hours, Business Donations
Lead Agency/Department Responsible:	County EMC, City EMC, ISD Superintendent
Implementation Schedule:	5-year
Cost Effectiveness: Outreach activities are very cost effective; they can be used to engage the public at-large in their own protection by educating them on the risks associated with the hazards and the actions they can take to avoid those risks.	
Discussion: Safety brochures, warning signs at parks, and educating school children can all help increase public awareness of hail dangers. The objective of this action is to make residents aware that hail is a hazard that should be taken seriously; failure to do so can result in serious injury or death.	

Hazards Addressed	**Hailstorm, Severe Winter Storm, Tornado, Wildfire, Windstorms *(Flood for Borger, Fritch and Stinnett)***
Purchase public alert/warning systems for locations throughout the entire planning area.	
Participating Jurisdiction	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.1, 1.2, 1.3, 2.1, 3.1, 5.1
Priority (High, Medium, Low):	Medium
Estimated Cost:	$60,000~~10,000~~
Potential Funding Source(s):	Grant fund, Local budget, Volunteer Hours, Business Donations
Lead Agency/Department Responsible:	County EMC, City EMC, ISD Superintendent
Implementation Schedule:	Within 12 months of securing the necessary funding
Cost Effectiveness: *The use of NOAA All-Hazards Weather Radios provides a cost-effective method for alerting the public to specific issues with multiple hazards.* ~~*Enhancement of the PARIS Mass Notification/ISD Notification and integration of IPAWS will continue to expand the planning area notification platforms.*~~	
Discussion: *Purchase public warning systems to alert residents to a potential emergencies or directions for all hazards. Systems would include: NOAA Weather Radios,* *Replacement of NOAA Transmitter,* *Mass Notification Systems, Social Media and IPAWS.*	

Hazard/s	Drought
Update the City's Drought Contingency Plan; integrating strategies to further reduce water consumption cost-effectively	
Participating Jurisdiction/s	City of Borger, City of Fritch and City of Stinnett
Objective(s) Addressed:	3.2, 3.3, 3.4, 4.1, 5.2
Priority (High, Medium, Low):	Medium
Estimated Cost:	Dependent upon restrictions and severity of drought
Potential Funding Source(s):	Grant fund, Local budget
Lead Agency/Department Responsible:	City Utilities & City Council
Implementation Schedule:	Plan reviewed annually with an eye toward improving water conservation measures
Cost Effectiveness: The key to this action is to update the plan with conservation measures that are practically implemented, productive and cost-effective. By virtue of their implementation, these actions will be of value to the public and will support the Plan's water-savings goals.	
Discussion: Continuously draw on guidance from local water districts and planning groups to implement proactive water conservation measures into the Drought Contingency Plan based on Ogallala aquifer projections and on U.S. Drought Monitor drought intensity levels.	

Hazard/s	Drought
Update the City's Drought Contingency Plan; integrating strategies to further reduce water consumption cost-effectively	
Participating Jurisdiction/s	City of Borger, City of Fritch and City of Stinnett
Objective(s) Addressed:	3.2, 3.3, 3.4, 4.1, 5.2
Priority (High, Medium, Low):	Medium
Estimated Cost:	Dependent upon restrictions and severity of drought
Potential Funding Source(s):	Grant fund, Local budget
Lead Agency/Department Responsible:	City Utilities & City Council
Implementation Schedule:	Plan reviewed annually with an eye toward improving water conservation measures
Cost Effectiveness: The key to this action is to update the plan with conservation measures that are practically implemented, productive and cost-effective. By virtue of their implementation, these actions will be of value to the public and will support the Plan's water-savings goals.	
Discussion: Continuously draw on guidance from local water districts and planning groups to implement proactive water conservation measures into the Drought Contingency Plan based on Ogallala aquifer projections and on U.S. Drought Monitor drought intensity levels.	

Hazard/s Addressed	Hailstorm, Windstorm, Tornados
Install hail resistant vehicle covering at their facilities.	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.4, 2.1, 4.1
Priority (High, Medium, Low):	High
Estimated Cost:	TBD
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	County Commissioners, City Council, ISD Board
Implementation Schedule:	Implementation based on need and availability of funding
Cost Effectiveness: Installation of covered parking would minimize damage not only to County or City vehicles but also to the vehicles of the employees that work at the facilities to be equipped.	
Discussion: Installation of covered parking in strategic areas would save the jurisdiction and its employees the expense of having to repair hail damage to vehicles. The covering will also provide temporary shelter to individuals who were caught in the storm before making it indoors.	

Hazard/s Addressed	Hailstorm, Windstorm, Tornados
Install hail resistant roofing and window coverings on critical facilities/structures	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.4, 2.1, 5.3, 5.4
Priority (High, Medium, Low):	High
Estimated Cost:	Annual review cost: $0.00. Replacement cost for county buildings: $1 million
Potential Funding Source(s):	Grant fund, Local budget
Lead Agency/Department Responsible:	County Commissioners, City Council, City Management, ISD Board
Implementation Schedule:	Throughout the 5-year update period
Cost Effectiveness The entire planning area is in a high-frequency zone for hailstorms that can cause substantial damage. Protecting critical facilities not only helps to reduce the potential for insurance claims but helps to ensure those facilities remain operable after they're endured a major hail event.	
Discussion: The planning area is frequently pounded by hailstorms. As documented earlier in this update, very often the hailstones are large and capable of producing considerable damage. Protecting the outer envelope of critical facilities will help to mitigate these damages but more importantly, help to ensure they remain functional after the storms pass.	

Hazard/s Addressed	Hailstorms, Tornados
Follow building codes that require construction of safe rooms in new school campuses; and assist where possible, with retrofitting new/existing school campuses with shelters	
Participating Jurisdiction/s	Borger ISD, *Plemons-Stinnett-Phillips* ISD, Fritch ISD, Spring Creek ISD
Objective(s) Addressed:	1.2, 1.4, 2.2
Priority (High, Medium, Low):	Medium
Estimated Cost:	$750,000 per campus for existing campuses; $300,000 per campus for new campuses
Potential Funding Source(s):	Grant funds / District funds
Lead Agency/Department Responsible:	Local Independent School District
Implementation Schedule:	Upon approval of funds
Cost Effectiveness: ISD can incorporate multi-purpose safe rooms into new/retrofit projects so that they can be used to provide shelter as needed but also support everyday scholastic activities; in effect, the investment will return daily benefits.	
Discussion: The 2015 IBC will require that educational institutions with an aggregate occupancy of 50 or more that are located in tornado zones where the design wind speed is 250 mph must incorporate shelters into newly constructed facilities, built to hold the occupancy of the institution in accordance with ICC 500. The purpose of this action is to support the local ISDs in their efforts to meet this requirement.	

Hazard/s Addressed	Hailstorm, Windstorm, Tornado
Equip newly constructed or retrofitted County or City-owned facilities with a safe room.	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett,*
Objective(s) Addressed:	1.3, 1.4, 2.1, 5.1, 5.2
Priority (High, Medium, Low):	High
Estimated Cost:	Dependent on the maximum number of occupants the safe room is designed to hold
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	County Commissioners' Court / County EMC, City Council, City Management, City EMC
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: It is critical that the safety of community at large and visitors attending county events or school sporting events have opportunity to shelter.	
Discussion: the location of this shelter would provide a tornado shelter to the nearby football stadium and for other events that are conducted in that area.	

Hazard/s Addressed	Hailstorm, Tornados, Windstorms, Wildfire, Severe Winter Storm
Install emergency generators at water distribution facility and city well fields	
Participating Jurisdiction	City of Borger, City of Fritch and City of Stinnett
Objective(s) Addressed:	1.2, 1.4, 2.1, 4.1, 5.1
Priority (High, Medium, Low):	High
Estimated Cost:	~$250,000
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	City Utilities
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: Ensuring that water is available to the city and its citizens makes the cost irrelevant.	
Discussion: Installation of emergency generators at the city's water distribution facility and two well fields will ensure that water can still be treated and delivered without power.	

Hazard/s Addressed	Flood, Hailstorm, Wildfire, Windstorm, Tornado
Install outdoor warning system for unincorporated areas within the county. Bugbe, Scotts Acres, Lake Meredith Harbor, Double Diamond, Beverly Hills , Arroya Verde Subdivisions	
Participating Jurisdiction/s	Unincorporated area of Hutchinson County
Objective(s) Addressed:	1.1, 1.2, 1.3, 1.4
Priority (High, Medium, Low):	High
Estimated Cost:	Entire system replacement cost: $500,000
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	County Commissioners, County EMC
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: Although costly, outdoor warning systems are an essential part of the County's public alerting/warning system and are effective in warning the public. For the most part, residents in this part of the State associate a siren tone with a tornado so sirens are particularly effective with tornado events.	
Discussion: Adding more sirens in areas where coverage is currently lean and improving and updating aging warning sirens would save lives/reduce injuries in a hazard event by providing proper and easily recognizable warning to residents.	

Hazard/s Addressed	Flood, Hailstorm, Windstorm, Wildfire, Tornado
Expand the outdoor warning system for new development.	
Participating Jurisdiction	City of Borger City of Fritch and City of Stinnett
Objective(s) Addressed:	1.1, 1.2, 1.3, 1.4
Priority (High, Medium, Low):	High
Estimated Cost:	$27,500 per siren
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	City Manager, City EMC
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: Although costly, outdoor warning systems are an essential part of the City's public alerting/warning system and are effective in warning the public. For the most part, residents in this part of the State associate a siren tone with a tornado so sirens are particularly effective with tornado events.	
Discussion: Adding more sirens in areas where coverage is currently lean and improving and updating aging warning sirens would save lives/reduce injuries in a hazard event by providing proper and easily recognizable warning to residents.	

Hazards Addressed	Flood
Improve storm water drainage/control systems; particularly in flood prone areas of the County City, ISD Campus, by adding or enlarging guttering, culverts, bar ditches to direct water to safe discharge areas.	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.2, 1.3, 1.4, 4.1, 5.1
Other Hazards(s) Addressed:	Flooding Only
Priority (High, Medium, Low):	Medium
Estimated Cost:	$100,000.00- $500,000.00 as currently estimated
Potential Funding Source(s):	Grant funds, local budget
Lead Agency/Department Responsible:	County Commissioners Court / Road & Bridge Superintendent, City Council, City Management, ISD Board and Superintendent
Implementation Schedule:	Within 12 months as local or grant funds become available.
Cost Effectiveness: Over time, the one-time cost of making improvements to a roadway frequently damaged by flashfloods will be less than the cumulative costs of making repairs to the road following each flooding event.	
Discussion: To support this action, the participant will initiate a centralized data collection program that matches precinct road maintenance logs with citizen complaints to isolate road sections/areas subject to recurring flood. A cost/benefit analysis can be used to stack the areas in priority order of cost-effectiveness so they can be programmed into the budget as funds become available.	

Hazard/s Addressed	Flood
Implement drainage improvements to reduce the City's vulnerability to flash flooding/flooding. Create a detention pond at 7th and Cedar	
Participating Jurisdiction/s	City of Borger
Objective(s) Addressed:	1.2, 1.3, 1.4, 4.1, 5.1
Priority (High, Medium, Low):	Medium
Estimated Cost:	$100,000.00 - $500,000.00 as currently estimated
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	City Utilities/City Council
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: This action will enable the City to take a complete look at all of its flooding issues so that a comprehensive strategy can be implemented for addressing them in a way that can be feasibly supported incrementally by the budget process. Any attempts to haphazardly address these issues could actually have unintended consequences that could acerbate the problems.	
Discussion: This action will enable the City to fully understand where the flooding problems exist, how they're being caused and how to correct them, cost-effectively, without creating cascading problems in other areas of the City. This work may ultimately involve the installation of new culverts or other such features that can used to redirect stormwater to areas where it can be safely discharged.	

Hazard/s Addressed	Severe Winter Weather, Tornados
Develop/maintain a list of Functional Needs residents for the conduct welfare checks during prolonged winter storm events	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford & City of Stinnett*
Objective(s) Addressed:	1.3, 1.4, 5.1
Priority (High, Medium, Low):	Medium
Estimated Cost:	$200 for volunteer recruitment; $2,400 for portable generators
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	County EMC, City EMC, City Volunteers
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness This is a low-cost option that could be used to identify local volunteers that could be used for a variety of purposes	
Discussion: There are a number of aging, vulnerable residents residing within the jurisdiction. The purpose of this action is to develop a mechanism to check on their wellbeing during winter events that may keep them housebound for several days or longer. Some of those residents may rely on electricity for medical devices so the jurisdiction will maintain a small cache of portable generators that can be used to provide temporary power when winter storms result in power outages that may place these residents at risk.	

Hazard/s Addressed	Tornados, Windstorms, Severe Winter Storms, Wildfires
Supply critical facilities with back-up power supply	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.4, 2.1, 5.1
Priority (High, Medium, Low):	High
Estimated Cost:	$145,000
Potential Funding Source(s):	Grant funds / Local Budget
Lead Agency/Department Responsible:	County Commissioners' Court, City Council, ISD Boards
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: Action is projected to have a benefit greater than the cost of the equipment; from avoided damages to internal systems/equipment that could otherwise result from a power loss.	
Discussion: The participant must maintain electrical power at its critical facilities (e.g., fires stations, county barns, safe rooms etc.) at all times in order to run its emergency operations or to protect students; particularly during winter weather events.	

Hazard/s Addressed	Tornados, Windstorms, Severe Winter Storms, Wildfires
Supply public/community shelter facilities with back-up power supply	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.4, 2.1, 5.1
Priority (High, Medium, Low):	High
Estimated Cost:	$155,000
Potential Funding Source(s):	Grant funds / Local Budget
Lead Agency/Department Responsible:	County Commissioners' Court, City Council, ISD Boards
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: Action is projected to have a benefit greater than the cost of the equipment; providing the public with a mass shelter facility in lieu of individual hotel lodging.	
Discussion: The participant must maintain electrical power at its public shelter facilities at all times in order to run its emergency operations or to protect citizens seeking refuge; particularly during winter weather events.	

Hazard/s Addressed	Severe Winter Storms

Use weather-resistant paving materials on resurfacing/road construction projects to minimize surface damage due to winter storms	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.2, 1.3, 5.1
Priority (High, Medium, Low):	Medium
Estimated Cost:	TBD; based on the length/width of the roadway project
Potential Funding Source(s):	Grant funds/ Local budget
Lead Agency/Department Responsible:	County Commissioners' Court , County Road & Bridge, City Council, City Management, ISD Board and Superintendent
Implementation Schedule:	Within 12 months of securing the necessary funding
Cost Effectiveness: There are a number paving products available that are designed to withstand the harshest of weather and yet are economical and durable. Their cost is offset by reduced maintenance and replacement costs.	
Discussion: Recent advancements in asphalt pavement technology can be applied when resurfacing local roads helping them to stand up better to freeze/thaw cycles and safer to drive in winter weather. This technology could greatly reduce the frequency and cost of maintenance. Keeping the roads in better repair will make them safer to travel under any weather condition	

Hazard/s Addressed	**Wildfire, Windstorms,**
Establish & maintain a fire-safe defensible space around critical facilities in sectors in or bordering WUI areas	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.3, 2.2, 4.1
Priority (High, Medium, Low):	Medium
Estimated Cost:	$5,000 in annual costs
Potential Funding Source(s):	Local budget
Lead Agency/Department Responsible:	County Facilities Maintenance /County EMC, City EMC, VFD, FD, ISD Maintenance Dept.
Implementation Schedule:	Within 3 months
Cost Effectiveness: Establishing and maintaining a fire-safe defensible space around critical facilities is an easy, low-cost way to create a buffer zone and limit the potential for wildfire damages.	
Discussion: Establishing and maintaining fire-safe defensible space will reduce the likelihood that a critical facility, such as a fire station, will be affected by this type of hazard event. This will also reduce the potential threat of this type of hazard on people inside the facility and increase the jurisdiction's ability to adequately respond event during this type of hazard.	

Hazard/s Addressed	Wildfire, Severe Winter Storm (Ice storm)
Establish an equipment and personnel share program within the county for fuel reduction.	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford & City of Stinnett*
Objective(s) Addressed:	1.3, 2.2, 4.1
Priority (High, Medium, Low):	Medium
Estimated Cost:	$15,000 in start up cost, $1,000 in annual cost
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	County EMC, City EMC, VFD, FD
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: Establishing and maintaining a fuel reduction share program. By providing a trailer loaded with the appropriate fire reduction equipment, the county can encourage volunteer fire departments to provide volunteer manpower to reduce fuels.	
Discussion: Establishing and maintaining fire-safe defensible space will reduce the likelihood that a critical facility, such as a fire station, will be affected by this type of hazard event. This will also reduce the potential threat of this type of hazard on people inside the facility and increase the County's ability to adequately respond during this type of hazard.	

Hazard/s Addressed	Wildfires
Participate in Firewise Program through the development of a written wildfire risk assessment for the City's WUI	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.3, 2.2, 4.1
Priority (High, Medium, Low):	Medium
Estimated Cost:	Minimal; the assessment can be developed by either a member of the Texas Forest Service or Borger FD
Potential Funding Source(s):	Grant funds / local budget / local in-kind
Lead Agency/Department Responsible:	VFD, FD
Implementation Schedule:	Within 24 months of securing the necessary funding
Cost Effectiveness: Development of the risk assessment will be used to determine if full-fledged participation in Firewise will be of benefit to the City or if not, the findings can be used to identify more cost-effective measures that can lessen the impacts of wildfire in the WUI.	
Discussion: The Firewise Communities Program encourages local solutions for safety by involving homeowners in taking individual responsibility for hardening their homes against wildfire.	

Hazard/s Addressed	Wildfire
Install a water supply line and fire hydrant at the City's wood chipping site.	
Participating Jurisdiction	City of Borger & City of Stinnett
Objective(s) Addressed:	1.2, 1.3, 1.4, 4.1, 5.1
Priority (High, Medium, Low):	High
Estimated Cost:	Total project cost: $1,000,000
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	Fire Department, Borger, EMC
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: Installation of a water supply line and fire hydrant at the City's wood chipping site would provide an inexpensive solution to protecting the area in and around the site from the impacts of wildfire.	
Discussion: This action would help to mitigate the impacts of spontaneous/natural/accidental combustion at the site. In part, this facility supports the City's efforts to encourage residents to create defensible spaces around their homes. Woody materials cleared to create these spaces can be taken to the chipping/composting site for disposal. A lightning strike, discarded cigarette butt or even the composting process itself could ignite a blaze that would quickly spread throughout the site and beyond to residential areas. This action would help to ensure that the damages from such an event would be contained to the site.	

Hazard/s Addressed	Flood
Implement City-Wide Master Drainage Plan to reduce the City's vulnerability to flash flooding/flooding.	
Participating Jurisdiction/s	City of Borger
Objective(s) Addressed:	1.2, 1.3, 1.4, 4.1, 5.1
Priority (High, Medium, Low):	High
Estimated Cost:	$100,000.00 - $250,000.00 as currently estimated
Potential Funding Source(s):	Grant funds, Local budget
Lead Agency/Department Responsible:	City Utilities/City Council
Implementation Schedule:	Within 6 months of securing the necessary funding
Cost Effectiveness: This action will enable the City to take a complete look at all of its flooding issues so that a comprehensive strategy can be implemented for addressing them in a way that can be feasibly supported incrementally by the budget process. Any attempts to haphazardly address these issues could actually have unintended consequences that could acerbate the problems.	
Discussion: This action will enable the City to fully understand where the flooding problems exist, how they're being caused and how to correct them, cost-effectively, without creating cascading problems in other areas of the City. This work may ultimately involve the installation of new culverts or other such features that can used to redirect stormwater to areas where it can be safely discharged.	

Hazard/s Addressed	Wildfire, Windstorms,
Establish & maintain a defensible space and hazardous fuels reduction program in and around populated areas in the Participating Jurisdictions	
Participating Jurisdiction/s	*Hutchinson County, City of Borger, City of Fritch, City of Sanford, City of Stinnett, Borger ISD, Sanford-Fritch ISD, Plemons-Stinnett-Phillips ISD & Spring Creek ISD*
Objective(s) Addressed:	1.3, 2.2, 4.1
Priority (High, Medium, Low):	High
Estimated Cost:	Varies based on acreage and type of wildfire mitigation
Potential Funding Source(s):	Local budget
Lead Agency/Department Responsible:	County Facilities Maintenance /County EMC, City EMC, VFD, FD, ISD Maintenance Dept.
Implementation Schedule:	Within 3 months
Cost Effectiveness: Establishing and maintaining a fire-safe defensible space around communities is an easy, low-cost way to create a buffer zone and limit the potential for wildfire damages.	
Discussion: Establishing and maintaining fire-safe defensible space will reduce the likelihood that a critical facility or residences, will be affected by this type of hazard event. This will also reduce the potential threat of this type of hazard on people inside the facility and increase the jurisdiction's ability to adequately respond event during this type of hazard.	

Hazard/s Addressed	Tornado, Wildfire, Winter Storm, Windstorm
Install a generator at the critical NorthWest Well Field to provide water to the community in the Participating Jurisdictions	
Participating Jurisdiction/s	Borger
Objective(s) Addressed:	1.3, 2.2, 4.1
Priority (High, Medium, Low):	High
Estimated Cost:	$500,000
Potential Funding Source(s):	Local budget
Lead Agency/Department Responsible:	Borger Water Department
Implementation Schedule:	12 Months
Cost Effectiveness: Providing water, especially in times of disaster, can be life saving and help stabilize economic crisis with local industry, and fire department responses to protect life and property.	
Discussion: Providing clean water to the community, especially so in times of disaster, can have live saving and illness mitigating effects to the citizens in and around Borger, as well as reducing potential devestating economic loss it would impose on area industry, as well as fire department responses.	

Integrating Mitigation Plan In To Other Planning Mechanisms (C6)

Hutchinson County (Unincorporated Area)

The mitigation action items that were developed for the unincorporated area within this plan, will be used in long term development of county improvement projects. While the County does not have a formal comprehensive plan or capital improvement plan – the grant manager will use this as a guideline to mitigation projects requested. In addition, the Hazard Mitigation plan and its actions have been integrated into the EOP. The county has employed a full-time County EMC to assist in emergency preparedness and response within the unincorporated area. It is his job to maintain the Interjurisdictional Emergency Operation Plan and implement mitigation strategies that have already been identified and seek out new strategies as they present themselves.

City of Borger

The City of Borger is a home rule city and does maintain a code enforcement department and floodplain manager employee. By using the mitigation strategies found in this plan, the Borger code enforcement department can establish appropriate development review procedures and zoning codes to be mitigate the identified hazards. Although Borger does not have a formal capital improvement plan, it does maintain an active list of improvement projects that it refers to on a regular basis. The mitigation actions identified in this plan will be added to their project list and the city manager and city EMC will pursue grants to aid in the implementation of these actions.

City of Fritch

The City of Fritch is a general law city. Code enforcement responsibilities have been typically assigned to the Police Chief. Due to the minimal funds available for normal budget items, the more costly mitigation actions must be grant funded. However, the city does have a very active fire department who will integrate many of the education and wildfire actions into their external training program as funding and time allows. The training material will have to be approved by the Fire Chief and the training schedule will target wildfire season. Zoning and building code enforcement is an area that the city council can continue to discuss and enforce as they pursue a more robust Code Enforcement Department

City of Sanford

The City of Sanford is a general law city. They do not have a code enforcement person. As with the County, Sanford does not have any building codes, and has had minimal new growth in the last 10 years. Integration of many of the actions will be included in the Sanford Volunteer Fire Department responsibilities or bore by the County EMC. With a very tight budget, Sanford will need to pursue grant funding for the majority of the projects. The city council can use the planning mechanism table to discuss capital improvements or regulations to mitigate damage from natural disasters.

City of Stinnett

The City of Stinnett is a general law city and has recently hired a code enforcement employee. Prioritized actions will be incorporated into the annual budget review process to identify possible funding for new projects or additional personnel to address deficiency of capabilities. The mitigation actions identified in this plan will be added to their project list and the city manager and City EMC will pursue grants to aid in the implementation of the more costly actions.

Borger ISD, Fritch-Sanford ISD, Plemons-Stinnett-Phillips ISD, Spring Creek ISD

All of the ISD's in the planning area employee a maintenance department for their campus/s. Integration of actions will be presented to the School Board for prioritization. The ISD Superintendent will implement actions as funding becomes available via the budget, bond or pursuit of grants. Student and parent education and grounds maintenance will act on actions that can be implemented in their day-to-day activities to mitigate against many of the hazards.

Element D – Plan Review, Evaluation and Implementation

Development Trends (D1/3)

Hutchinson County:

During the life of this MAP, it is not expected for the county to see any significant residential growth. In the past 10 years the county has experienced a 0.9% decrease

Due to privately owned ranch land, significant development in the very rural parts of the County is not anticipated.

Agrium Industry, anhydrous ammonia, nitrogen, fertilizer production which services the United States and Canada, has recently begun a $1.4 billion expansion plan. Agrium's plant is in the county, thus significantly increasing the tax base. The contract labor initially brought in over 10,000 workers to the county and city of Borger.

To the extent possible, Hutchinson County has taken measures to ensure that the development that has occurred since the final adoption of the 2006 Hu MAP has not contributed to an increased exposure to the natural hazards that frequent the County.

While the County lacks the ability to adopt/enforce building codes, it has attempted to maintain an floodplain management program to encourage mitigation of flood damage to new construction in the unincorporated area.

The County cannot control growth in its WUI areas, and homes have been built in these areas since 2006. The use of public education to encourage residents in these zones to take actions to make their properties more fire-resistant will be one of the more effective tools available for mitigating wildfire threats in these WUI areas. The Double Diamond Wildfire in 2014, burned over 2200 acres in the bedroom community surrounding Lake Meredith. The total loss was over $10 million, destroying 256 structures. The So Close 2011 (25,000 acres) and Crutch Fire 2016 (34,000 acres) primarily affected ranch lands that caused up to $30 million in losses to grazing and fencing for the cattle industry in that area.

Increased growth in the hazard prone areas, coupled with frequent hailstorms and sustained drought as increased the vulnerability of the unincorporated area but has not demonstrated a history at this time.

City of Borger:

The City of Borger is primarily an industrial community with balanced growth behavior. Due to the National demand for Borger's exported products, the City remains fairly insulated to economic crisis. The City is currently experiencing noticeable increases in industrial expansion and modest increases in new housing. This trend is expected to continue through the life of this Mitigation Action Plan.

2010 census shows a population of 13,350. Borger is located approximately 45 miles northeast of Amarillo, Texas with Highways 136, 152, and 207 running through it. Additionally, the Panhandle Northern Railroad supplies cargo to the Burlington Northern Santa Fe Railroad, thereby establishing the community with excellent abilities for transporting commerce.

The community hosts major industry to include Conoco Phillips Borger Refinery, Agrium, Orion Engineered Carbons, and Sid Richardson Carbons. These key producers provide goods and services throughout the nation and to global markets.

Recent development and progress within the community have included a newly built Walmart Super Center, significant expansions and projects with the Borger Refinery, and three national franchise hotels. The City of Borger has also recently invested $38 million in new water wells and pipelines to supplement the existing City water system and an enhanced hi capacity pipeline to support Agrium Nitrogen Production plan. Agrium is currently nearing the completion of a $1.4 billion plan expansion which will promote new jobs and new housing.

Additional current and future projects include a 130 acre Borger Business Park which is under development at this time. To compliment the opportunity for new corporations at the Business Park, the Borger Economic Development Center has approved a loan for a new housing development subdivision, which has currently been accepted and is in its planning stages.

The Conoco Phillip's 66 Borger Refinery spans nearly 6,000 acres along the northern side of Borger. Its 2013 property, plant, and equipment value was $3.65 Billion. The Borger Refinery is the second largest inland refinery in the United States producing approximately 146,000 barrels of crude per day. Annual payroll at the facility is $65 million. The refinery utilizes pipeline, railcar, and over the road trucking providing numerous jobs and economic growth.

The industrial value and ongoing investment in the community project a solid economy for Borger and a progressive growth.

Although the City of Borger has seen significant growth in development both private and business; they have also matched that growth with a well-trained Fire Department and an experienced Office of Emergency Management. This balance has helped Borger to see no changes in their vulnerability over the years.

City of Fritch:

Fritch has seen a significant reduction in population over the last 10 years. The decrease of 11% of the residents may be attributed to the severe decline of the Lake Meredith, the Panhandle's largest recreational lake. Lake Meredith is a reservoir formed by the Sanford Dam on the Canadian River. Historically it was the main source of water for Amarillo and Lubbock and many other towns between and nearby. Following the 2003 drought, the Canadian River Municipal Water Authority (CRMWA) reduced allocations to its member cities. The Lake reached its all-time low in 2013

Residential redevelopment is anticipated to occur in the Double Diamond area that burnt in 2014. While this is located in the county, the economic boost of people that shop in Fritch would be

expected. In addition the increase to the student population base at the Fritch schools. Based on current trends, it's estimated that on average five to ten new homes will be built in this area per year over the next 20 years.

The Fritch Code Enforcement officer with the city has the ability to adopt/enforce building codes. It has maintained an effective floodplain management program to ensure that the risk of flood damage to new construction in the unincorporated area is being minimized. .

The use of public education to encourage residents in these zones to take actions to make their properties more fire-resistant will be one of the more effective tools available for mitigating wildfire threats in these WUI areas.

With their increased public education program and strong volunteer fire department, Fritch has seen no changes in its vulnerability to their hazards.

City of Sanford

Sanford has seen a significant reduction in population over the last 10 years. The decrease of 39% of the residents may be attributed to the severe decline of the Lake Meredith, the Panhandle's largest recreational lake.

There is very little commercial development in Sanford as it is primarily a bedroom community. Most working residents are employed in nearby cities (Borger).

The City of Sanford operates with a City Secretary and one person water department. There is no code enforcement office, nor does the city require any specific building or remodel codes.

This small community relies heavily on their volunteer fire department and the County Sheriff. With no growth over the last 10 years and a hazard history that shows a low probability of many of the hazards impacting them – Sanford has seen a decrease in vulnerability.

City of Stinnett

The City of Stinnett has seen a slight decline by .04% over the last 10 years in their population. This decline can be attributed to aging population and young adults moving to the big city.

The Plemons-Stinnett-Phillips ISD recently did a $30 million capital improvement focusing on their sports complex. In addition, 5 new residence were built to house teachers. The ISD student area is over 644 square miles.

The city recently upgraded 75% of their gas lines to poly-pipe in addition to their updating their water lines.

Recent new commercial activities included a restaurant, air conditioner installer, farm and chemical store and an air and pump supplier. These businesses added over 30 employees and generated new city taxes.

With their increased public education program and very active volunteer fire department, Stinnett has seen a decrease in its vulnerability to their hazards.

Borger ISD, Sanford -Fritch Sanford ISD, Plemons-Stinnett-Phillips ISD, Spring Creek ISD

The ISD did not participate in the first plan.

Participating Jurisdictions

During the life of this MAP update, the participating jurisdictions will work to ensure that as new developments occur, it meets the appropriate standards in existence at the time of construction, that the development will not aggravate or contribute to hazard conditions in the area and that to extent possible, the new development will support the goals and objectives of this update.

Mitigation Strategy Implementation

The previous Hutchinson County HMP identified mitigation actions for each participating community. The following pages show the mitigation actions that were generated in 2006. This was the planning area's first hazard mitigation plan. The jurisdictions were able to identify which strategies were actually implemented over the last 10 years. Ongoing or delayed mitigation actions identified in the previous plan where reviewed by the jurisdictions and those of high value for mitigation where incorporated into the plan update. While many of the previous strategies were prudent; through the plan review and a better understanding of this plans goals – jurisdictions were able to prioritize incomplete actions and incorporate them in the 2017 plan and eliminated those that did not have high value for mitigation.

2006 Mitigation Actions (D2)

Hazard	Hutchinson County 2006 Mitigation Action	Effect on Overall Risk to Life and Property	Completed, Deleted or Deferred	Funding	Overall Priority
Tornado	To purchase and install 15 new tornado sirens for the unincorporated communities outside of Fritch and Stinnett.	High	Deferred. Included in the 2016 Tornado Mitigation Actions	Grant funds	Very High
Tornado	To familiarize the unincorporated areas of the County with NOAA weather radios, and to purchase these radios for all populations out in the County (approximately 300 radios), as well as partnering with the NWS.	High	Deferred. Included in the 2016 Tornado Mitigation Actions	Grant funds	Very High
Tornado	To construct 3+ community shelters in various unincorporated communities based upon need.	High	Deleted	Grant funds	Very High
Severe Thunderstorm	To identify necessary equipment needed by storm watchers, and to purchase this updated equipment.	Low	Completed	Grant funds	High
~~Hazardous Materials Incident~~	~~To purchase twenty five sets of protective clothing (PPE) for first responders.~~	~~Low~~	Deleted – not natural hazard	~~Grant funds~~	~~High~~
~~Terrorism~~	~~To partner with the local water authority to develop and refine a terrorism plan and procedural process to enact during times of heightened alerts.~~	~~High~~	Deleted – not natural hazard	~~Grant funds~~	~~Very high~~
~~Terrorism~~	~~To partner with local large industries to develop and refine an anti-terrorism plan and procedural process to enact during times of heightened alerts.~~	~~High~~	Deleted – not natural hazard	~~Grant funds~~	~~Very high~~
~~Severe Winter Weather~~	~~To purchase a high ground clearance 4-wheel drive vehicle for emergency rescue purposes for the unincorporated areas populations.~~	~~High~~	Deleted – not natural hazard	Grant funds	Very low
Severe Winter Weather	To purchase a new motor grader for each precinct to use for the clearing of snow along County roads and right of ways.	Moderate	Completed. Purchased with local funds.	Grant funds	High

Hazard	Hutchinson County 2006 Mitigation Action	Effect on Overall Risk to Life and Property	Completed, Deleted or Deferred	Funding	Overall Priority
~~Wildfire~~	~~To purchase a new grass rig for each precinct to use for the purpose of extinguishing wildfires.~~	~~Moderate~~	Deleted – not natural hazard	Grant funds	Medium
Flooding	To review the current engineering design for Marcy Street, Cobblestone, and Gladstone (Southwest of Borger), and determine potential construction improvements (i.e. culverts, bar ditches, curbs, or raising the roadway) which might eliminate the current risk associated to 10 housing units along these roadways.	High		Grant funds	Low
Flooding	To review the current engineering design of the 4-way stop at the intersection of Ranch Road 687 and the Fritch Fortress Road, and determine potential construction improvements for raising the roadway which might eliminate the current risk associated to flooding within and along this roadway.	Moderate	Deferred. Included in the 2016 Flooding Mitigation Actions.	Grant funds	Low
Flooding	To work with the Texas Department of Transportation (TxDOT) to review the current engineering design of State Highway 136 along Eagle Boulevard, and determine potential construction improvements (i.e. culverts, bar ditches, curbs, or raising the roadway) which might eliminate the current risk associated to flooding one residential facility along this roadway.	High	Deferred. Included in the 2016 Flooding Mitigation Actions.	Grant funds	Low
Flooding	Pending owner's voluntary agreement, to purchase or raise the home which is located along Eagle Boulevard at State Highway 136 which has the potential to be at risk of repetitive loss. If purchased, convert property to green space.	High	Deleted	Grant funds	Low
Flooding	To review the current engineering design of Lakeview Road which is located ¼ mile South of Fritch, and determine potential construction improvements for raising the roadway which might eliminate the current risk associated to flooding within and along this roadway.	Moderate	Deleted	Grant funds	Low
Flooding	Buy out property, pending owner's voluntary agreement, which is located one mile south of 281 on County Road 15 which has the potential to be at risk of repetitive loss. Convert property to green space.	High		Grant funds	Low

Hazard	Hutchinson County 2006 Mitigation Action	Effect on Overall Risk to Life/ Property	Completed, Deleted or Deferred	Funding	Overall Priority
~~Hazardous Materials Incident~~	~~Continue to educate and train EMS, fire, and first responder personnel on hazardous materials emergency procedures, chemical identification, and evacuation procedures.~~	~~Moderate~~	Deleted – not natural hazard	~~Budget~~	~~High~~
Earthquakes	To set up a Regional Monitoring Station that will monitor ongoing seismic activity, and will be operated by students. This Station will be centrally located to serve all of the Texas Panhandle.	Low	Deleted	Budget	Low
Severe Winter Weather	To develop a database and contact index listing all medically sensitive residents and those with special needs that may need assistance during these events. This could be managed through a computer operated system that automatically calls these residents or through a volunteer contact system.	Moderate	Deferred. Included in the 2016 Severe Winter Weather Mitigation Actions	Budget	Very low
Drought	To develop a drought contingency plan and encourage residents to abide by it.	Moderate	Deferred. Included in the 2016 Drought Mitigation Actions	Budget	Medium
Flooding	To clean and remove debris from the culvert located on Club House Road and Par Road along the County right-of-way within the Golf Course Addition north east of the City of Borger.	High	Deferred. Included in the 2016 Flooding Mitigation Actions	Budget	Low
Dam Failure	The only high hazard dam which can place the unincorporated areas of the County at risk is owned by the Canadian River Municipal Water Authority, as such, Hutchinson County will work with the dam owner to review and adhere to state codes pertaining to dam inspection and repair.	High	Completed, but ongoing	Budget	Very low
Dam Failure	Hutchinson County will work with the Canadian River Municipal Water Authority to identify all populations and structures which lie within the flood water inundations zones of Sanford dam in order to update the emergency contact list in the event of a dam failure.	High	Partially completed, but additional contact information for those affected is included in the 2016 Mitigation Action	Budget	Very low
Multi-hazard	To supply public education of each of the following hazards: tornados, severe winter weather, severe thunderstorms, flooding, hazardous materials incidents, wildfires, terrorism, earthquakes, drought, and dam failure.	High	Completed but ongoing	Budget	Very high

Hazard	Borger 2006 Mitigation Actions	Effect on Overall Risk to Life/ Property	Completed, Deleted or Deferred	Funding	Overall Priority
Tornado	Review the current siren warning system and purchase 3-5 new siren units to be installed within multiple sectors, and based on preliminary review, one of which will be sector No. 482339507002.	High	Deferred. Included in 2016 Tornado Mitigation Action	Grant funds	Very high
Tornado	Construct several storm shelters in five need based areas of the City.	High	Deleted.	Grant funds	Very high
Tornado	To purchase NOAA weather radios for highly populated commercial and industrial facilities and school buildings (approximately 100 radios).	High	Partially completed. Deferred to place 80 more in Tornado Mitigation Actions	Grant funds	Very high
~~Hazardous Materials Incident~~	~~To purchase eighty sets of protective PPE, including breathing apparatus' and clothing for first responders during HAZMAT events.~~	~~Low~~	Deleted – not natural hazard	~~Grant funds~~	~~High~~
~~Terrorism~~	~~To develop and implement a monitoring/security network for the City's water system, such as, install a monitoring and alarm system for the water wells, as well as, to increase the fencing and number of locks within these facilities.~~	~~High~~	Deleted – not natural hazard	~~Grant funds~~	~~Very high~~
~~Terrorism~~	~~For the City of Borger Police Department to purchase anti-terrorism equipment (i.e. firearms, vests, etc.) for use during terrorism activities.~~	~~High~~	Deleted – not natural hazard	~~Grant funds~~	~~Very high~~
Severe Winter Weather	To purchase snow removal equipment including blades, and snowplow equipment.	High	Deferred. Included in 2016 Severe Winter Weather Mitigation Actions	Grant funds	Very low
~~Severe Winter Weather~~	~~To purchase a high ground clearance 4-wheel drive vehicle for emergency rescue purposes for the unincorporated areas populations.~~	~~Moderate~~	Deleted – Response Item	~~Grant funds~~	~~High~~

Hazard	Borger 2006 Mitigation Actions	Effect on Overall Risk to Life/ Property	Completed, Deleted or Deferred	Funding	Overall Priority
~~Wildfire~~	~~To purchase and implement a grass rig into the current wildfire defense mechanisms.~~	~~Moderate~~	Deleted. Response Item	~~Grant funds~~	~~Low~~
Flooding	To maintain drainage ditch and re-engineer drainage system to converge with the drainage system along State Highway 207 and 136.	Moderate	Completed by TDOT	Grant funds	Medium
Flooding	Pending owner's voluntary agreement, to purchase three residential homes located on the 1000 block of Monroe which have the potential to be at risk of repetitive loss. If purchased, convert property to green space.	High	Completed. Local Funds	Grant funds	Medium
Flooding	To review the current engineering design of the culvert located on the 1300 block of Sterling and determine potential construction improvements (i.e. re-engineering of the culvert) which might eliminate the current risk associated to flooding one residential facility along this roadway.	Moderate	Deferred. Included in 2016 Flooding Mitigation Actions	Grant funds	Medium
Dam Failure	Drill Seven new Water wells on land where the City already owns the water rights.	High	Completed. Local Funds	Grant funds	Very low
Severe Thunderstorm	To continue to enforce current building codes.	Low	Completed.	Budget	High
Earthquakes	To set up a Regional Monitoring Station that will monitor ongoing seismic activity, and will be operated by students. This Station will be centrally located to serve all of the Texas Panhandle.	Low	Delete.	Budget	Medium
Severe Winter Weather	To continue to review and update the current building and fire codes.	Moderate	Completed	Budget	Very low

Hazard	Borger 2006 Mitigation Actions	Effect on Overall Risk to Life/Property	Completed, Deleted or Deferred	Funding	Overall Priority
Severe Winter Weather	To develop a database and contact index listing all medically sensitive residents and those with special needs that may need assistance during these events. This could be managed through a computer operated system that automatically calls these residents or through a volunteer contact system.	Moderate	Deferred. Included in Severe Winter Weather Mitigation Actions	Budget	Very low
Drought	To enforce, review, and update the current Drought Contingency Plan specifically detailing water conservation.	Low	Deferred. Included in the 2016 Drought Mitigation Actions	General budget	Low
Multi-hazard	To supply public education of each of the following hazards: tornados, severe winter weather, severe thunderstorms, flooding, hazardous materials incidents, wildfires, terrorism, earthquakes, drought, and dam failure. This information will provide a solid knowledge base for all residents that will at some time be affected by these hazards.	High	Completed and Ongoing.	General budget	Very high

Hazard	Fritch 2006 Mitigation Actions	Effect on Overall Risk to Life/ Property	Completed, Deleted or Deferred	Funding	Overall Priority
Tornado	To construct a community shelter within the City this will also house EMS, Fire, and Emergency Management communications network. This center would service the entire community.	High	Deferred. Included in 2016 Tornado Mitigation Actions	Grant funds	Very high
~~Terrorism~~	~~To install a surveillance/monitoring system that will monitor the active water and gas wells.~~	~~High~~	Deleted – not natural hazard	~~Grant funds~~	~~Very low~~
Earthquakes	To replace and upgrade all sewer and water lines, thus decreasing the chances for future damage by using more flexible, earthquake prone materials.	High	Deferred. Included in 2016 Earthquake Mitigation Actions	Grant funds	Very low
Severe Winter Weather	To purchase snow removal equipment including blades, and sand/salt spreader.	High	Deferred. Included in 2016 Severe Winter Weather Mitigation Actions	Grant funds	High
Severe Winter Weather	To purchase back-up generators for the water and sewer systems, as well as for the EOC.	Moderate	Deferred. Included in 2016 Windstorm Mitigation Actions	Grant funds	High
Wildfire	To purchase and implement a brush rig into the current wildfire defense mechanisms.	Moderate	Deleted. Considered Response	Grant funds	Low
Flooding	To construct storm sewers in flood prone areas.	High	Deferred. Included in 2016 Flood Mitigation Actions	Grant funds	High
Flooding	To curb and gutter Eagle St. and pave Walnut St.	High	Deferred. Included in 2016 Flood Mitigation Actions	Grant funds	High

Hazard	Fritch 2006 Mitigation Action	Effect on Overall Risk to Life/ Property	Completed, Deleted or Deferred	Funding	Overall Priority
Tornado	Maintain/test and review the current warning systems monthly to insure sirens are in the proper working order, and that the current warning system is still effective in warning for tornados. Upgrade system if necessary.	High	Deferred. Included in 2016 Tornado Mitigation Actions	Budget	Very high
Severe Thunderstorm	To continue to be active in the Storm Watchers Program with volunteer firemen and law enforcement observing severe thunderstorm conditions and warning the local residents.	Low	Completed	Budget	Very high
Severe Thunderstorm	To continue to enforce current building codes.	Low	Completed	Budget	Very high
~~Hazardous Materials Incident~~	~~To work with the County to update hazardous facilities lists, and maps.~~	~~Moderate~~	Deleted – not natural hazard	~~Budget~~	~~Medium~~
~~Hazardous Materials Incident~~	~~To work with the Texas Department of Transportation (TxDOT) to establish hazardous materials routes that have appropriate signage, and to continue to enforce these routes.~~	~~Moderate~~	Deleted – not natural hazard	~~Budget~~	~~Medium~~
~~Hazardous Materials Incident~~	~~Continue to educate and train EMS, fire, and first responder personnel on hazardous materials emergency procedures, chemical identification, and evacuation procedures.~~	~~Low~~	Deleted – not natural hazard	~~Budget~~	~~Medium~~
~~Hazardous Materials Incident~~	~~To continue to partner with Phillips Petroleum to develop warning procedures, protocols, and guidelines for HAZMAT instances, and to implement these findings into current policies.~~	~~Low~~	Deleted – not natural hazard	~~Budget~~	~~Medium~~
~~Terrorism~~	~~Continue adopting state and federal procedures regarding terrorism and to continue law enforcement, EMS and other first responder training on how to handle these events.~~	~~High~~	Deleted – not natural hazard	~~Budget~~	~~Very Low~~
~~Terrorism~~	~~To partner with the school district to develop and refine an anti-terrorism plan and procedural process to enact during times of heightened alerts.~~	~~High~~	Deleted – not natural hazard	~~Budget~~	~~Very Low~~
Earthquakes	To set up a Regional Monitoring Station that will monitor ongoing seismic activity, and will be operated by students. This Station will be centrally located to serve all of the Texas Panhandle.	Low	Deleted	Budget	Very low

Hazard	Fritch 2006 Mitigation Action	Effect on Overall Risk to Life/ Property	Completed, Deleted or Deferred	Funding	Overall Priority
Severe Winter Weather	To develop a database and contact index listing all medically sensitive residents and those with special needs that may need assistance during these events. This could be managed through a computer operated system that automatically calls these residents or through a volunteer contact system.	Moderate	Deferred. Included in 2016 Severe Winter Weather Mitigation Actions	Budget	High
Wildfire	To establish a mutual aid agreement with all the fire departments throughout the County and in the neighboring Counties to assist with wildfires in and around the county.	Moderate	Completed	Budget	Low
Wildfire	To continue to conduct recruitment and fire training for volunteer personnel.	Moderate	Completed	Budget	Low
Drought	To enforce, review, and update the current Drought Contingency Plan.	Low	Deferred. Included in 2016 Drought Mitigation Actions	Budget	Low
Flooding	To install flash flood signs and gauges along roadways in low lying areas.	Low	Deleted	Budget	High
Multi-hazard	To supply public education of each of the following hazards: tornados, severe winter weather, severe thunderstorms, flooding, hazardous materials incidents, wildfires, terrorism, earthquakes, and drought. This information will provide a solid knowledge base for all residents that will at some time be affected by these hazards.	High	Completed	Budget	Very high

Hazard	Sanford 2006 Mitigation Action	Effect on Overall Risk to Life/Property	Completed, Deleted or Deferred	Funding	Overall Priority
~~Terrorism~~	~~To install an alarm system, cameras, and surveillance that will monitor the water wells.~~	~~High~~	Deleted – not natural hazard	~~Grant funds~~	~~Low~~
Earthquakes	To replace and upgrade all sewer and water lines, thus decreasing the chances for future damage by using more flexible, earthquake prone materials.	High	60% complete. Deferred. Included in 2016 Earthquake Mitigation Actions	Grant funds	Very Low
Severe Winter Weather	To purchase a maintainer to use in the clearing of streets.	Moderate	Deleted.	Grant funds	High
Tornado	Maintain/test and review the current warning systems monthly to insure sirens are in the proper working order, and that the current warning system is still effective in warning for tornados. Upgrade system if necessary.	High	Completed	General budget	Very High
Severe Thunderstorm	To continue to be active in the Storm Watchers Program with volunteer firemen and law enforcement observing severe thunderstorm conditions and warning the local residents.	Moderate	Completed	General Budget	HIgh
~~Hazardous Materials Incidents~~	~~Continue to educate and train fire and first responder personnel on hazardous materials emergency procedures, chemical identification, and evacuation procedures.~~	~~Moderate~~	Deleted – not natural hazard	~~General budget~~	~~Very high~~
~~Hazardous Materials Incidents~~	~~To continue to work with TxDOT to better identify intersections and hazardous materials routes.~~	~~Moderate~~	Deleted – not natural hazard	~~General budget~~	~~Very high~~
~~Terrorism~~	~~Continue to test, maintain and upgrade the panic button system.~~	~~Moderate~~	Deleted – not natural hazard	~~General budget~~	~~Low~~
Earthquakes	To set up a Regional Monitoring Station that will monitor ongoing seismic activity, and will be operated by students. This Station will be centrally located to serve all of the Texas Panhandle.	Low	Deleted.	General budget	Very Low

Hazard	Sanford 2006 Mitigation Actions	Effect on Overall Risk to Life/Property	Completed, Deleted or Deferred	Funding	Overall Priority
Severe Winter Weather	To continue to work with TxDOT on keeping Main St. clear during this type of event.	Low	Completed	General budget	High
Severe Winter Weather	To complete a map or address listing of all medically sensitive residents that may need assistance during these events, to be placed at City Hutchinson, as well as, first responder facilities such as fire departments and EMS facilities.	Moderate	Deferred. Included in 2016 Severe Winter Weather Mitigation Actions	General budget	High
Wildfire	To continue to enforce burn bans during heightened wildfire times.	Low	Completed	General budget	Medium
Drought	To continue to review and update the current Drought Contingency Plan.	Low	Deferred. Included in 2016 Drought Mitigation Actions	General Budget	Low
Multi-hazard	To supply public education of each of the following hazards: tornados, severe winter weather, severe thunderstorms, flooding, hazardous materials incidents, wildfires, terrorism, earthquakes, and drought. This information will provide a solid knowledge base for all residents that will at some time be affected by these hazards.	High	Deferred. Included in all 2016 Mitigation Actions	General budget	Very high

Hazard	Stinnett 2006 Mitigation Action	Effect on Overall Risk to Life/Property	Completed, Deleted or Deferred	Funding	Overall Priority
Tornado	To construct a community shelter within the City this will also house EMS, Fire, and Emergency Management communications network. This center would service the entire community.	High	Deferred. Included in 2016 Tornado Mitigation Actions	Grant funds	Very High
~~Terrorism~~	~~To install a surveillance/monitoring system that will monitor the active water and gas wells.~~	~~High~~	Deleted – not natural hazard	~~Grant funds~~	~~Very Low~~
Earthquakes	To replace and upgrade all sewer and water lines, thus decreasing the chances for future damage by using more flexible, earthquake prone materials.	High	Deferred. Included in 2016 Earthquake Mitigation Actions	Grant funds	Very low
Severe Winter Weather	To purchase back-up generators for the water and sewer systems, as well as for the EOC/City Hall.	Low	Deferred. Included in 2016 Windstorm Mitigation Actions	Grant funds	Low
Severe Winter Weather	To purchase snow removal equipment including blades, and sand/salt spreader.	Low	Deferred. Included in 2016 Severe Winter Weather Mitigation Actions	Grant funds	Low
Wildfire	To purchase and implement a brush rig into the current wildfire defense mechanisms.	Moderate	Deleted. Considered Response	Grant funds	High
Tornado	Maintain/test and review the current warning systems monthly to insure sirens are in the proper working order, and that the current warning system is still effective in warning for tornados. Upgrade system if necessary.	Moderate	Completed & Deferred as Best Practices	Budget	Very High
Severe Thunderstorm	To continue to be active in the Storm Watchers Program with volunteer firemen and law enforcement observing severe thunderstorm conditions and warning the local residents.	Low	Completed	Budget	High

Hazard	Stinnett 2006 Mitigation Actions	Effect on Overall Risk to Life/Property	Completed, Deleted or Deferred	Funding	Overall Priority
~~Hazardous Materials Incident~~	~~To work with the County to update hazardous facilities lists, and maps.~~	~~Moderate~~	Deleted – not natural hazard	~~Budget~~	~~Medium~~
~~Hazardous Materials Incident~~	~~To work with the Texas Department of Transportation (TxDOT) to establish hazardous materials routes that have appropriate signage, and to continue to enforce these routes.~~	~~Moderate~~	Deleted – not natural hazard	~~Budget~~	~~Medium~~
~~Hazardous Materials Incident~~	~~Continue to educate and train EMS, fire, and first responder personnel on hazardous materials emergency procedures, chemical identification, and evacuation procedures.~~	~~Low~~	Deleted – not natural hazard	~~Budget~~	~~Medium~~
~~Hazardous Materials Incident~~	~~To continue to partner with Phillips Petroleum to develop warning procedures, protocols, and guidelines for HAZMAT instances, and to implement these findings into current policies.~~	~~Low~~	Deleted – not natural hazard	~~Budget~~	~~Medium~~
~~Terrorism~~	~~Continue adopting state and federal procedures regarding terrorism and to continue law enforcement, EMS and other first responder training on how to handle these events.~~	~~High~~	Deleted – not natural hazard	~~Budget~~	~~Very Low~~
~~Terrorism~~	~~To partner with the school district to develop and refine an anti-terrorism plan and procedural process to enact during times of heightened alerts.~~	~~High~~	Deleted – not natural hazard	~~Budget~~	~~Very Low~~
Earthquakes	To set up a Regional Monitoring Station that will monitor ongoing seismic activity, and will be operated by students. This Station will be centrally located to serve all of the Texas Panhandle.	Low	Deleted.	Budget	Very low
Severe Winter Weather	To develop a database and contact index listing all medically sensitive residents and those with special needs that may need assistance during these events. This could be managed through a computer operated system that automatically calls residents or through a volunteer contact system.	Moderate	Deferred. Included in the 2016 Severe Winter Weather Mitigation Actions	Budget	Low
Wildfire	To establish a mutual aid agreement with all the fire departments throughout the County and in the neighboring Counties to assist with wildfires in and around the county.	Moderate	Completed.	Budget	High

Hazard	Stinnett 2006 Mitigation Actions	Effect on Overall Risk to Life/Property	Completed, Deleted or Deferred	Funding	Overall Priority
Wildfire	To continue to conduct recruitment and fire training for volunteer personnel.	Moderate	Completed.	Budget	High
Drought	To continue to review and update the current Drought Contingency Plan.	Low	Deferred. Included in the 2016 Drought Mitigation Actions.	Budget	Low
Flooding	To install flash flood signs and gauges in flood prone areas.	Low		Budget	High
Flooding	To continue to dredge the natural causeways and ditches within the City which act as a waterway during flooding events.	High	Deferred. Included in the 2016 Flooding Mitigation Actions	Budget	High
Multi-hazard	To supply public education of each of the following hazards: tornados, severe winter weather, severe thunderstorms, flooding, hazardous materials incidents, wildfires, terrorism, earthquakes, and drought. This information will provide a solid knowledge base for all residents that will at some time be affected by these hazards.	High	Deferred. Included in 2016 Mitigation Actions	Budget	Very high

In the review of the 2006 action items, the priorities of the entire planning area have not changed since they were approved. The current actions, demonstrate the same needs for mitigation.

Element E – Plan Adoption (E1)

Plan Adoption Summary

Plan Adoption

This plan was formally adopted by Hutchinson County, the City of Borger, Fritch, Sanford and Stinnett, after the document had been reviewed by both the Texas Division of Emergency Management (TDEM) and the Federal Emergency Management Agency (FEMA) to ensure it met current state and federal guidelines governing local MAPs.

The evidence of local adoption was sent to both agencies; essentially marking the conclusion of the planning process and the start of the plan's implementation phase. The plan was finally adopted as of the dates shown below.

Jurisdiction/Agency	Resolution Number	Adoption Date
FEMA Approval		
Hutchinson County		
City of Borger		
City of Fritch		
City of Sanford		
City of Stinnett		

Hutchinson County Commissioners Court Adoption

NOTICE OF A PUBLIC HEARING ON THE ADOPTION
OF THE HUTCHINSON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

The Hutchinson County Commissioners Court will conduct a public hearing before considering final adoption of the recently completed 2016 Hutchinson County (Hu) Hazard Mitigation Plan Update on at p.m. in the Commissioners' Court Chambers of the Hutchinson County Courthouse located at 500 Main Street, Stinnett, Texas. This plan incorporates mitigation actions intended to minimize the impacts of certain natural hazards on the residents of the County.

The Disaster Mitigation Act of 2000, as amended, requires that local governments, develop, adopt, and update natural hazard mitigation plans in order to receive certain federal assistance. A Mitigation Action Team ("MAT") comprised of representatives from Hutchinson County, the City of Borger the City of Fritch, the City of Sanford and the City of Stinnett, and all 4 of the ISD's within the county, was convened to assess the risks from and vulnerabilities to natural hazards that are endemic to the Hutchinson County area, and to make recommendations on mitigating the effects of such hazards. The original Hazard Mitigation plan was adopted in 2006 and in order to maintain its approved status by the Federal Emergency Management Agency (FEMA), it has to be updated every five (5) years.

A copy of the Hutchinson County plan update is now available for review in the Hutchinson County Judge's office, the Borger and Fritch public libraries, or it may be reviewed online at:

http://theprpc.org/Programs/EmergencyPreparedness/default.html

The meeting is open to the public and members of the community are encouraged to attend to offer feedback and comment.

RESOLUTION NO: _____

A RESOLUTION BY THE COMMISSIONERS' COURT OF HUTCHINSON COUNTY, TEXAS, ADOPTING THE 2017 UPDATED HUTCHINSON COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of Hutchinson County, Texas, are vulnerable and subject to a variety of natural hazards which pose a potential threat to the welfare, safety and property of the County's residents; and,

WHERAS, to the extent practical, Hutchinson County intends to prepare for and mitigate against such hazards; and,

WHEREAS, under the Disaster Mitigation Act of 2000 (P.L. 106-390), as of November 1, 2004, the Federal Emergency Management Agency (FEMA) now requires that local jurisdictions maintain a FEMA-approved Hazard Mitigation Plan as a condition of receiving certain Federal mitigation grant funding; and,

WHEREAS, Hutchinson County participated in the updating of the Hutchinson County Hazard Mitigation Plan which includes the unincorporated areas of the County.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMISSIONERS' COURT OF THE HUTCHINSON COUNTY, TEXAS, THAT:

1. The County hereby adopts the 2017 updated Hutchinson County Hazard Mitigation Plan which will have a five-year lifespan from the date upon which the update is finally approved by FEMA.

2. The County's Emergency Management Coordinator is instructed to ensure the updated Plan is reviewed at least annually and that any proposed revisions to the County's portion of the Hutchinson County Mitigation Action Plan are presented to the Commissioner's Court for consideration of approval.

3. The County agrees to take such other official action as may be deemed reasonably necessary to carry out the goals, objectives and mitigation actions of the updated Hutchinson County Hazard Mitigation Plan.

CONSIDERED AND APPROVED THIS _____ DAY OF _____, 2017.

_____
Cindy Irwin, County Judge
Hutchinson County

ATTEST:

_____
Jan Barnes, County Clerk
Hutchinson County

Borger City Council Adoption

NOTICE OF A PUBLIC HEARING ON THE ADOPTION
OF THE HUTCHINSON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

The City of Borger City Council will conduct a public hearing before considering final adoption of the recently completed 2016 Hutchinson County Hazard Mitigation Plan Update on at p.m. in the Council Chambers of the City of Borger City Hall located at 600 N. Main Street, Borger, Texas. This plan incorporates mitigation actions intended to minimize the impacts of certain natural hazards on the residents of the City.

The Disaster Mitigation Act of 2000, as amended, requires that local governments, develop, adopt, and update natural hazard mitigation plans in order to receive certain federal assistance. A Mitigation Action Team ("MAT") comprised of representatives from Hutchinson County, the City of Borger the City of Fritch, the City of Sanford and the City of Stinnett was convened to assess the risks from and vulnerabilities to natural hazards that are endemic to the Hutchinson County area, and to make recommendations on mitigating the effects of such hazards. The original Hazard Mitigation plan was adopted in 2006 and in order to maintain its approved status by the Federal Emergency Management Agency (FEMA), it has to be updated every five (5) years.

A copy of the Hutchinson County plan update is now available for review in the Hutchinson County Judge's office, the Borger and Fritch public libraries, or it may be reviewed online at:

http://theprpc.org/Programs/EmergencyPreparedness/default.html

The meeting is open to the public and members of the community are encouraged to attend to offer feedback and comment.

RESOLUTION NO: _____

A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF BORGER, TEXAS, ADOPTING THE 2016 UPDATED HUTCHINSON COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of City of Borger, Texas, are vulnerable and subject to a variety of natural hazards which pose a potential threat to the welfare, safety and property of the City's residents; and,

WHERAS, to the extent practical, the City of Borger intends to prepare for and mitigate against such hazards; and,

WHEREAS, under the Disaster Mitigation Act of 2000 (P.L. 106-390), as of November 1, 2004, the Federal Emergency Management Agency (FEMA) now requires that local jurisdictions maintain a FEMA-approved Hazard Mitigation Plan as a condition of receiving certain Federal mitigation grant funding; and,

WHEREAS, The City of Borger participated in the updating of the Hutchinson County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BORGER, TEXAS, THAT:

4. The City hereby adopts the 2016 updated Hutchinson County Hazard Mitigation Plan which will have a five-year lifespan from the date upon which the update is finally approved by FEMA.

5. The City Emergency Management Coordinator is instructed to ensure the updated Plan is reviewed at least annually and that any proposed revisions to the City's portion of the Hutchinson County Mitigation Action Plan are presented to the City Council for consideration of approval.

6. The City agrees to take such other official action as may be deemed reasonably necessary to carry out the goals, objectives and mitigation actions of the updated Hutchinson County Hazard Mitigation Plan.

CONSIDERED AND APPROVED THIS _____ DAY OF _____, 2016.

_____
Robert Vinyard, Mayor
City of Borger

ATTEST:

_____
Stella Sauls, City Secretary
City of Borger

Fritch City Council Adoption

NOTICE OF A PUBLIC HEARING ON THE ADOPTION OF THE HUTCHINSON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

The City of Fritch City Council will conduct a public hearing before considering final adoption of the recently completed 2016 Hutchinson County Hazard Mitigation Plan Update on at p.m. in the Council Chambers of the City of Fritch City Hall located at 104 N. Robey Street, Fritch, Texas. This plan incorporates mitigation actions intended to minimize the impacts of certain natural hazards on the residents of the City.

The Disaster Mitigation Act of 2000, as amended, requires that local governments, develop, adopt, and update natural hazard mitigation plans in order to receive certain federal assistance. A Mitigation Action Team ("MAT") comprised of representatives from Hutchinson, the City of Borger, the City of Fritch, the City of Sanford and the City of Stinnett was convened to assess the risks from and vulnerabilities to natural hazards that are endemic to the Hutchinson County area, and to make recommendations on mitigating the effects of such hazards. The original Hazard Mitigation plan was adopted in 2006 and in order to maintain its approved status by the Federal Emergency Management Agency (FEMA), it has to be updated every five (5) years.

A copy of the Hutchinson County plan update is now available for review in the Hutchinson County Judge's office, the Borger and Fritch public libraries, or it may be reviewed online at:

http://theprpc.org/Programs/EmergencyPreparedness/default.html

The meeting is open to the public and members of the community are encouraged to attend to offer feedback and comment.

RESOLUTION NO: _____

A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF FRITCH, TEXAS, ADOPTING THE 2017 UPDATED HUTCHINSON COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of City of Fritch, Texas, are vulnerable and subject to a variety of natural hazards which pose a potential threat to the welfare, safety and property of the City's residents; and,

WHERAS, to the extent practical, the City of Fritch intends to prepare for and mitigate against such hazards; and,

WHEREAS, under the Disaster Mitigation Act of 2000 (P.L. 106-390), as of November 1, 2004, the Federal Emergency Management Agency (FEMA) now requires that local jurisdictions maintain a FEMA-approved Hazard Mitigation Plan as a condition of receiving certain Federal mitigation grant funding; and,

WHEREAS, The City of Fritch participated in the updating of the Hutchinson County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF FRITCH, TEXAS, THAT:

7. The City hereby adopts the 2017 updated Hutchinson County Hazard Mitigation Plan which will have a five-year lifespan from the date upon which the update is finally approved by FEMA.

8. The City Emergency Management Coordinator is instructed to ensure the updated Plan is reviewed at least annually and that any proposed revisions to the City's portion of the Hutchinson County Mitigation Action Plan are presented to the City Council for consideration of approval.

9. The City agrees to take such other official action as may be deemed reasonably necessary to carry out the goals, objectives and mitigation actions of the updated Hutchinson County Hazard Mitigation Plan.

CONSIDERED AND APPROVED THIS _____ DAY OF _____, 2017.

_____
Kelly Henderson, Mayor
City of Fritch

ATTEST:

_____
, City Secretary
City of Fritch

Sanford City Council Adoption

NOTICE OF A PUBLIC HEARING ON THE ADOPTION OF THE HUTCHINSON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

The City of Sanford City Council will conduct a public hearing before considering final adoption of the recently completed 2016 Hutchinson County (Hu) Hazard Mitigation Plan Update on at p.m. in the Council Chambers of the City of Sanford City Hall located at 600 N. Main Street, Sanford, Texas. This plan incorporates mitigation actions intended to minimize the impacts of certain natural hazards on the residents of the City.

The Disaster Mitigation Act of 2000, as amended, requires that local governments, develop, adopt, and update natural hazard mitigation plans in order to receive certain federal assistance. A Mitigation Action Team ("MAT") comprised of representatives from Hutchinson, the City of Borger, the City of Fritch, the City of Sanford and the City of Stinnett was convened to assess the risks from and vulnerabilities to natural hazards that are endemic to the Hutchinson County area, and to make recommendations on mitigating the effects of such hazards. The original Hazard Mitigation plan was adopted in 2006 and in order to maintain its approved status by the Federal Emergency Management Agency (FEMA), it has to be updated every five (5) years.

A copy of the Hutchinson County plan update is now available for review in the Hutchinson County Judge's office, or it may be reviewed online at:

http://theprpc.org/Programs/EmergencyPreparedness/default.html

The meeting is open to the public and members of the community are encouraged to attend to offer feedback and comment.

RESOLUTION NO: _____

A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF SANFORD, TEXAS, ADOPTING THE 2017 UPDATED HUTCHINSON COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of City of Sanford, Texas, are vulnerable and subject to a variety of natural hazards which pose a potential threat to the welfare, safety and property of the City's residents; and,

WHERAS, to the extent practical, the City of Sanford intends to prepare for and mitigate against such hazards; and,

WHEREAS, under the Disaster Mitigation Act of 2000 (P.L. 106-390), as of November 1, 2004, the Federal Emergency Management Agency (FEMA) now requires that local jurisdictions maintain a FEMA-approved Hazard Mitigation Plan as a condition of receiving certain Federal mitigation grant funding; and,

WHEREAS, The City of Sanford participated in the updating of the Hutchinson County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SANFORD, TEXAS, THAT:

10. The City hereby adopts the 2017 updated Hutchinson County Hazard Mitigation Plan which will have a five-year lifespan from the date upon which the update is finally approved by FEMA.

11. The County Emergency Management Coordinator is instructed to ensure the updated Plan is reviewed at least annually and that any proposed revisions to the City's portion of the Hutchinson County Mitigation Action Plan are presented to the City Council for consideration of approval.

12. The City agrees to take such other official action as may be deemed reasonably necessary to carry out the goals, objectives and mitigation actions of the updated Hutchinson County Hazard Mitigation Plan.

CONSIDERED AND APPROVED THIS _____ DAY OF _____, 2017.

_____
Bernard Pacheco, Mayor
City of Sanford

ATTEST:

_____
Terrie Bechtel , City Secretary
City of Sanford

Stinnett City Council Adoption

NOTICE OF A PUBLIC HEARING ON THE ADOPTION OF THE HUTCHINSON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

The City of Stinnett City Council will conduct a public hearing before considering final adoption of the recently completed 2017 Hutchinson County Hazard Mitigation Plan Update on at p.m. in the Council Chambers of the City of Stinnett City Hall located at 609 Mackenzie Ave, Stinnett, Texas. This plan incorporates mitigation actions intended to minimize the impacts of certain natural hazards on the residents of the City.

The Disaster Mitigation Act of 2000, as amended, requires that local governments, develop, adopt, and update natural hazard mitigation plans in order to receive certain federal assistance. A Mitigation Action Team ("MAT") comprised of representatives from Hutchinson, the City of Borger the City of Fritch, the City of Sanford and the City of Stinnett was convened to assess the risks from and vulnerabilities to natural hazards that are endemic to the Hutchinson County area, and to make recommendations on mitigating the effects of such hazards. The original Hazard Mitigation plan was adopted in 2006 and in order to maintain its approved status by the Federal Emergency Management Agency (FEMA), it has to be updated every five (5) years.

A copy of the Hutchinson County plan update is now available for review in the Hutchinson County Judge's office, or it may be reviewed online at:

http://theprpc.org/Programs/EmergencyPreparedness/default.html

The meeting is open to the public and members of the community are encouraged to attend to offer feedback and comment.

RESOLUTION NO: _____

A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF STINNETT OF, TEXAS, ADOPTING THE 2017 UPDATED HUTCHINSON COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of City of Stinnett, Texas, are vulnerable and subject to a variety of natural hazards which pose a potential threat to the welfare, safety and property of the City's residents; and,

WHERAS, to the extent practical, the City of Stinnett intends to prepare for and mitigate against such hazards; and,

WHEREAS, under the Disaster Mitigation Act of 2000 (P.L. 106-390), as of November 1, 2004, the Federal Emergency Management Agency (FEMA) now requires that local jurisdictions maintain a FEMA-approved Hazard Mitigation Plan as a condition of receiving certain Federal mitigation grant funding; and,

WHEREAS, The City of Stinnett participated in the updating of the Hutchinson County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STINNETT, TEXAS, THAT:

13. The City hereby adopts the 2017 updated Hutchinson County Hazard Mitigation Plan which will have a five-year lifespan from the date upon which the update is finally approved by FEMA.

14. The City Emergency Management Coordinator is instructed to ensure the updated Plan is reviewed at least annually and that any proposed revisions to the City's portion of the Hutchinson County Mitigation Action Plan are presented to the City Council for consideration of approval.

15. The City agrees to take such other official action as may be deemed reasonably necessary to carry out the goals, objectives and mitigation actions of the updated Hutchinson County Hazard Mitigation Plan.

CONSIDERED AND APPROVED THIS _____ DAY OF _____, 2017.

_____
Colin Locke, Mayor
City of Stinnett

ATTEST:

_____
Durk Downs , City Manager
City of Stinnett