AGENDA
GILLESPIE COUNTY COMMISSIONERS COURT
REGULAR MEETING
MONDAY, JANUARY 22, 2024
GILLESPIE COUNTY COURTHOUSE
FREDERICKSBURG, TEXAS
9:00 O'CLOCK A.M.

Invocation and Pledge of Allegiance.

1. Call meeting to order.

2. Consent Agenda - routine business items that the Court will act upon collectively in single motion, unless an item is requested to be removed from the Consent Agenda by any member of the Commissioners Court, in which case the removed item will be considered, discussed, and acted upon separately as a regular agenda item.

    a) Consider approval of Bills & Claims and payments via electronic fund transfers.

    b) Consider approval of Journal Entries & Budget Amendments (Line-Item Transfers).

    c) Consider approval of payroll claims & related expenses.

    d) Consider approval of Departmental Reports.

    e) Consider approval of Fees of Office.

3. Consider approval of hiring personnel in Tax Assessor-Collector's Office.

4. Consider approval of purchase of a four-post automotive lift for County mechanic shop.

5. Consider approval of listing surplus or salvage automotive lifts for sale on GovDeals.

6. Consider approval of replacing tires on Countywide pool vehicle (GMC Traverse).

7. Consider approval of Pioneer Memorial Library closures on various dates.

8. Consider approval of purchase of auger drive for Precinct 2.

9. Discuss future space planning matters related to offices and other spaces in County Courthouse, and take appropriate action related to same.

10. Consider approval of Gillespie County Hazard Mitigation Plan.

11. Consider approval of request from CTEC to install a three-phase tie line in the right-of-way on Kerr Road at the intersection of FM 2093 (Tivydale Road).

12. Consider approval of purchase of annual maintenance agreement of the New World Computer Aided Dispatch (CAD) through Tyler Technologies for the Communications Center.

13. Consider approval of hiring personnel in the Communications Center.

14. Consider approval of a request for a one-year extension of Preliminary Plat approval for Boot Ranch Subdivision, Phase 2, Sections 13-16, 17B-17C, 19, 19A-19B, 20, and 22B.

15. Consider approval to advertise for Maintenance & Equipment Operator II for Precinct 4.

16. Consider approval of hiring or transferring personnel for vacant positions in the Sheriff's Office.

17. Receive Racial Profiling Report from Constables, Precincts 3 & 4, and notification that reports have been filed with Texas Commission on Law Enforcement.

18. Consider acceptance of a monetary donation to Gillespie County from Mark Eckhardt, to be allocated to Gillespie County Road & Bridge Precinct #4.

19. Discuss the purchase, exchange, lease, or value of real property, located in Precinct 3, in the vicinity of the intersection of Old Kerr Hwy at S. State Highway 16, and take appropriate action related to same (551.072).

Carl Turner Equipment Inc.

CARL TURNER EQUIPMENT INC.

5427 BREWSTER
SAN ANTONIO, TEXAS 78233
(210) 590-8111 FAX (210) 590-8199
www.CarlTurnerEquipment.com

" CELEBRATING 36 YEARS OF QUALITY SERVICE"

FACTORY AUTHORIZED SERVICE CENTER
FOR SOUTH CENTRAL TEXAS

AMMCO IAT COATS ROTARY GRACO

Tire Changers • Brake Lathes • Balancers • Lifts • Alignment • Wheel Weights • Freon Reclaimers • Accessories

---

QUOTATION FOR : GILLESPIE COUNTY
YOUR REPRESENTATIVE : BOB TURNER
DATE: 1/5/24
TERMS: NET DUE 30 DAYS

Quantity	Model	Description	Price Per Unit	Extend
1	SM18EL	ROTARY 18000LB CAPACITY CLOSED FRONT FOUR POST LIFT-BLUE		17829.00
2	RJ9100	ROTARY 9000LB CAPACITY ROLLING JACK	5256.00	10512.00
1	FC5760-14	ROTARY INTENAL AIRLINE KIT		576.00
1	FC5967BK	ROTARY 30 GALLON DRAIN PAN		1199.00
1	FC5247	ROTRY 8' DRAIN HOSE FOR DRAIN PAN		153.00
1		INSTALLATION		1500.00
1		HYDRAULIC FLUID		75.00
1		REMOVAL OF ROTARY SPO12 LIFT		350.00
1		REMOVAL OF JLM LIFT		350.00
			SUB-TOTAL	32544.00
			SALES TAX	
			TOTAL	32544.00

INCLUDES DELIVERY, INSTALLATION & INSTRUCTION
DOES NOT INCLUDE ELECTRICAL OR PLUMBING

Effective March 1st,2019 the company that processes our credit card payments will begin charging a 3.0% processing fee for all credit card transactions. To avoid this fee, we gladly accept debit cards, cash and check payments. We thank you for your understanding and truly value your business.

We are pleased to submit the above quotation for your consideration. When you place your order, be assured it will receive prompt attention. This quotation is valid for 30 days. There after is subject to change without notice. All returns on special orders are subject to a 15% restocking fee. Above prices include delivery, Set-up and instruction unless otherwise indicated. Quotation does NOT include any applicable sales tax. Above prices do not include electrical or plumbing unless otherwise indicated. * *PLEASE NOTE: EQUIPMENT DESIGNATED ON QUOTATION WILL NOT BE ORDERED WITHOUT A SIGNED QUOTE ACCEPTING THE CONTENTS OF THE ABOVE QUOTATION. CANCELLATIONS ARE SUBJECT TO RESTOCKING FEE AND FREIGHT CHARGES INCURRED IN RETURNING MERCHANDISE TO MANUFACTURER. CARL TURNER EQUIPMENT DOES NOT WARRANT LOST FREON DUE TO LEAKS ON FREON RECOVERY MACHINES.CARL TURNER EQUIPMENT RESERVES THE RIGHT TO AMMEND PRICING ERRORS.*

Accepted by: _____ **Date:** _____

THANK YOU!

NAPA AUTO PARTS

800006377
Turrentine Automotive Supply
516 Granite Avenue
Fredericksburg, TX 78624
(830) 997-2131

QUOTE

Date : 01/04/2024 Time : 11:32 Page : 1 / 1 Order # 366101

Quote For

3283
Gillespie County Mechanic
101 W.Main Unit 4
Fredericksburg, TX 78624-0000

Quote By

Quote By : 3 , WAYNE
Sales Rep : 0 , Salesman
Quote Date : 01/04/2024
Accounting Day : 1
Quote : 1157

Part Number	Line	Description	Quantity	Price	Net	Total	Taxable
SM18N001BL	RTY	ROTARY LIFT-18000 LB ()	1.00	38,818.24	19,409.12	19,409.12	
RJ9000YBK	RTY	ROTARY LIFT ()	2.00	11,528.24	5,764.12	11,528.24	
212445	XXX	lift install ()	1.00	0.00	2,500.00	2,500.00	DP

Attention : sourcewell

PO# : rfp#032521

Subtotal	33,437.36

(Taxes and fees not included in Quote Total)

Subtotal 33,437.36

Estimate

www.liftnow.com
sales@liftnow.com - Fax: 914-734-7479
1-800-LIFTNOW

Date:	1/8/2024
	SW
Quote #:	Gillespie-18K-Opt2
Sales Rep	Paul Stern

Customer
Gillespie County
97 Frederick Rd
Fredericksburg TX 78624
Attn: Michael Maurer

Sourcewell Member ID: #125659

Qty	Description	List Price	Your Price
1	~~BendPak HDS-18E 18,000-lb. Capacity / Four-Post Lift / Standard~~	$24,600.90	$20,418.75
2	BendPak RJ9W 9,000-lb. Capacity / Rolling Bridge Jack / Easy-Roll Wheels	$8,444.82	$7,009.20
1	BendPak Airline Kit for HDS-18	$297.00	$246.51
1	SOURCEWELL SERVICE PROGRAM - Install customer's new four post lift.	$5,399.00	$5,399.00
1	SOURCEWELL SERVICE PROGRAM - Round Trip Travel for Project.	$450.00	$450.00
1	SOURCEWELL SERVICE PROGRAM - Remove customer's existing four post lift.	$2,399.00	$2,399.00
1	SOURCEWELL SERVICE PROGRAM - Inspect customer's new four post lift.	$599.00	$499.00
	SOURCEWELL SERVICE PROGRAM - ADDITIONAL DISCOUNT - 2-5 TIER 2.50%		-$218.68
1	BendPak Rolling Oil Drain Pan - 15 Gallon Rolling Drain Pan For 4-Post Lifts	$429.40	$356.40

Special Notes and Instructions

PLEASE ADD SALES TAX. ELECTRICAL HOOK-UP, AIR HOOK-UP, REMOVAL OF EXISTING EQUIPMENT AND ANY CONCRETE WORK, IF NECESSARY, IS THE RESPONSIBILITY OF THE CUSTOMER. (UNLESS OTHERWISE SPECIFIED ABOVE). CUSTOMER IS ALSO RESPONSIBLE FOR THE PRESENCE OF ANY AND ALL SUB-SURFACE FEATURES OR CONDITIONS INCLUDING BUT NOT LIMITED TO ROCK, LEDGE, GROUND WATER, CONCRETE OF GREATER THAN 6" THICKNESS, AIR, UTILITY OR RADIANT HEATING LINES WHICH MAY REQUIRE RELOCATION OR REPAIR. REMOVAL OR DISPOSAL OF ANY CONTAMINATED SOIL, IF PRESENT, IS THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY. ANY PERMITS, FILINGS OR FEES ARE THE RESPONSIBILITY OF THE CUSTOMER. CUSTOMER IS RESPONSIBLE FOR HAVING A FORKLIFT TO UNLOAD AND RECEIVE THE SHIPMENT. PRICES ARE GOOD FOR 30 DAYS. ADD 4% IF USING CREDIT CARD. MUST SIGN CHARGEBACK AGREEMENT AND AUTHORIZATION.

Sourcewell Awarded Contract
Contract # 013020-LFT

Subtotal	$42,619.12
Discount	$6,059.94
Freight	INCLUDED
Total	$36,559.18

This is only an estimate. The total will be assessed at the time of purchase order and verified for any changes.

Above information is not an invoice and only an estimate of services/goods described above.

Please confirm your acceptance of this quote by signing this document.

_____
_____
_____

Fiscal Year

2023-2024

Fiscal Period

All

Overbudget Only

Ending Balance

Activity

Encumbrances

Account Type

Account Status

Report Group

Fund

Budget Available: $0.00 • A.

No Transactions

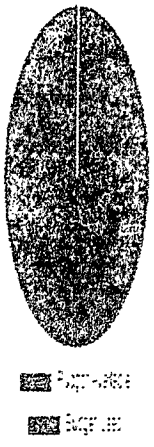
10.688.6001 • MACH

0%

25%

Encumbrances

Original Budget	$33,600.00
Budget Adjustment	$0.00
Current Budget	$33,600.00
Activity	$0.00
Encumbrance	$0.00
Reserve	$0.00
Budget Remaining	$33,600.00
Pending	$0.00
Budget Available	$33,600.00



View

10.688.6002 • OFFICI

Budget Available: $0.00 • A.

No Transactions

1 2 3 4

31 Results

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GMC Traverse

Weblink 2.0 - Datasheets https://weblink2.kwtire.com/datasheet?partnum=B012463

Bridgestone Alenza AS Ultra

BRIDGESTONE

Designed for Luxury SUVs, CUVs, the Alenza AS Ultra tire delivers wet, winter and wear performance alongside a luxury driving experience.

- New high silica compound helps deliver improved wet and winter performance
- Snow vices help deliver winter performance by providing additional grip on snowy roads
- Quiettrack Technology helps reduce tread pattern noise for a quiet ride
- Long-lasting performance designed to provide long-lasting wear and backed by a 80000 mile limited warranty

$1163.43
x 4
653.72
108.00 Labor
20.00 Disposal
24.00 TPMS Sticks
$805.72

Tire Size	255/65R18/SL
Service Description	111T
Load Range	SL
Sidewall	BLACK
Part Number	012463

Diameter (in)	31.1
Tire Weight (lbs)	35.99
Max. PSI	44
Section Width (in)	10.2

Appr. Rim Width (in)	7-9
Max. Load (lbs)	2403
Tread Depth	10
OE Make	

Load Limit Dual	N/A
Limited Mileage Warranty	80000
UTQG	800AB
Type TL/TT	Tubeless
Rolling Circumference	

Other tires in this product line.

Light Truck Tires

Tire Size	Service Desc.	Load Range	Sidewall	Part Number	Diameter (in)	Tire Weight(lbs)	Max. PSI	Section Width(in)	Appr. Rim Width(in)	Max. Load (lbs)	Tread Depth	Load Limit Dual	Limited Mileage Warranty	UTQG	Type TL/TT	Rolling Circumference
265/70R16/SL	112T	SL	BLACK	012467	30.6	34.69	44	10.7	7-9	2469	10	N/A	80000	800AB	Tubeless	
225/65R17/SL	102H	SL	BLACK	008344	28.5	24.51	44	9	6-8	1874	10	N/A	80000	800AA	Tubeless	
235/65R17/SL	104H	SL	BLACK	004495	29.1	24.94	44	9.5	6.5-8.5	1984	10	N/A	80000	800AA	Tubeless	
245/65R17/SL	107H	SL	BLACK	012466	29.9	30.93	44	9.6	7-8.5	2149	10	N/A	80000	800AA	Tubeless	
245/70R17/SL	110T	SL	BLACK	012468	30.6	32.06	44	9.8	6.5-8	2337	10	N/A	80000	800AB	Tubeless	
255/70R17/SL	112S	SL	BLACK	012480	31.1	35.12	44	10.2	6.5-8.5	2469	10	N/A	80000	800AB	Tubeless	
265/65R17/SL	112T	SL	BLACK	001190	30.6	34.72	44	10.7	7.5-9.5	2469	10	N/A	80000	800AB	Tubeless	
265/70R17/SL	115H	SL	BLACK	013523	31.7	36.35	44	10.7	7-9	2679	10	N/A	80000	800AB	Tubeless	
235/55R18/SL	100V	SL	BLACK	004494	28.2	26.95	51	9.7	6.5-8.5	1764	10	N/A	80000	800AA	Tubeless	
235/60R18/XL	107V	XL	BLACK	004879	29.1	30.14	50	9.5	6.5-8.5	2149	10	N/A	80000	800AA	Tubeless	
235/60R18/XL	107W	XL	BLACK	013524	29.1	31	51	9.5	6.5-8.5	2149	10	N/A	80000	800AA	Tubeless	
235/65R18/SL	106V	SL	BLACK	008343	30	28.77	51	9.5	6.5-8.5	2094	10	N/A	80000	800AA	Tubeless	
245/60R18/SL	105V	SL	BLACK	013282	29.6	29.6	51	9.8	7-8.5	2039	10	N/A	80000	800AA	Tubeless	
255/55R18/XL	109W	XL	BLACK	004882	29	34.2	50	10.4	7-9	2271	10	N/A	80000	800AA	Tubeless	
255/60R18/XL	112V	XL	BLACK	008363	30	34.82	50	10.2	7-9	2469	10	N/A	80000	800AA	Tubeless	
255/70R18/XL	113H	SL	BLACK	012477	32.1	38.08	44	10.2	6.5-8.5	2535	10	N/A	80000	800AA	Tubeless	
265/60R18/SL	110V	SL	BLACK	001189	30.5	35.25	51	10.7	7.5-9.5	2337	10	N/A	80000	800AA	Tubeless	
265/65R18/SL	114H	SL	BLACK	013525	31.6	37.48	44	10.7	7.5-9.5	2601	10	N/A	80000	800AB	Tubeless	
275/65R18/SL	116H	SL	BLACK	013526	32.1	38.25	44	11.4	7.5-9.5	2756	10	N/A	80000	800AB	Tubeless	
235/50R19/SL	99V	SL	BLACK	004496	28.3	29.11	51	9.7	6.5-8.5	1709	10	N/A	80000	800AA	Tubeless	
235/55R19/XL	105W	XL	BLACK	013279	29.2	29.32	50	9.7	6.5-8.5	2039	10	N/A	80000	800AA	Tubeless	
245/55R19/SL	103V	SL	BLACK	013281	29.7	29.73	51	10	7-8.5	1929	10	N/A	80000	800AA	Tubeless	

1/9/2024, 2:18 PM

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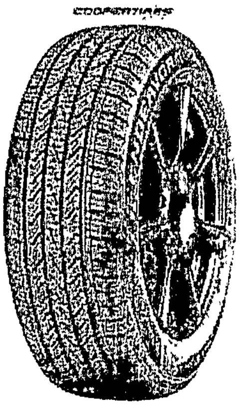
Photo Done

Cooper Endeavor Plus



The Cooper Endeavor Plus is designed to target CUVs, SUVs and pickup trucks of all sizes Designed to offer consumers balanced traction for their vehicle – whether large, medium, or compact.

- Offers the right combination of rain channels and biting edge to help flush out water and put more rubber on the road for better traction in wet conditions.
- An added layer of reinforced material gives you excellent contact with the road for even tread wear and a long tire life.
- A checkmark tread design reduces noise and delivers a smooth and quiet ride.

$169.00
x 4
676.00
108.00 Labor
20.00 Disposal
24.00 TPMS Stems
$828.00

Tire Size	255/65R18/SL
Service Description	111H
Load Range	SL
Sidewall	BLACK
Part Number	166305009

Diameter (in)	31.1
Tire Weight (lbs)	34
Max. PSI	44
Section Width (in)	10.1

Appr. Rim Width (in)	7-8
Max. Load (lbs)	2403
Tread Depth	11
OE Make	

Limited Mileage Warranty	65000
UTQG	680AA
Type:TL/TT	Tubeless
Rolling Circumference	

Other tires in this product line.

Winter and Passenger Tires

Tire Size	Service Desc.	Load Range	Sidewall	Part Number	Diameter (in)	Tire Weight(lbs)	Max. PSI	Section Width(in)	Appr. Rim Width(in)	Max. Load (lbs)	Tread Depth	Limited Mileage Warranty	UTQG	Type TL/TT	OE Make	Rolling Circumference
205/70R16/SL	97H	SL	BLACK	166307009	27.32	22	44	8.2	6-7	1609	10	65000	680AA	Tubeless		
215/65R16/SL	98H	SL	BLACK	166242009	27.01	22	44	8.7	6-7.5	1653	10	65000	680AA	Tubeless		
215/70R16/SL	100H	SL	BLACK	166256009	27.72	24	44	8.7	5.5-7	1764	10	65000	680AA	Tubeless		
235/65R16/SL	103T	SL	BLACK	166255009	28.03	28	44	9.4	6.5-8.5	1929	10	65000	680AA	Tubeless		
235/70R16/SL	106T	SL	BLACK	166264009	28.82	30	44	9.4	6-8	2094	12	65000	680AB	Tubeless		
265/70R16/SL	112T	SL	BLACK	166265009	30.35	37	44	10.8	7-9	2409	12	65000	680AB	Tubeless		
215/60R17/SL	96H	SL	BLACK	166244009	27.17	22	44	8.7	6-7.5	1565	10	65000	680AA	Tubeless		
215/65R17/SL	99T	SL	BLACK	166274009	28.03	24	44	8.7	6-7.5	1709	10	65000	680AB	Tubeless		
225/60R17/SL	99H	SL	BLACK	166263009	27.64	25	44	9	6-8	1709	10	65000	680AA	Tubeless		
225/65R17/SL	102H	SL	BLACK	166240009	28.64	28	44	9.1	6-8	1874	10	65000	680AA	Tubeless		
235/55R17/SL	99H	SL	BLACK	166243009	27.17	26	44	9.8	6.5-8.5	1709	10	65000	680AA	Tubeless		
235/60R17/SL	102H	SL	BLACK	166251009	28.11	25	44	9.4	6.5-8.5	1874	10	65000	680AA	Tubeless		
235/65R17/SL	104H	SL	BLACK	166238009	29.17	27	44	9.4	6.5-8.5	1984	10	65000	680AA	Tubeless		
245/65R17/SL	107T	SL	BLACK	166266009	29.53	32	44	9.6	7-8.5	2149	11	65000	680AB	Tubeless		
245/70R17/SL	110T	SL	BLACK	166268009	30.43	34	44	9.7	6.5-8	2337	12	65000	680AB	Tubeless		
265/65R17/SL	112T	SL	BLACK	166267009	30.59	33	44	10.0	7.5-9.0	2459	11	65000	680AB	Tubeless		
265/70R17/SL	116T	SL	BLACK	166269009	31.38	38	44	10.7	7-9	2670	12	65000	680AB	Tubeless		
215/55R18/SL	95H	SL	BLACK	166263009	27.26	24	44	8.9	6-7.5	1521	10	65000	680AA	Tubeless		
225/55R18/SL	98H	SL	BLACK	166245009	27.70	25	44	9.2	6-8	1653	10	65000	680AA	Tubeless		
225/60R18/SL	100H	SL	BLACK	166246009	28.62	27	44	9	6-8	1764	10	65000	680AA	Tubeless		
235/50R18/SL	97V	SL	BLACK	166237009	27.24	24	44	9.0	6.5-8.5	1809	10	65000	680AA	Tubeless		
235/55R18/XL	104V	XL	BLACK	166250009	28.31	27	50	9.8	6.5-8.0	1984	10	65000	680AA	Tubeless		
235/60R18/XL	107V	XL	BLACK	[illegible]	[illegible]	[illegible]	50	9.4	6.5-8.5	2149	11	65000	680AA	Tubeless		
235/65R18/SL	106H	SL	BLACK	[illegible]	[illegible]	[illegible]	44	9.4	6.5-8.5	2094	11	65000	680AA	Tubeless		

Proposed Library Closings for the 2024 calendar year:

Saturday April 6th - Solar Eclipse
Saturday June 8th - Craft Beer Festival
Saturday October 5th - Oktoberfest
Saturday October 19th - Bestfest
Saturday October 26th - Food and Wine Festival
Wednesday November 27th - Close at 4pm for Thanksgiving Holiday
Saturday November 30th - Thanksgiving Holiday
Tuesday December 31st - Close at 5pm for New Year's Eve

Bobcat

Product Quotation
Quotation Number: **SI195805**
Quote Sent Date: **Nov 15, 2023**
Expiration Date: **Dec 15, 2023**

Prepared By
Scot Ince
Phone: 830-459-6979
Email: scoti@bobcatcce.com

Customer
Gilliespie County
101 W MAIN ST
FREDERICKSBURG, TX, 78624-3745
Phone: +18307396797

Contact

Dealer
Ranchers ATV and Tractor, Kerrville, TX
2330 JUNCTION HWY
KERRVILLE, TX, 78028

Item Name	Item Number	Quantity	Price Each	Total
Auger Drive H300	113085	1	3,400.00	3,400.00
	Total for Auger Drive H300			**3,400.00**
9" Rock Bit	0	1	1,345.00	1,345.00
	Total for 9" Rock Bit			**1,345.00**
Auger Bit	A6018A	1	1,000.00	1,000.00
	Total for Auger Bit			**1,000.00**

New Style Auger

Quote Total - USD	5,745.00
Sales total before Taxes	5,745.00
Taxes	0.00
Quote Total - USD	**5,745.00**

Customer Acceptance:
Quotation Number: **SI195805**
Purchase Order:_____

Authorized Signature:

Print:_____ Sign:_____

Date:_____ Email:_____ Tax Exempt: Y ☐ / N ☐

Bobcat

Product Quotation
Quotation Number: **SI195789**
Quote Sent Date: **Nov 15, 2023**
Expiration Date: **Dec 15, 2023**

Prepared By
Scot Ince
Phone: 830-459-6979
Email: scoti@bobcatcce.com

Customer
Gilliespie County
101 W MAIN ST
FREDERICKSBURG, TX, 78624-3745
Phone: +18307396797

Contact

Dealer
Ranchers ATV and Tractor, Kerrville, TX
2330 JUNCTION HWY
KERRVILLE, TX, 78028

Item Name	Item Number	Quantity	Price Each	Total
BELLTEC M-300 AUGER DRIVE	9999999	1	3,000.00	3,000.00
	Total for BELLTEC M-300 AUGER DRIVE			**3,000.00**
9" Rock Bit	0	1	1,345.00	1,345.00
	Total for 9" Rock Bit			**1,345.00**
Auger Bit	A6018A	1	1,000.00	1,000.00
	Total for Auger Bit			**1,000.00**

Old style Auger

Quote Total - USD	5,345.00
Sales total before Taxes	5,345.00
Taxes	0.00
Quote Total - USD	**5,345.00**

Customer Acceptance:
Quotation Number: **SI195789**
Purchase Order:_____

Authorized Signature:

Print:_____ Sign:_____

Date:_____ Email:_____ Tax Exempt: Y ☐ / N ☐

City of Fredericksburg
Gillespie County

Hazard Mitigation Plan
2024-2029

Adopted:

For more information, visit our website at:

City of Fredericksburg
Gillespie County

Written comments should be forwarded to:
Justin Calhoun
City of Fredericksburg
126 West Main Street
Fredericksburg, TX 78624

Record of Changes

City of Fredericksburg
Gillespie County
Hazard Mitigation Plan

Change #	Date of Change	Description	Changed By

Contents

Section 1 – Introduction

Background

Gillespie County is located in west central Texas. Fredericksburg, the county's largest town and county seat, is seventy miles west of Austin and sixty-five miles northwest of San Antonio. The center point of the county is at 30°18' north latitude and 98°55' west longitude, about two miles west of Fredericksburg. Gillespie County comprises 1,061 square miles. The terrain features plateaus and limestone hills broken by the Pedernales River, with an elevation ranging from 1,100 to 2,250 feet above sea level and averaging 1,747 feet above sea level. The soils on Gillespie County's limestone hills support growths of live oak, shin oak, and other browse plants, as well as grasses and forbs, well-suited for grazing. The deeper soils in the valleys and plains produce a true prairie of medium and tall grasses mixed with forbs and woody plants. Some 573,000 acres (85 percent of the agricultural land in the county) is rangeland, which constitutes the county's primary renewable resource. The recent trend in Gillespie County has been to convert land previously used for raising crops to improved pasture and hay culture. Cattle and sheep are raised throughout Gillespie County, and Angora goats are primarily in the southwest part of the county. Among the numerous wild animals are white-tailed deer, turkeys, quail, doves, foxes, ringtail cats, bobcats, coyotes, ducks, and geese. Many farm and ranch tanks have channel catfish, black bass, and sunfish. The county's principal water source is the Pedernales River, which flows from west to east across the width of southern Gillespie County. Other primary water sources include Threadgill Creek in the northwest, North Grape Creek in the east, and Crabapple Creek in the north-central part of the county. Mineral resources include limestone, talc, gypsum, and metallic minerals. Temperatures range from an average high of 95° F in July to an average low of 36° in January; rainfall averages 27.45 inches a year, and the growing season lasts 219 days. The county's population has grown steadily from 1,240 in 1850 to 26,675 in 2020. Of these, 72.6 percent were Anglo, 25 percent were Hispanic, and 0.8 percent were African American. [1] To help protect our citizens, history, and resources, The City of Fredericksburg and Gillespie County have developed this Hazard Mitigation Plan to reduce risks from natural hazards affecting the area.

[1] Rudolph L. Biesele, The History of the German Settlements in Texas, 1831–1861 (Austin: Von Boeckmann-Jones, 1930; rpt. 1964).

The Federal Emergency Management Agency (FEMA) defines Mitigation as "any action taken to reduce or eliminate the long-term risk to human life and property from Natural Hazards. [2] Mitigation differs from emergency preparedness and protective measures, which focus on activities designed to make communities more ready to take appropriate action in a disaster with emergency response and equipment. Mitigation activities involve altering physical environments to reduce risks and vulnerabilities from hazards and make responding to and recovering from disasters more cost-effective.

The City of Fredericksburg and Gillespie County are susceptible to a wide range of natural hazards, including flooding, tornadoes, wildfires, and drought. These hazards have destroyed property, disrupted the economy, and lowered our citizens' overall quality of life. For example, on May 25, 2015, a storm complex rolled through Gillespie County and spawned an EF-1 Tornado, which destroyed a water pumping station belonging to the City of Fredericksburg, numerous old and well-established oak trees, and threatened to destroy multiple homes in the path of the storm.

It is impossible to prevent this type of hazard from occurring. Still, the impact of hazards can be reduced in terms of their effect on people and property through effective hazard mitigation planning and implementation. This plan allows the City of Fredericksburg and Gillespie County to evaluate successful mitigation actions and explore opportunities to avoid future disaster loss.

Scope and Participation

This plan covers two jurisdictions: The City of Fredericksburg and Gillespie County. The Hazard Mitigation Plan for the City of Fredericksburg is detailed in Annex A, and the Hazard Mitigation Plan for Gillespie County is described in Annex B. This plan covers only these two jurisdictions. Other entities and businesses, including Fredericksburg Independent School District, the Harper Independent School District, and Methodist Hospital Hill Country, among others, participated in the development of this plan as Stakeholders and are included in the findings and actions under this plan. These groups and others provided valuable input into the planning process.

The Plan focuses on mitigating those hazards classified as "high" or "moderate" risk as determined through a detailed hazard risk assessment conducted for each jurisdiction. Hazards that pose a "low" or "negligible" risk will continue to be evaluated during future updates to the Plan. Still, they may not be fully addressed until they are determined to be of high or moderate risk. This enables both entities to prioritize mitigation actions based on hazards that are understood to present the most significant risk to lives and property.

[2] www.fema.gov

Purpose

This plan was prepared by the Gillespie County Office of Emergency Management under the direction of the Emergency Management Coordinator for the City of Fredericksburg and Gillespie County. It is an opportunity for the City of Fredericksburg, Gillespie County, stakeholders, and the general public to evaluate successful mitigation actions and explore opportunities to avoid future disaster loss.

In developing the plan, participants identified hazards that affected The City of Fredericksburg and Gillespie County. Though similar, the hazard list is different for the two jurisdictions represented in the plan. The City of Fredericksburg identified nine hazards, and Gillespie County placed ten to address.

This Plan aims to identify successful, cost-effective actions that can be taken to reduce or eliminate long-term risk to people and property from the identified hazards and their effects.

Through this process, the City of Fredericksburg and Gillespie County seek to:

- Assess any previous mitigation projects and develop unique mitigation strategies to meet future development and risks;
- Encourage improvements in floodplain management and participation in the National Flood Insurance Program (NFIP);
- Devise solutions to strengthen emergency management by addressing moderate and high-risk natural hazards and
- Develop and implement a comprehensive Hazard Mitigation Plan for the City of Fredericksburg and Gillespie County.

Authority

These Plans are tailored specifically for the City of Fredericksburg and Gillespie County. When complete, the Plans will comply with all requirements promulgated by the Texas Division of Emergency Management (TDEM) and all applicable provisions of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390), and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). It will also comply with FEMA's February 26, 2002, Interim Final Rule ("the Rule") at 44 CFR Part 201, which specifies the criteria for approval of mitigation plans required in Section 322 of the DMA 2000 and standards found in FEMA's "Local Mitigation Plan Review Guide" (October 2011), and the "Local Mitigation Planning Handbook"(March 2013). The plan will fully comply with all codes

and ordinances adopted by the City of Fredericksburg and follow all laws and directives of the State of Texas and Gillespie County, Texas.

Summary of Sections

Sections 1 and 2 of the Plan outline the purpose and development process. Section 3 profiles the City of Fredericksburg in terms of population and economy. Section 4 profiles Gillespie County in terms of population and economy. Section 5 defines the hazards that were considered for mitigation under this plan.

The Hazard Mitigation Plan for The City of Fredericksburg will be detailed in Annex A. Annex A will contain nine sections, each addressing one hazard identified for mitigation. The capability assessment for the City of Fredericksburg is also included in Annex A.

The Hazard Mitigation Plan for Gillespie County will be detailed in Annex B. Annex B will contain ten sections, each addressing one hazard identified for mitigation. The capability assessment for the City of Fredericksburg is also included in Annex B.

Appendix A contains supporting information or detailed data used to support the mitigation actions chosen or to document the process followed during the development of this plan.

Section 2 – Planning Process

Plan Preparation and Development

Overview of the Plan

The 2024 City of Fredericksburg and Gillispie County Hazard Mitigation Plan is an update of the 2018 plans. The process used to develop this plan was first to identify the hazards, identify the resources that we currently have or anticipate having during the period covered by this plan that do not require grant funding or other outside resources, and then develop a strategy that would allow us to use our assets to perform

meaningful hazard mitigation for our citizens. This does not mean we rule out applying for grant funding or other aid for projects beyond our current capabilities. Instead, it sets priorities on what we can and will do and then provides guidance and priorities for larger, more expensive projects that will require grant funding to implement

Planning Team

The City of Fredericksburg /Gillespie County Office of Emergency Management is the lead agency in developing this Hazard Mitigation Plan. The planning team comprised representatives of the City of Fredericksburg, Gillespie County, Law enforcement, Fire Departments, Fredericksburg ISD, Chamber of Commerce, and other agencies and jurisdictions listed in Appendix A.

Members of the planning team were picked from a mixture of paid staff from the City of Fredericksburg and Gillespie County and volunteers from various community organizations. Other key stakeholders in the community were asked to participate in the updating process of this plan. All the people asked to participate in the planning process were invited to the kickoff meeting via e-mail and telephone.

Planning Process

The City of Fredericksburg and Gillespie County hold a monthly Hazard Mitigation Committee meeting. This committee evaluates hazards throughout the city and county monthly and takes action to mitigate these hazards. The committee focused on the Hazard Mitigation Plan, which was due for an update. The committee meetings were publicly announced and open to the public. Information on dates and times is listed below.

Hazard Identification

Following the guidance provided by the Texas Division of Emergency Management, the Hazard Mitigation Committee evaluated the risk posed by fifteen natural hazards. Although these hazards posed similar risks to both jurisdictions, there are differences in the amount of risk each hazard might pose to the different jurisdictions. To fully understand the risk posed by each hazard, it was first necessary to define each hazard in terms of its destructive potential and its ability to disrupt life and commerce in the jurisdictions.

Risk Assessment

After defining the hazard and establishing a baseline understanding of each hazard, they were ranked in order of most dangerous/highest risk to least dangerous/lowest risk according to the following criteria:

1. Number of deaths or injuries caused in the jurisdiction by the identified hazards.

2. The number of incidences of the identified hazard.
3. The amount of monetary damage caused in the jurisdiction by the identified hazard.
4. The input was provided by committee members and local citizens, most of whom have lived their entire lives in the area.

This was done by asking each participant to rank the hazards on an Excel spreadsheet. The highest risk was scored 1, the subsequent highest risk was scored a 2, etc. Once this was completed, scores for each hazard were added, and a numerical rating was assigned. The results are documented in Appendix F.

Plan Monitored, Evaluation, and Update Process

Under the direction of the Emergency Management Coordinator, The City of Fredericksburg/Gillespie County Office of Emergency Management conducts an annual review of the Emergency Operations Plan and Annexes each year. The Department Heads/Responsible Parties tasked with reviewing their respective Annexes shall include a review of any Hazard Mitigation Actions, whether part of this plan or as a separate action, that affect or relate to each annex and report the status of those hazard mitigation actions to the Emergency Management Coordinator.

Each mitigation action shall be evaluated for effectiveness by the Department tasked with its implementation. Although each action is different and may require another metric to gauge the efficacy, each mitigation action shall be evaluated as follows (at a minimum):

- Start /Finish Date
- Percent Complete
- Costs associated with implementation.
- A discussion of what has been completed and what actions are still to be accomplished.
- If possible, a cost/benefit analysis that can explain why an action has or has not been effective.
- Recommendations for further action.

The Hazard Mitigation Plan will be added to the lists of plans and annexes that will be reviewed each year at that time. The Hazard Mitigation Development Team will meet in February of each year and, more often as necessary, discuss the progress of the mitigation actions implemented in the plan and the need to include new hazards or modify the goals, strategies, or tactics identified in this plan.

As the Office that is directly tasked by both Gillespie County and the City of Fredericksburg, The Office of Emergency Management, under the direction of the

Emergency Management Coordinator, shall be responsible for ensuring that the mitigation actions and strategies identified in this plan are incorporated into existing and long-range planning documents for Gillespie County and the City of Fredericksburg.

After the annual review is conducted, if it is determined that changes/updates to the plan are required, then the Emergency Management Coordinator shall:

- Notify the agency responsible for the mitigation action(s) needing change/updates via written correspondence (email or written letter) that the plan for that action requires updating.
- Provide a working document for the responsible agency to mark the changes.
- Monitor the progress of the update process to ensure that the update is returned to his office within 30 days of notification.
- Update the current Hazard Mitigation Plan with the updates and forward those updates to the Texas Division of Emergency Management within 30 days of receiving the changes from the responsible agency. Post the updated plan on the appropriate websites for public use.

It is important to note that some changes can be implemented without TDEM/FEMA approval (changes to priorities, timetables, etc), while others must be submitted to FEMA (adding a new hazard or a new mitigation action) before the changes become approved and effective.

As this plan was being updated from the 2018 to the 2024 edition, many considerations were considered. The mitigation goals of the previous plan were reviewed, and the outcome of each goal was discussed. These mitigation projects were compared to real-time information within the City of Fredericksburg and Gillespie County. The current trends in development were considered to affect both entities directly. Additional development and growth in the city and county will lead to more people being directly impacted by a significant event. These growth patterns were considered while updating the thing plan. Elected officials from both entities continue working together to improve the development process and sustain long-term growth.

Incorporating the Hazard Mitigation Plan into Existing Plans.

During the plan update process, existing documents were referenced to ensure that the Hazard Mitigation Plan goals and activities were consistent with the planning that had already occurred. The following plans were utilized in the review process:

- City of Fredericksburg Capital Improvements Plan (CIP)
- City of Fredericksburg Code of Ordinances
- City of Fredericksburg Master Drainage Plan
- Gillespie County Water Control and Improvement Plan Emergency Action Plan

- Gillespie County/City of Fredericksburg Emergency Action Plan and Annexes
- Gillespie County Flood Damage Prevention Ordinance
- Alamo Area Council of Governments Regional Mitigation Action Plan
- State of Texas, Hazard Mitigation Plan

The City of Fredericksburg and Gillespie County will be responsible for implementing hazard mitigation actions contained in this plan. Each hazard mitigation action has been assigned to a specific County and City department responsible for tracking and implementing the action.

Gillespie County and The City of Fredericksburg will integrate hazard mitigation actions in the Plan Update with existing planning mechanisms such as Master Storm Water and Drainage Plans, Flood and Drainage Studies, Emergency Operations or Management Plans, and other local and area planning efforts. Gillespie County will work closely with area organizations to coordinate the implementation of hazard mitigation actions that benefit the planning area regarding financial and economic impact.

Planning Team members will review and revise, as necessary, the long-range goals and objectives in its strategic plan and budgets to ensure they are consistent with the Plan. Further, Gillespie County and the City of Fredericksburg will work with neighboring jurisdictions to advance the goals of the Plan as it applies to ongoing, long-range planning goals and actions for mitigating risk to natural hazards throughout the planning area.

Table 2-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts.

Grant Applications	The Plan Update will be evaluated by Gillespie County and The City of Fredericksburg when grant funding is sought for mitigation projects. If a project is not in the Plan: an amendment may be necessary to include the action.
Annual Budget Review	Various departments and key personnel that participated in the planning process for Gillespie County and The City of Fredericksburg will review the plan and mitigation actions therein when conducting their annual budget review. Allowances will be made following grant applications sought and

	mitigation actions that will be undertaken, according to the implementation schedule of the specific action.
Regulatory Plans	Gillespie County and the City of Fredericksburg have regulatory plans, such as emergency management, continuity of operations, economic development, and evacuation plans. The Plan will be consulted when county and city departments review or revise their current regulatory planning mechanisms or are developing regulatory plans that are not currently in place.
Capital Improvement Plans	The City of Fredericksburg has a Capital Improvement Plan (CIP). Before any revisions to the CIP, the City departments will review the risk assessment and mitigation strategy sections of the HMAP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Floodplain Management Plans	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information in the Plan discussing the people and property at risk of flooding will be reviewed and revised when Gillespie County and the City of Fredericksburg update their management plans or develop new plans.

To implement this plan, the City of Fredericksburg and Gillespie County will draw upon the capabilities listed in Appendix B. In addition to these capabilities, occasionally improving each jurisdiction's capabilities may be necessary to accomplish this plan's goals. Options for strengthening these capabilities may include the following actions:

- Establishing Planning Team members with the authority to monitor the Plan and identify grant funding opportunities for expanding staff.
- Identifying opportunities for cross-training or increasing the technical expertise of staff by attending free training available through FEMA and the Texas Division of Emergency Management (TDEM) by monitoring classes and availability through preparetexas.org.
- Review current floodplain ordinances for opportunities to increase resiliency, such as modifying permitting or building codes.
- Develop ordinances requiring all new developments to conform to the highest mitigation standards.

After the plan adoption, it is necessary to monitor the implementation of the adopted mitigation actions and the effectiveness of those actions. As the lead agency, the Office of Emergency Management is charged with tracking the progress of the plan by:

- Holding an annual Plan Review meeting with stakeholders and agencies tasked with implementation.
- Evaluating the budgets allocated to mitigation actions with agencies tasked with implementation.
- Review changes in flood zone maps as new maps are released and recommend to flood plain managers what changes may need to be made to local plans and ordinances.
- Coordinating with county fire chiefs to assist them in acquiring funding and equipment.
- Coordinating with the City of Fredericksburg and Gillespie County officials to ensure mitigation actions assigned to city and county officials are completed
- Recommend changes/updates to the plan whenever necessary due to changes in demographics or unforeseen events.
- Keep statistics on hazardous weather events and recommend updates to the plan as necessary.
- Keep local government officials appraised on the status and effectiveness of mitigation actions
- Recommending changes to city and county plans and ordinances based on the results of mitigation actions
- Reviewing and revising long-term goals, objectives, and budgets to ensure they are consistent with the Plan
- Monitoring the availability of grant funding to help implement plan actions
- Conducting an annual public meeting to solicit public input on the effectiveness of the plan

Public and Stakeholder Involvement

The City of Fredericksburg and Gillespie County have a joint Hazard Mitigation Committee. This committee meets monthly to discuss possible hazards within the community and how they should be addressed. This committee comprises elected officials, law enforcement, fire departments, engineering, the Texas Department of Transportation, local activists, and citizens within the community.

Continued Public Participation

Approved copies of the 2024 Hazard Mitigation Plan will be available to the public at the City Secretary's Office at City Hall and the Gillespie County Courthouse. The approved plan will also be placed on each jurisdiction's website.

Each year, during the review/update process, the Hazard Mitigation Committee will meet as noted in the Plan Update Process. These will be public meetings.

Fredericksburg and Gillespie County will make public notice as required by local regulations, advising the public of the meeting and inviting public participation.

Public Meetings

The first public meeting was held on December 8, 2022, at the Fredericksburg Fire/EMS training room at 126 W. Main St. The meeting was held in conjunction with our monthly Hazard Mitigation Committee meeting. The meeting was made public by the City Secretary's office. The purpose of this meeting was to inform the public about the reason and requirements for a current Hazard Mitigation Plan and to seek public input on hazards facing the jurisdictions covered in the plan. Outside of the citizens who regularly attended this meeting, no citizens participated.

The second Public Meeting was held on January 26, 2023, at the exact location as above. This meeting was made public through the City Secretary's office and the Gillespie County Judge's office. The meeting was again held with our monthly Hazard Meeting Committee meeting. Once again, no citizens outside the new attendees came to this meeting.

The third Public Meeting was held on February 23, 2023, at the exact location as above. This meeting was made public through the City Secretary's office and the Gillespie County Judge's office. The meeting was again held with our monthly Hazard Meeting Committee meeting. Once again, no citizens outside the new attendees came to this meeting.

The Fredericksburg City Council and Gillespie County Commissioners Court will approve this document in a regular meeting. All legal requirements for the Open Meetings Act will be met. This will be another chance for all community members to voice any concerns with the plan.

Stake Holder Involvement

The planning team included as many stakeholders as possible as part of the process. The Fredericksburg ISD, the American Red Cross, the United Way, Central Electric Cooperative, the Lower Colorado River Authority, and private citizens, among others, were all invited and encouraged to participate in the process. The City of Fredericksburg and Gillespie County are proud of the volunteers who are always available to help when needed, and every effort was made to include as many of these groups and people as possible. The table below shows people identified as stakeholders and whether they participated in the planning process. If a stakeholder chooses to participate, they are also considered team members.

Multiple non-profit agencies that represent and assist the underserved populations in our community were included as stakeholders in the preparation of this document. The

underserved portions of our community often don't participate in public meetings. By working with these non-profit organizations, we addressed hazard mitigation concerns for the community as a whole. We will continue to monitor how these hazards could directly impact those underserved communities and find ways to improve their input into the planning process.

Stakeholder Involvement			
Name of Organization/Person	Organization	Title	Participated in the Planning Process?
Timothy Roberts	Hill County Memorial Hospital	Emergency Management Coordinator	Yes
Dennis Land	American Red Cross serving Texas Hill Country	Senior Disaster Program Manager	Yes
Lea Urshan	United Way of San Antonio and Bexar County	Outreach Coordinator	Yes
Bonnie Stewart	Harper ISD	Superintendent	Yes
Michelle Williams	Fredericksburg ISD	Director of Operations	Yes
Paul Yura	National Weather Service	Forecaster	Yes
Cindy Heifner	Director	Hill Country Community Needs Council	Yes
Janice Durst	Central Texas Electric Cooperative	Executive Assistant to CEO	Yes
Doyle Moellering	Citizen	Citizen	Yes

Section 3 – City of Fredericksburg Profile

Overview

The City of Fredericksburg, Texas, is located approximately 80 miles west of Austin, Texas, along US Highway 290. The city encompasses about 8.7 square miles. Fredericksburg is the county seat for Gillespie County, Texas. Major highways passing through Fredericksburg include United States Highway 290, United States Highway 87, Texas State Highway 16, and Texas Farm to Market Road 965.

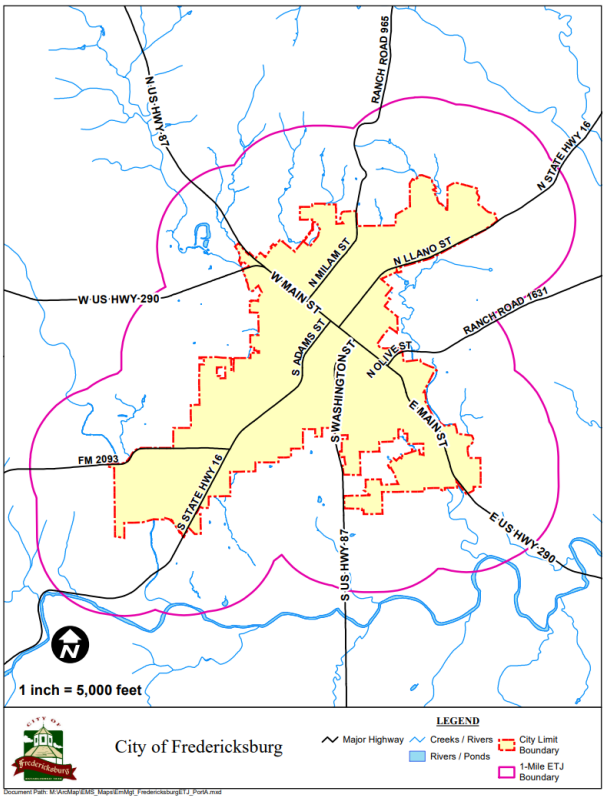


Figure 1: City of Fredericksburg

Population and Demographics

The population of Fredericksburg has shown steady growth for the last 35 years. The population of Fredericksburg was 6,934 in 1990. In the 2010 census, the population of Fredericksburg, Texas was 10,530. The 2020 Census reports the population of Fredericksburg as 10,875. This is an increase of 3.2% over the ten years.

Economy and Industry

According to U.S. Census Bureau Data, the median household income in 2020 dollars was $54,771. Sales tax collected in 2021 was 8,186,090.00. This is a 38% increase from 2018. Even through the COVID-19 pandemic in 2020, the city continued to show an increase in sales tax revenue.

During the 1980s, Fredericksburg endured the era of declining small towns in the USA. Many shops and businesses along Main Street sat empty and abandoned. The rise of the Texas Hill Country tourist industry resurrected Fredericksburg's economy. Tourists come to Fredericksburg from every state in the U.S. and overseas. Fredericksburg is home to many large festivals and celebrations, including the annual Oktoberfest, Food and Wine Festival, and the Crawfish Festival, to name only a few. There are also 17 unique wineries within the city limits. It is not uncommon for the population of Fredericksburg to double during the weekends these festivals are held.

While a robust economy is one of the best assets available to the city, it also produces challenges. Traffic and parking throughout the city are difficult, especially on festival weekends. The increase in the weekend population means that mass warning and communications systems available to local citizens may not reach tourists in time to help prevent a major disaster.

Existing and Future Land Use and Development Trends

Most of the land suitable for development in the central area of the City of Fredericksburg is already developed. Existing buildings are being re-purposed from homes into these new uses to open new businesses such as wine-tasting rooms, bed and breakfast facilities, restaurants, and retail companies.

Land suitable for development is available near the city limits in the unincorporated areas of Gillespie County surrounding the city. Much of this land is already being purchased with an eye toward residential development. The city is anticipated to annex most of these areas after development.

Affordable housing is becoming a significant issue for Fredericksburg. Housing, in general, is scarce within both Fredericksburg and Gillespie County. New apartment complexes are being proposed to help accommodate the increasing population in the area. However, real estate values have increased steadily, making the development of new affordable residential housing difficult.

The population of Fredericksburg is expected to grow at about a 1% per year rate for the next several years. This additional growth will require other infrastructure to support the increasing population. Demands on roads and utilities will increase, as will the amount of water needed to support business and residential use.

Current and Future Water Supply

The City of Fredericksburg is included in the Lower Colorado Regional Water Planning Area K. Most of this region of Texas is located in the Colorado River basin, including the cities of Austin, Bay City, Pflugerville, and Fredericksburg.

The Hill Country Underground Water Conservation District serves Gillespie County and the City of Fredericksburg. The District was created by the Acts of the 70th Legislature (1987), HB 792, and Chapter 865 following Article XVI, Section 59 of the Texas Constitution, and Chapters 35 and 36 of the Texas Water Code, as amended. Gillespie County voters approved the district's creation in August 1987. The district boundaries are coterminous with Gillespie County.

The district was created to conserve, preserve, recharge, control subsidence, protect and prevent waste of groundwater in the aquifers, and implement proper management techniques to address local groundwater conditions within Gillespie County.

The City of Fredericksburg currently draws all its water supply from underground sources, mainly the Ellenburger Aquifer. The city stores water in storage tanks to meet supply and pressure demands. Most of this water is used to meet residential and local business demands.

The City of Fredericksburg, as part of Gillespie County, has been designated as a critical area by the Texas Water Development Board and is expected to experience ground-water supply shortages and diminished water quality well into the 21st century.

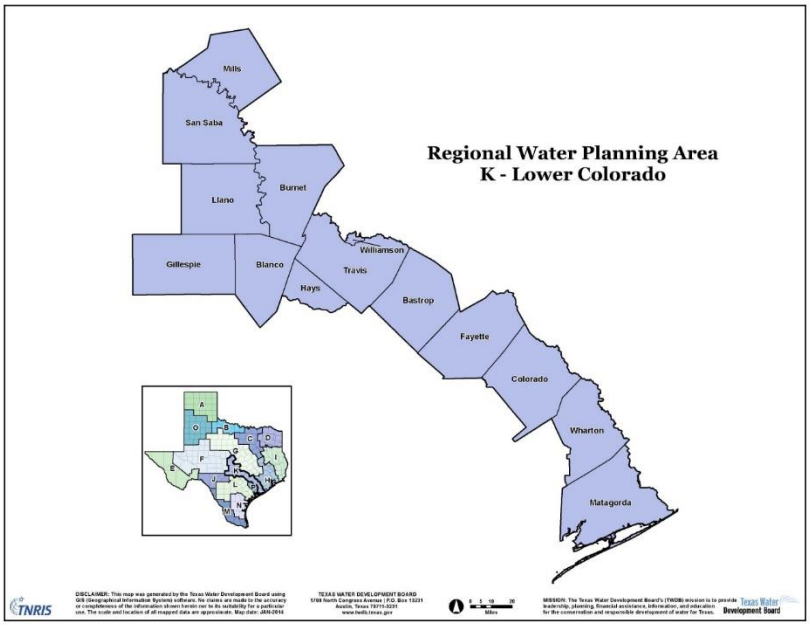


Figure 2: Region K Water Planning Area

Participation in the NFIP

The City of Fredericksburg participates in the National Flood Insurance Program and is a participating member in good standing. The current FIRM covering the City of Fredericksburg is dated 10/19/2001. As of January 2023, 61 flood insurance policies were issued in Fredericksburg. There are no repetitive loss properties within the City of Fredericksburg.

The City of Fredericksburg Code of Ordinances, Chapter 38 –Subdivision prohibits the construction of new structures in the established flood plain. In conjunction with any future ordinances and plans, this ordinance will ensure that Fredericksburg will comply with existing and future NFIP requirements.

Flood Plain maps are available for review by the public at Fredericksburg City Hall and online at the FEMA website. All citizens of Fredericksburg and Gillespie County are encouraged to visit the site if there is any question as to the location of their property and the nearest mapped flood plain.

To ensure our compliance with the NIFP, the City of Fredericksburg Public Works and Emergency Management has identified the following actions that may be taken upon approval by the City Council:

- Inclusion of a Flood Plain tab on the city website, which may contain some or all of the following items:
    - Links to FEMA Map Service Center
    - Links to Floodplain Development Regulations
    - Contact Information
    - Links to Helpful Websites
    - FAQ
- Implement a Storm Water Utility Fee adjustment to help fund drainage projects identified in the drainage master plan.
- Updating the Code of Ordinances to adopt new flood plain maps when released by FEMA.
- The Drainage Master Plan was completed in 2016 for the City of Fredericksburg, of which projects are being designed, funded, and constructed.

The current flood plain map for Fredericksburg is included as Appendix I of this plan.

The City of Fredericksburg will utilize its staff and legal assets to implement and monitor this Hazard Mitigation Plan. These assets are listed in Annex B.

Expanding current capabilities to monitor and implement this plan may arise. Options for improving capabilities in the future include:

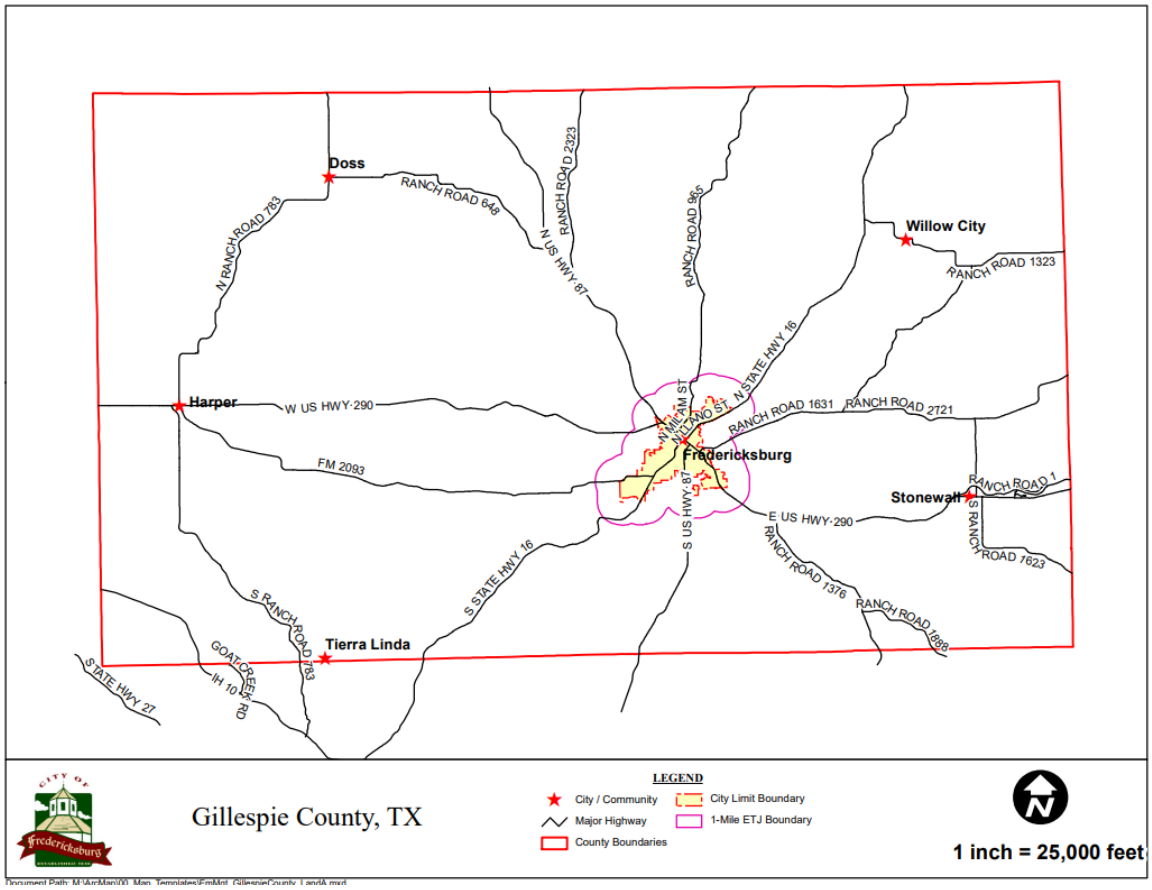
- Establishing Planning Team members with the authority to monitor the Plan and identify grant funding opportunities for expanding staff.
- Identifying opportunities for cross-training or increasing the technical expertise of staff by attending free training available through FEMA and the Texas Division of Emergency Management (TDEM) by monitoring classes and availability through preparingtexas.org.
- Review current floodplain ordinances for opportunities to increase resiliency, such as modifying permitting or building codes.
- Develop ordinances requiring all new developments to conform to the highest mitigation standards.

Section 4 - Gillespie County Profile

Overview

Gillespie County, Texas, is on the Edwards Plateau in south central Texas. The county has a total area of 1,061 Square miles, of which 1058 square miles is land and 3.5 square miles is water. Major highways passing through Gillespie County are Interstate 10, U.S. Highway 87, and US. Highway 290, Texas State Highway 16, Texas Farm to Market 783 and Farm to Market 965. The County Seat is Located in Fredericksburg, along U.S. Highway 290, in approximately the center of Gillespie County.


Counties of Texas
Gillespie County



Population and Demographics

The population of Gillespie County has shown steady, if not spectacular, growth during the last twenty-five years. The 1990 census reported Gillespie County's population as 17,204. The 2010 census reported the population of Gillespie County at 24,827. The 2020 census reported a population of Gillespie County at 26,725. This is an increase of 7.6% in the ten years.

Economy and Industry

According to the 2020 U.S. census estimate, there were 1,099 employer establishments in Gillespie County, employing 14,672 workers. The median household income in 2020 dollars was $64,438.

Gillespie County is experiencing a significant shift in its economy and industry. The last 30 years have seen a substantial change in economic activity, from the rural economy that was dominant in the county into the 1980s to the tourist-driven economy of today. Agriculture remains an integral part of the local economy, with ranching and peach orchards significantly contributing to the county's economy. Gillespie County is the

largest peach-producing county in Texas. However, the county has seen significant increases in wineries, bed and breakfast establishments, hotels, bicycling, hunting, retail activity, and other tourist-related industries. There are 50 unique wineries in the unincorporated areas of Gillespie County, with 67 wineries in the county. This trend will continue well into the future as more and more tourists visit the area.

Existing and Future Land Use and Development Trends

Current projections indicate that the shift to a tourism-based economy will continue. Gillespie County has a history of land ownership by well-established families. However, land owned by some of these families is gradually being sold to newcomers to the area, and many of these tracts of land are being converted into subdivisions and mini-ranches, wineries, and bed and breakfast establishments in the county. New homes and businesses are being built in once remote portions of the county, and some of these homes are being built in locations that make them vulnerable to hazards such as wildfire and flash flooding. Gillespie County has minimal regulatory authority in the non-incorporated areas of the county. County Commissioners rely primarily on persuasion to encourage development in safer areas and discourage development in less defensible areas.

Current and Future Water Supply

Gillespie County is included in the Lower Colorado Regional Water Planning Area K. Most of this region of Texas is located in the Colorado River basin, including the cities of Austin, Bay City, Pflugerville, and Fredericksburg.

The Hill Country Underground Water Conservation District serves Gillespie County and the City of Fredericksburg. The District was created by the Acts of the 70th Legislature (1987), HB 792, and Chapter 865 following Article XVI, Section 59 of the Texas Constitution, and Chapters 35 and 36 of the Texas Water Code, as amended. Gillespie County voters approved the district's creation in August 1987. The District boundaries are coterminous with Gillespie County.

The district was created to conserve, preserve, recharge, control subsidence, protect and prevent waste of groundwater in the aquifers, and implement proper management techniques to address local groundwater conditions within Gillespie County.

Gillespie County has been designated as a critical area by the Texas Water Development Board and is expected to experience ground-water supply shortages and diminished water quality well into the 21st century. As a result, the Hill Country Underground Water Conservation District has been organized to plan and implement water resource management procedures.

Approximately forty percent of the population of Gillespie County is located in the City of Fredericksburg. The remaining population resides in rural communities that derive livelihoods from agricultural operations and tourism. The 1990 population in Gillespie County was 17,204, which included a population of 6,934 living in the City of Fredericksburg. The population growth in the county's rural areas is expected to increase by about 75 to 80 percent by 2030, with a corresponding increase of about 55 percent within the City of Fredericksburg.

Ten public water systems currently provide the municipal water supply in Gillespie County. Ninety-five percent of the County's municipal demand that is being met by community water systems is supplied by the City of Fredericksburg, with approximately two-thirds of this demand being provided for residential use. This pattern of municipal water demand is expected to remain the same throughout the county until 2030.[3]

Water demand projections for non-municipal uses considered needs for manufacturing, irrigation, mining, and livestock activities. Manufacturing activities were projected to occur solely within the City of Fredericksburg. Comparing historical water demands from 1989 to each of these activities, the projected demands in the year 2030 indicate increased total water demand of 766 acre-feet per year for manufacturing, decreased irrigation demands of 685 acre-feet per year, reduced mining demands of up to 15 acre-feet per year and increased livestock water demands of 517 acre-feet per year.
Surface water in Gillespie County is widely used for irrigation and livestock purposes. Virtually all water rights are already permitted for these uses and flow from the Pedernales River and its tributaries. There are no large reservoirs in Gillespie County. Several preliminary studies by federal agencies have proposed reservoir sites; however, inadequate water is available to provide a dependable water supply after permitted uses are removed. Surface water rights that could help to prevent depletion of the ground-water supplies through watershed storage or aquifer recharge practices may become available in the future.

Participation in the NFIP

Gillespie County participates in the National Flood Insurance Program and is a participating member in good standing. The current FIRM covering Gillespie County is dated 10/19/2001. As of January 2023, 101 NFIP policies were in effect. The NFIP in Gillespie County covers no repetitive damage structures.
On September 24, 2001, Gillespie County adopted the Gillespie County Flood Damage Prevention Ordinance governing the management of flood hazard areas in Gillespie County. This ordinance and any future ordinances or court orders will ensure that Gillespie County complies with the NFIP.

To ensure that Gillespie County remains a member in good standing with the NFIP, the County Commissioners have identified the following actions that may be taken in the future:

- Inclusion of a Flood Plain tab on the county website, which may contain some or all of the following items:
    - Links to FEMA Map Service Center
    - Links to Floodplain Development Regulations
    - Contact Information
    - Links to Helpful Websites
    - FAQ
- Updating the Gillespie County Flood Damage Prevention Ordinance to adopt new flood plain maps when released by FEMA.
- Consider the addition of additional staff to improve permit processes and compliance.
- Consider the addition of GIS Staff to depict flood plan data on county maps.

Gillespie County will utilize its staff and legal assets to implement and monitor this Hazard Mitigation Plan. These assets are listed in Annex B.

Expanding current capabilities to monitor and implement this plan may arise. Options for improving capabilities in the future include:

- Establishing Planning Team members with the authority to monitor the Plan and identify grant funding opportunities for expanding staff.
- Identifying opportunities for cross-training or increasing the technical expertise of staff by attending free training available through FEMA and the Texas Division of Emergency Management (TDEM) by monitoring classes and availability through preparingtexas.org.
- Review current floodplain ordinances for opportunities to increase resiliency, such as modifying permitting or building codes.
- Develop ordinances requiring all new developments to conform to the highest mitigation standards.

Gillespie County lacks adequate GIS staffing and resources to add floodplain mapping to the current mapping software. A Gillespie County Floodplain map is not currently available.

Section 5 – Hazard Definitions

Hazards Considered

Following guidance and direction provided by the Texas Division of Emergency Management, Mitigation Plans Administrator, the Jurisdictions covered by this document considered the following natural hazards:

- Flood
- Wildfire
- Tornadoes
- Lightning
- Hail
- Windstorms
- Drought
- Extreme Heat
- Severe Winter Storms
- Hurricanes
- Coastal Erosion
- Expansive Soils
- Earthquakes
- Land Subsidence
- Dam Failures

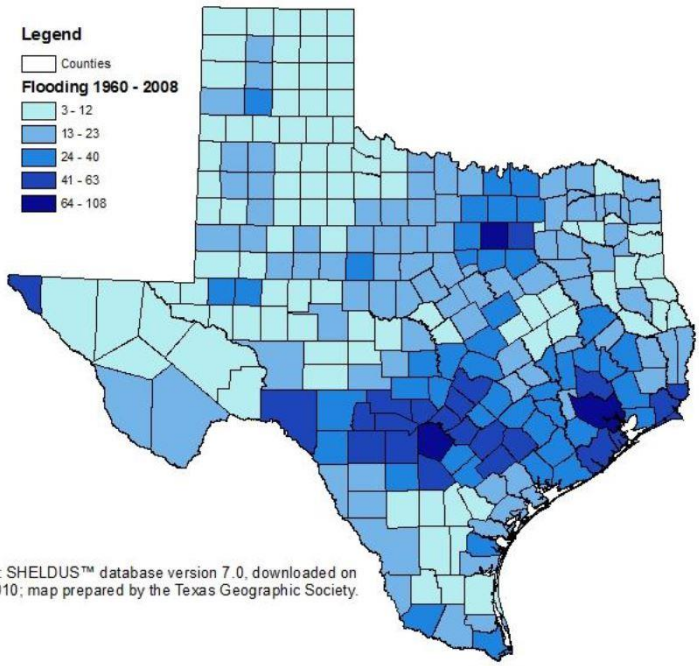
To evaluate the impact these natural hazards have or could have on their jurisdictions, the jurisdictions that are participants in this plan, namely The City of Fredericksburg and

Gillespie County, have decided to use the following definitions in evaluating the hazards addressed in this plan. Except for Lightning, these definitions are taken directly from the State of Texas Hazard Mitigation Plan. [4] The definition of Lightning was taken from the FEMA Hazard Mitigation Ideas Handbook.[5] These definitions have been modified slightly to better address the hazards that affect these jurisdictions.

Flood

Floods are the accumulation of water within a body and overflowing excess water into adjacent floodplain lands.

Historically, floods have been one of the most frequently occurring, destructive, and costly natural hazards facing Texas, constituting over 90% of the disaster damage experienced in the state. Moreover, statistical probability exists that a more significant flood could occur in any given area than one that has happened in the past. Flooding can occur during any season of the year. Seasonal rainfall patterns typically cause winter and early spring floods. In contrast, summer floods (except those associated with hurricanes and tropical storms) are usually caused by clusters of thunderstorms that generally affect only small, localized areas. Floods may be caused by large-scale weather systems that can generate prolonged rainfall events, locally intense thunderstorms, or coastal storms such as hurricanes and tropical storms. The Central Texas area is considered one of the three most flash flood-prone regions in the world due primarily to a combination of climatic factors and the specific physiography of the area. Damage from flooding can range from water damage to structures and their contents to the destruction of the structures with a total loss of all contents. Roads and infrastructure may be undermined and damaged. Riverbank erosion, injury, and loss of life are



Source: SHELDUS™ database version 7.0, downloaded on 7/25/2010; map prepared by the Texas Geographic Society.

additional common consequences of flooding incidents. On average, Texas suffers approximately 400 floods annually.

Wildfire

Wildfire is defined as a sweeping and destructive conflagration, especially in a wilderness or a rural area.

From 2002 to 2022, 132 Fire Management Assistance Declarations were made in Texas. [6] Wildfires within Texas can be defined as wildland, interface, or intermix fires. This area, known as the Wildland Urban Interface (WUI), is where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. A map of the WUI of Fredericksburg appears in Appendix H.

Wildland fires are fueled almost exclusively by natural vegetation, while interface or intermix fires are urban/wildland fires in which vegetation and the built environment provide the fuel. With the semi-arid climate of the western, southern, and panhandle counties of the State, wildland fires are most common in the spring and summer months. Still, they can occur any time during the year, as evidenced by the winter wildfire Federal disaster declaration (DR-1624) in January 2006.

Tornadoes

A tornado is a rapidly rotating vortex or funnel of air extending groundward from a cumulonimbus cloud.

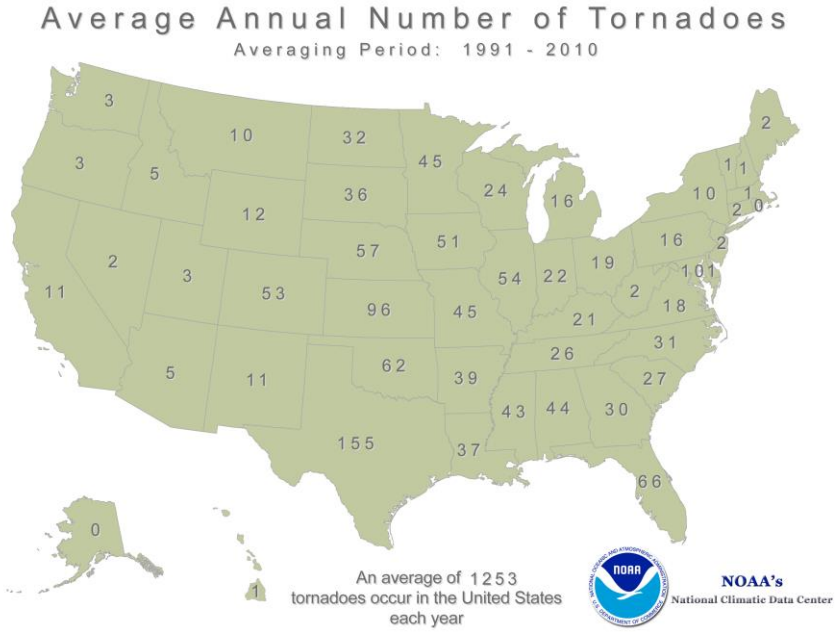
Tornadoes form in unusually violent thunderstorms when sufficient instability and wind shear are present in the lower atmosphere. Instability refers to hot and humid conditions in the lower atmosphere and possibly cooler-than-usual conditions in the upper atmosphere. Wind shear, in this case, refers to the change in wind direction and the increase in wind speed with height. An example would be a southerly wind of 15 mph at the surface, changing to a southwesterly or westerly wind of 50 mph at 5,000 feet altitude.

Many factors influence or cause the development of Tornadoes. Regardless of the cause, tornadoes are the most violent storms in nature. An average of 800 tornadoes are reported annually, resulting in 80 deaths and 1500 injuries. Tornadoes are a worldwide phenomenon, touching down on every continent except Antarctica.

Tornado wind and debris cause most of the structural damage suffered, but nearly half of the injuries from such disasters occur after the tornado has left, during rescue work

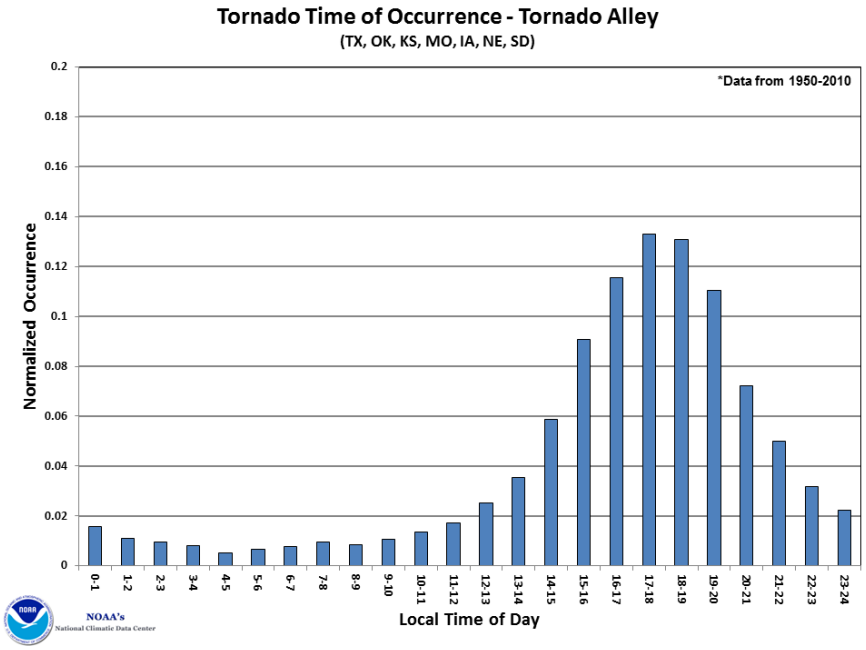
and cleanup. According to the Federal Emergency Management Agency, a third of these injuries come from stepping on nails.

Tornadoes can occur any time during the year but form most frequently in the spring and summer, depending on the location. They are most likely to appear between 3 p.m. and 9 p.m., but again, they can occur at any time of the day or night.



Texas has more tornadoes than any other state in the United States.

Tornadoes can occur any time of the day, but the peak occurrence is in the afternoon.



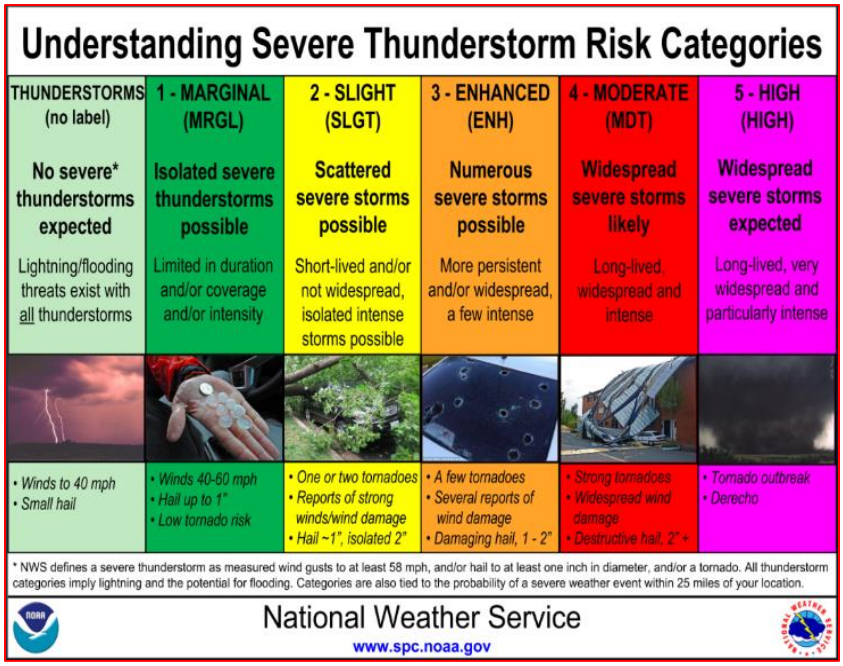
Lightning

Lightning is a discharge of electrical energy that results from the buildup of positive and negative charges in a thunderstorm, which creates a "bolt" when the buildup of charges becomes strong enough.

Since 2006, an average of 28 people have been killed annually by lightning. Hundreds of people are injured yearly by lightning strikes in the United States. Lightning is the second most common cause of weather-related deaths in Texas.

Lightning can strike communications equipment (e.g., radio or cell towers, antennae, satellite dishes, etc.) and hamper communication and emergency response. Lightning strikes can also cause significant damage to buildings, critical facilities, and infrastructure, mainly by igniting a fire. Lightning can also ignite a wildfire. [7]

[7] FEMA Mitigation Ideas Handbook



As noted above, lightning can exist in all thunderstorms.

Hail

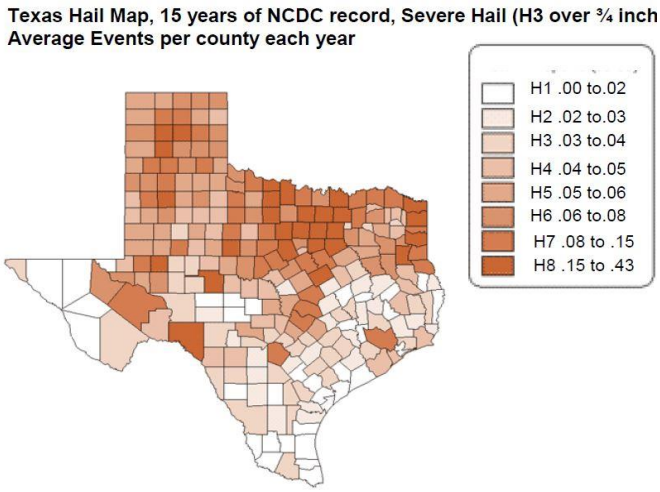
Hail is precipitation in small balls or lumps, usually consisting of concentric layers of clear ice and compact snow.

There are, on average, 5,000 hailstorms in the United States yearly. Texas has, on average, 600 hailstorms per year. From 2017 to 2019, there were 638,000 insurance claims in Texas for hail damage.

The following chart explains the NOAA/TORRO Hailstorm Intensity scale shown on the map below.

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 grass and plastic structures, and paint and wood scores.

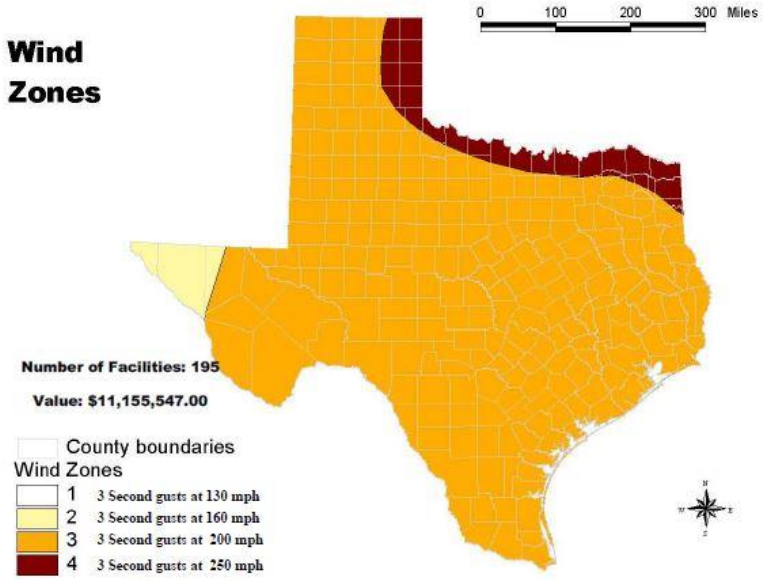
H4	Severe	1.2 – 1.6	Half Dollar to Ping Pong Ball	Widespread glass damage, vehicle bodywork damage
H5	Destructive	1.6 – 2.0	Silver Dollar to Golf Ball	The wholesale destruction of glass, damage to tiled roofs, and significant risk of injuries
H6	Destructive	2.0 -2.4	Lime or Egg	Aircraft bodywork is dented, and 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 Hailstorm	3.5 -4.0	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorm	4+	Softball and UP	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open



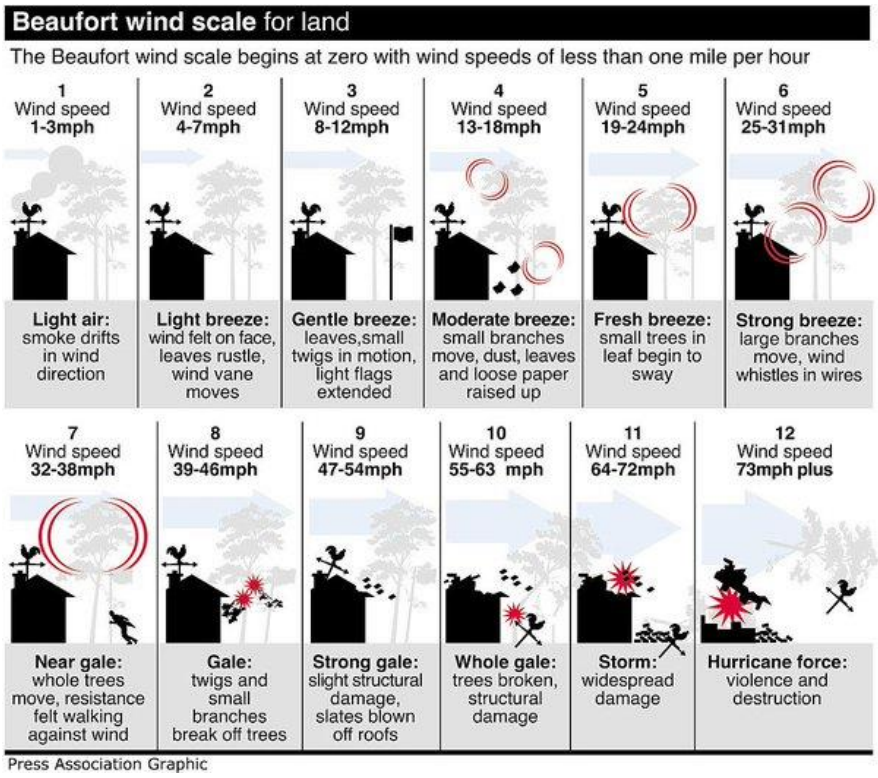
Windstorm

Windstorms are storms marked by high winds with little or no precipitation.

Extreme winds other than tornadoes are experienced in all regions of the United States. Extreme windstorm events are associated with tropical cyclones, severe thunderstorms, and downbursts. Winds can vary from zero at ground level to 200 mph in the upper atmospheric jet stream. The Texas Panhandle is most vulnerable to windstorms as few trees are there to provide a natural windbreak or barrier.



Winds are typically measured according to the Beaufort Wind Scale. This scale, along with the type of damage typically caused by winds of a given velocity, is presented in the following table:

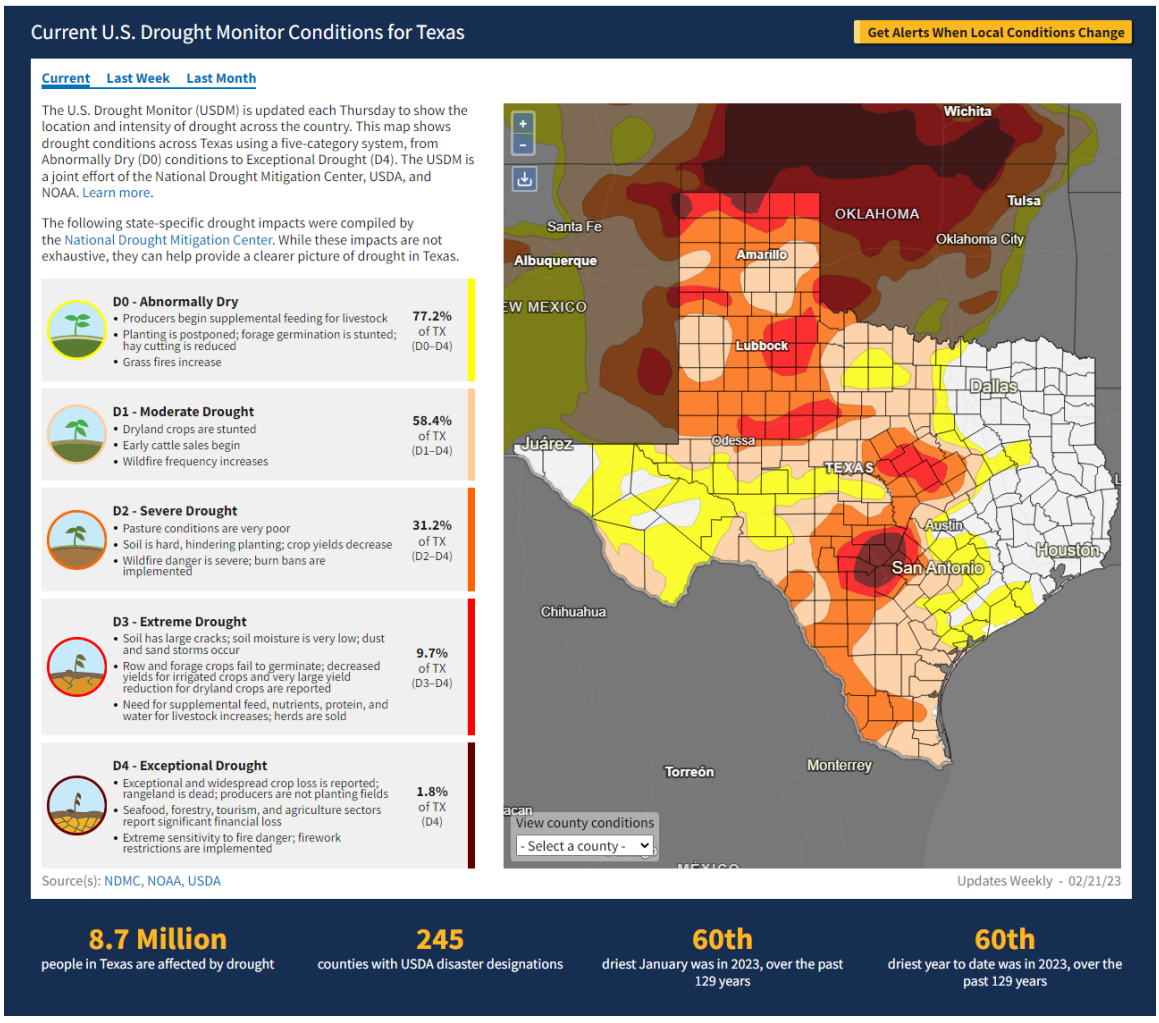


Drought

Drought is the consequence of a natural reduction in the precipitation expected over an extended period, usually a season or more in length.

Drought is often considered a condition of climatic dryness severe enough to reduce soil moisture and water supplies below the requirements to sustain average plant, animal, and human life. Every decade in the 20th century, Texas was a victim of one or more severe droughts.

Texas has been the victim of numerous droughts. As of 2023, Texas is in a disaster declaration due to drought. Although the drought is not as widespread as in 2011, Gillespie County has endured exceptional drought conditions.



The Palmer Drought Severity Index (PDSI) was developed to classify drought conditions.

In 1965, Wayne Palmer developed an index to "measure the departure of the moisture supply." Palmer based his index on the supply-and-demand concept of the water balance equation, considering more than only the precipitation deficit at specific locations. The objective of the PDSI, as this index is now called, was to provide a measurement of moisture conditions that were "standardized" so that comparisons using the index could be made between locations and between months.
PDSI is based on precipitation and temperature. The PDSI can, therefore, be applied to any site for which sufficient precipitation and temperature data is available.
The PDSI varies roughly between -4.0 and +4.0. Weekly PDSI values are calculated for the Climate Divisions during every growing season and are on the Internet from the Climate Prediction Center.

The index has proven most effective in determining long-term drought in several months, but it is not as good with conditions over a matter of weeks. It uses a 0 as usual, and drought is shown in terms of negative numbers; for example, negative 2 is moderate drought, negative 3 is severe drought, and negative 4 is extreme drought. Palmer's algorithm also describes wet spells using corresponding positive numbers. Palmer also developed a formula for standardizing drought calculations for each location based on the variability of precipitation and temperature at that location.

PDSI CLASSIFICATION FOR DRY AND WET PERIODS

4.00 or more	Extremely Wet
3.00 to 3.99	Very Wet
2.00 to 2.99	Moderately Wet
1.00 to 1.99	Slightly Wet
0.50 to 0.99	Incipient Wet Spell
0.49 to -0.49	Near Normal
-0.50 to -0.99	Incipient Dry Spell
-1.00 to -1.99	Mild Drought
-2.00 to -2.99	Moderate Drought
-3.00 to -3.99	Severe Drought
-4.00 or less	Extreme Drought

Extreme Heat

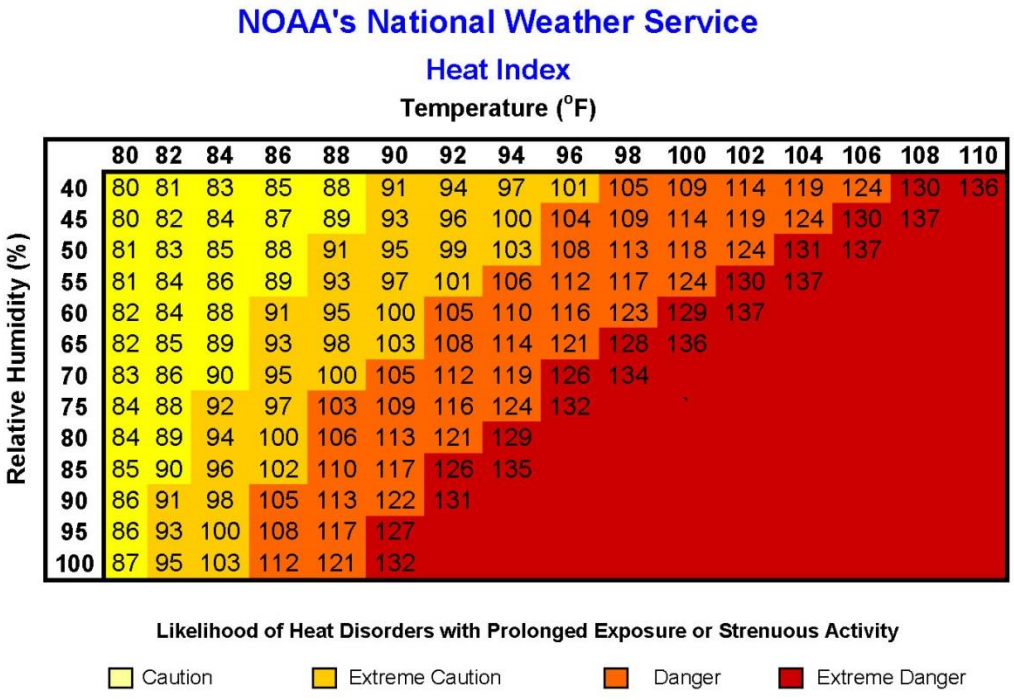
Extreme Heat is a combination of very high temperatures and exceptionally humid conditions.

When persisting over some time, it is called a heat wave. All of Texas is vulnerable to extreme heat, but most is in West Texas. There is no standard designation for an extremely hot day. It is a complex number assigned by local National Weather Service

(NWS) regions based on the heat index, time of year, and area of the country. Thus, a heat index of 105 in Austin, Texas, in July is considered routine. The same index in New York City in August would warrant an extreme heat warning.

Heat-related deaths and illnesses are preventable, yet annually, many people succumb to extreme heat. Extreme heat caused 7,415 heat-related deaths in the United States from 1999 to 2010. Extreme heat kills more people than hurricanes, floods, tornadoes, and lightning combined, according to the National Weather Service. In 2001, 300 deaths were caused by excessive heat exposure.

People suffer heat-related illnesses when their bodies cannot compensate and properly cool themselves. The body normally cools itself by sweating. But under some conditions, sweating isn't enough. In such cases, a person's body temperature rises rapidly. Very high body temperatures may damage the brain or other vital organs.



Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

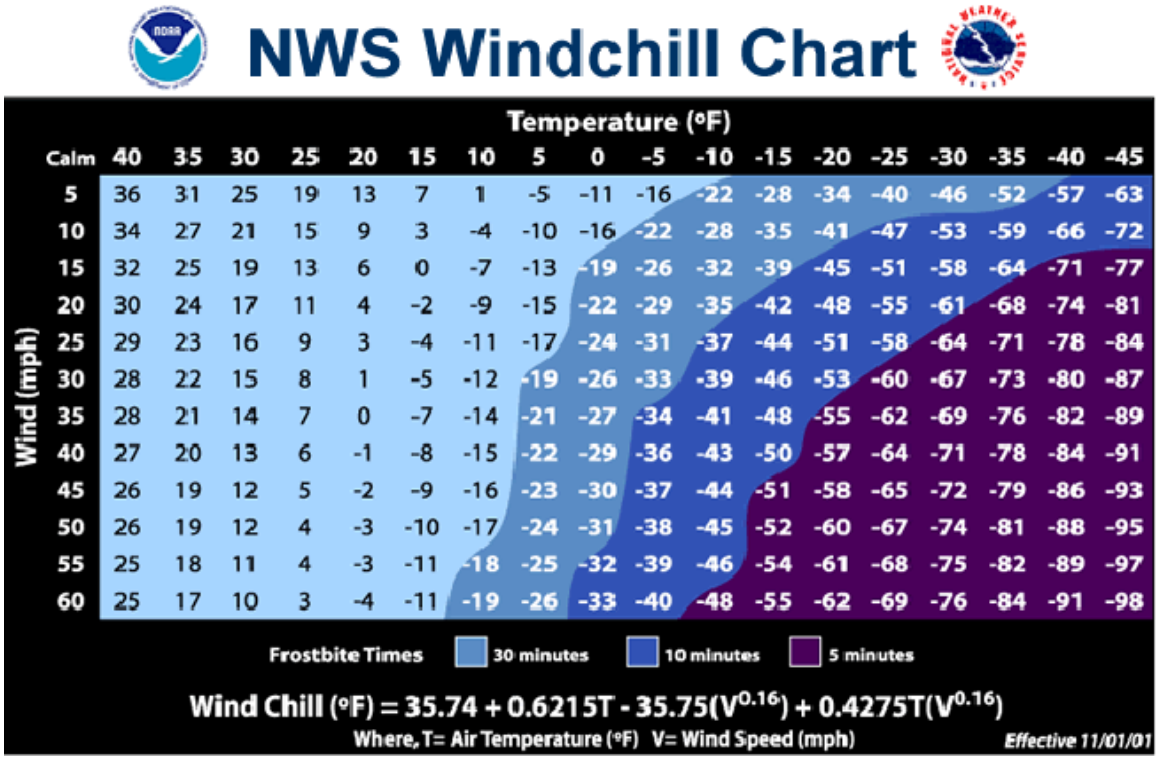
Severe Winter Storm

Severe winter storms are defined as extreme cold and heavy concentrations of snowfall or ice.

Winter storms in Texas, although not as numerous as in our neighboring states to the north, do occur often enough and with enough severity to be a threat to people and property. Texans are most familiar with snowstorms, blizzards, cold waves, and ice

storms. Generally, the winter storm season in Texas 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.

Wind chill temperature measures how cold the wind makes the actual air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a windy 30° day would feel just as cold as a calm day with 0° temperatures. The index was created in 1870, and on November 1, 2001, the NWS released a more scientifically accurate equation that is used today. The chart below is a method for calculating wind chill. (Please note that it is not applicable in calm winds or when temperatures are over 50°).



Hurricane

A tropical cyclone is a low-pressure area of closed circulation winds originating over tropical waters.

Hurricanes, tropical storms, and typhoons, collectively known as tropical cyclones, are among the most devastating naturally occurring hazards in the United States and its territories.

In the North Atlantic and Central and South Pacific basins east of the International Date Line, tropical cyclones with wind speeds between 39 and 74 mph are commonly known as Tropical Storms. When wind speeds exceed 74 mph, they are widely known as hurricanes. Tropical Storms are annual events occurring from May through November with varying intensities and levels of destruction. Tropical Storms primarily cause severe flooding and frequent loss of life by citizens unfamiliar with the road and drive into flooded stream crossings and low-lying areas. Hurricanes, however, occur less frequently, and residents along the Texas Gulf Coast have a good chance of living many years there without experiencing a hurricane. However, none of the Texas coastal areas are immune from hurricanes. Since 1953, Texas has experienced 23 Federal disaster declarations due to hurricane/ tropical storm events, the most recent events being Hurricane Dolly (DR 1780), which was declared on July 24, 2008, Hurricane Ike (DR-1791) which was declared on September 13, 2008, and Hurricane Alex (DR-1931) that was declared on September 16, 2010.

Hurricanes are rated according to the Saffir-Simpson Hurricane Wind Scale on page 46. This scale classifies storm intensity by wind velocity and describes the damage that can be expected with each intensity level.

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	**Very dangerous winds will produce some damage**: Well-constructed frame homes could have damage to roof, siding, and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles are likely to result in power outages that could last up to several days.
2	96-110 mph 83-95 kt 154-177 km/h	**Extremely dangerous winds will cause extensive damage**: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	**Devastating damage will occur**: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	**Catastrophic damage will occur**: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	**Catastrophic damage will occur**: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

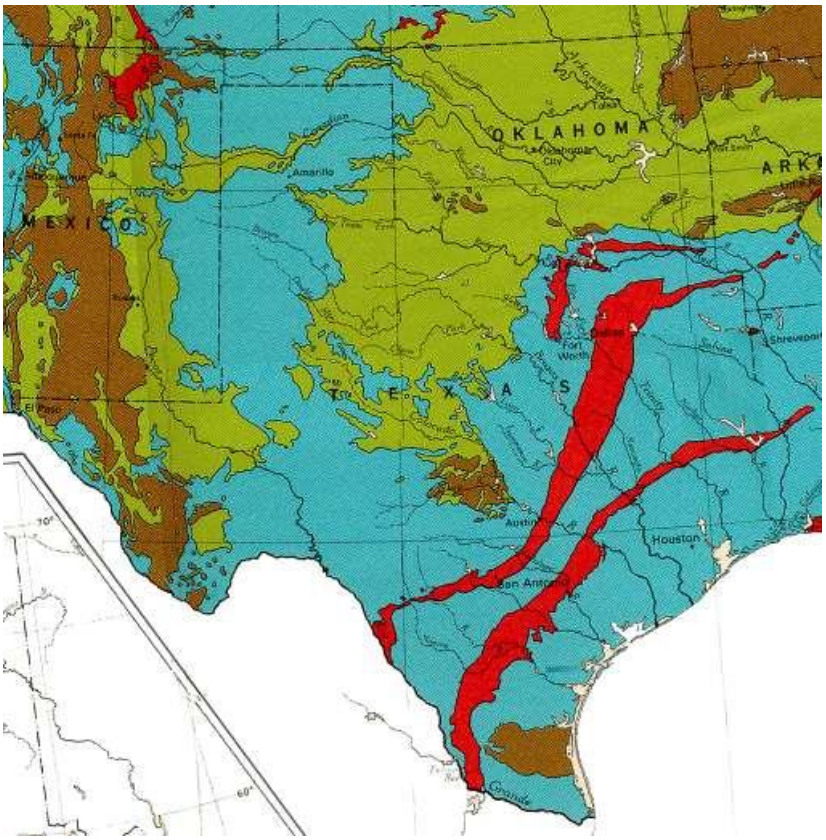
Coastal Erosion

Coastal Erosion is a hydrologic hazard defined as the wearing away of land and loss of beach, shoreline, or dune material due to natural coastal processes or manmade influences.

The Texas Gulf Coast has a barrier islands and peninsula system, which protects numerous bays and inlets from oncoming waves. These features are relatively young; most are less than 7,000 years of age. These primarily sandy islands have become in great demand for residential and recreational development.
The eighteen coastal counties within the Texas Coastal Management Program Boundary (Map 1.1) are home to 5.2 million residents, which comprise 25 percent of the state's population (2000 U.S. Census). The highest population density is generally located on the Upper Texas Coast.[8]

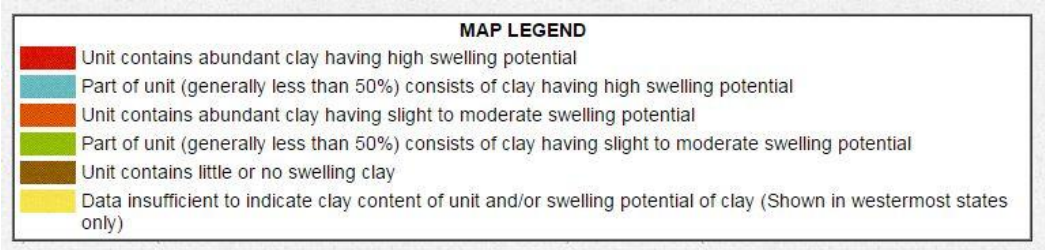
Expansive Soils

Expansive soils are soils and soft rocks that tend to swell or shrink due to changes in moisture content.



Changes in soil volume are primarily hazardous to structures built on expansive soils. The most extensive damage occurs to highways and streets. In Texas, the most expansive soils are located in a band 200 miles west of the coastline, stretching approximately from Beaumont to Brownsville. Another band of expansive soils stretches from Laredo northeast through San Antonio, Austin, and Dallas along an area also known as the I-35

corridor. These areas receive the most moisture and are also vulnerable to droughts, which can cause the soils to expand and contract.



Earthquake

Earthquakes are shaking or trembling of the earth that is volcanic or tectonic in origin.

Earthquakes do occur in Texas. There have been over 15,000 earthquakes in Texas since 1931. Texas has an average of 183 earthquakes per year. The largest earthquake happened in 1931 and was recorded at 5.8 magnitudes. The earthquake took place Southwest of Valentine.

In four regions within Texas, there have been historical earthquakes that indicate potential earthquake hazards. Two regions, near El Paso and in the Panhandle, should expect earthquakes with magnitudes of about 5.5-6.0 to occur every 50-100 years, and even more significant earthquakes are possible. In northeastern Texas, the greatest hazard is from large earthquakes (magnitude seven or above) that might occur outside of Texas, particularly in Oklahoma or Missouri-Tennessee. In south-central Texas, the hazard is generally low, but residents should be aware that small earthquakes can occur there, including some that are triggered by oil or gas production. Elsewhere in Texas, earthquakes are exceedingly rare. However, the hazard level is not zero anywhere in Texas; small earthquakes are possible almost anywhere, and all regions face ill effects from large, distant earthquakes.

Land Subsidence

Land subsidence is defined as the loss of surface elevation due to the removal of subsurface support.

The principal causes are aquifer-system compaction, drainage of organic soils, underground mining, hydro-compaction, natural compaction, sinkholes, and thawing permafrost. More than 80 percent of the identified subsidence in the United States is a

consequence of the exploitation of underground water, and the increasing development of land and water resources threatens to exacerbate existing land-subsidence problems and initiate new ones. Land subsidence is an often-overlooked environmental consequence of our land- and water-use practices in many areas of the arid Southwest and more humid areas underlain by soluble rocks such as limestone, gypsum, or salt.[9]

The location of land subsidence in Texas would most likely be along the Texas Gulf Coast counties, where the removal of subsurface support (such as groundwater) could cause the loss of surface elevation. High-risk counties include Orange, Jefferson, Chambers, Harris, Galveston, Brazoria, Matagorda, Calhoun, Aransas, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron.[10]

Dam Failure

A dam failure is defined as a systematic failure of the dam structure resulting in the uncontrolled release of water, often resulting in floods that could exceed the 100-year floodplain boundaries.

A dam failure could create mass fatalities, structural damage, and a cascading potential if a populated area is below the dam structure. [11]

Historically, Texas has had over 136 documented dam failures. At least two of those failures resulted in the loss of life. In 1900, 25 people were killed when the Lake Austin Dam on the Colorado River at Austin failed. In 1989, one man was killed when the Nix Lake Dam in Rusk County failed. Considering the serious dam failure problems other states have experienced, Texas is extremely fortunate that no more lives have been lost. This becomes more obvious when considering that 24% of inventoried dams in the state present a risk to human life, the high frequency of severe rainfall events, and Texas's burgeoning population. Most of the recent dam failures were small dams classified as low hazard. Texas has more dams listed in the National Inventory of Dams (NID) than any other State.

Dam owners are solely responsible for the dam's safety and liability and for financing its upkeep, upgrade, and repair. While most infrastructure facilities (roads, bridges, sewer systems, etc.) are owned by public entities, most dams in the United States are privately owned. Dams are owned and operated by individuals and many different types of entities.

[9] US Geological Survey
[10] State of Texas Hazard Mitigation Plan
[11] State of Texas Hazard Mitigation Plan 2010-2013

Due to changes in the Dam Safety Program rules in January 2009, the definition of the dam was changed to remove small dams with no downstream hazard from the list of dams under the Texas Commission on Environmental Quality (TCEQ) jurisdiction. As a result, there are 7,272 dams in Texas, including all federal dams. These dams are over 6 feet high and have 50 acre-feet capacity at the top of the dam, many of which may pose a safety hazard to a downstream population. There are currently 1,031 dams, including federal dams, which are classified as high hazard, meaning if a failure occurs, there will likely be a loss of life. This classification does not necessarily mean that these dams need repair--these dams could be in excellent condition, or they could be in poor condition. The term "high-hazard" reflects the dam's potential for doing damage downstream should it fail. In addition, 737 dams are classified as a significant hazard, meaning there could be a loss of life if the dam fails.

There are an increasing number of these high-hazard structures--not because more high-hazard dams are being built, but because more development is occurring downstream. Owners of dams built as low-hazard dams are finding that the hazard classification has changed due to the increase in population downstream of the dams. The owners are now finding that their dams are deficient because they are no longer adequate to meet State regulations and need to be upgraded.

Annex A: Mitigation Plan for the City of Fredericksburg

Hazard Analysis

Using the definitions established in section 5 of this Plan, the City of Fredericksburg evaluated each natural disaster discussed in that section. The analysis and ranking of each hazard were done according to the following criteria:

1. Number of deaths or injuries caused in the jurisdiction by the identified hazards
2. The number of incidences of the identified hazard
3. The amount of monetary damage caused in the jurisdiction by the identified hazard
4. Input provided by committee members and local citizens, most of whom have lived their entire lives in the area

For each identified hazard, it is necessary to determine the probability that the hazard will affect the City of Fredericksburg again in the future. Since the weather is unpredictable from day to day in Texas, the probability was determined by dividing the number of occurrences of each hazard by a period. The period was determined by the data amount and the database's completeness for each hazard. For example, if there were five severe thunderstorms over ten years, there is a 50 % probability that a severe thunderstorm would affect the community in any given year.

Each hazard and its effects on the City of Fredericksburg are addressed in this Annex. All hazards addressed by the City of Fredericksburg are assumed to be a hazard within the city limits or a one-mile-wide area immediately adjacent to the city limits known as the Extra Territorial Jurisdiction (ETJ).

To assess a hazard, it is necessary to determine how likely it will occur again. The following methodology was utilized since it is impossible to predict the weather and the consequences of severe weather to a precise probability. If an event such as a flood occurs five times in 20 years, a flood would likely happen once every four years. Although not a precise statistical measurement, it explains how often this might happen to us in the future. It provides a method to assign mitigation priorities.

Climate change and population growth are two factors in planning events. Climate change is challenging to predict, and it is currently unknown how these conditions will affect the City of Fredericksburg for these specific events. These conditions are monitored and will be updated as needed. Population growth in the region is growing exponentially. The increase in the number of people living in the area tremendously impacts the planning for all these events. The growth will produce more structures in the WUI, and more impervious surfaces will be installed. These factors and the increased number of people that could be affected were considered hazards.

There were no new community priorities in assessing these hazards and mitigation actions.

Flood

Historically, the City of Fredericksburg has experienced many flood events. These are flash flood events where heavy rainfall produces significant runoff. The water levels on streets and roadways quickly rise and quickly fall. In July 2007, a flood in Fredericksburg resulted in 1 death. Recent floods include the following events:

2015: On May 24, 2015, the statewide flooding event that resulted in the Federal Disaster Declaration 4223 also affected Gillespie County and the City of Fredericksburg. The Mayor of Fredericksburg issued a disaster declaration, and the city was subsequently included in the Federal Disaster Declaration. Repair costs for damage done to city streets during this flooding event totaled $10,945.52.

2016: On May 25, 2016, heavy showers of rain associated with the massive rain system and the strong El Nino weather pattern affecting the state also affected Gillespie County. Heavy rains occurred over the entire area during May. On May 25th, over 5 inches of rain fell in a 1-hour time frame in the early morning hours, flooding several areas to a depth of up to 5 feet. Flooding depths ranged from several inches to over 5 feet in several locations throughout the city. The Fredericksburg Fire Department conducted one high-water rescue during this event.

Flooding within the Fredericksburg city limits often occurs at the following locations:

- Highway Street Approaching US 290 East
- 600 Block of East Creek Street
- The intersection of North Llano and College Street
- Edison and Creek Street
- Bowie and Peach Street
- 800 Block of West San Antonio Street
- The intersection of Schubert and Edison
- Bowie and Creek Street
- Travis and Edison
- Acorn Street near Peach Street

The water depth over the road at these locations varies with the amount of rainfall, the rate of rainfall, and the amount of rain that might have fallen previously. The water depth over these roads has ranged from an inch to over 5 feet.

The City of Fredericksburg Flood Hazard Reduction Ordinance bases substantial damage on costs exceeding 50 percent of the market value when the damage occurred or before the start of construction, respectively. As part of the City's floodplain development permitting process, which applies to all development (defined as any man-made change in improved and unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials) within a particular flood hazard area, the applicant is required to provide the estimated cost of the project and if the project/improvement will exceed 50% of the market value. This information is then reviewed against market and insurance data for confirmation.

There are no critical facilities located in a floodplain in Fredericksburg.

Location

Locations of flood Zones A and AE in The City of Fredericksburg, based on the Digital Flood Insurance Rate Map (DFIRM) from FEMA, are illustrated in Appendix I.

Impact and Extent of Future Threat

Without some mitigation action, flood depths of 5 feet or more significant will likely occur. During these events, bridges, buildings, utilities, and roads may be destroyed or damaged; of course, our citizens are vulnerable to the force and depth of the running water.

No critical facilities for the City of Fredericksburg are located in a floodplain.

Flooding is the deadliest natural disaster in the U.S. each year, and it poses a constant and significant threat to the health and safety of the people in the planning area. Impacts on Fredericksburg can include:

- Flood-related rescues may be necessary at swift water and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way.
- Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities, and increasing sheltering needs for displaced residents.
- Health risks and threats to residents are elevated after the flood waters have receded due to contaminated flood waters (untreated sewage and hazardous chemicals) and mold growth typical in flooded buildings and homes.
- Significant flood events often result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and life safety.
- An extended power outage can result in increased structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Floods can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders are exposed to downed power lines, contaminated and potentially unstable debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Emergency operations and services may be significantly impacted due to damaged facilities.
- Significant flooding can result in the inability of emergency response vehicles to access areas of the community.
- Critical staff may suffer personal losses or be otherwise impacted by a flood event and unable to report for duty, limiting response capabilities.
- City or county departments may be flooded, delaying response and recovery efforts for the entire community.
- Private sector entities that the City and its residents rely on, such as utility providers, financial institutions, and medical care providers, may not be fully operational and require assistance from neighboring communities until complete services can be restored.
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the flood may be negatively impacted while utilities are restored, or water recedes, further slowing economic recovery.
- When the community is affected by significant property damage, it is anticipated that funding would be required for infrastructure repair and

restoration, temporary services and facilities, overtime pay for responders, and regular day-to-day operating expenses.
- Displaced residents may be unable to return to work immediately, furthering economic recovery.
- Residential structures substantially damaged by a flood may not be rebuilt for years, and uninsured or underinsured residential structures may never be rebuilt, reducing the tax base for the community.

Vulnerabilities:
All infrastructure listed in Appendix B

A property's vulnerability to a flood depends on its location and proximity to the floodplain. Structures along the banks of a waterway are the most vulnerable and often repetitive loss structures. No critical facilities within the city limits of Fredericksburg lie within a designated flood zone. Further, per city ordinance, no new construction is allowed within a designated flood zone. However, roads, utility infrastructure, and older, pre-existing houses built before the enactment of current city ordinances remain vulnerable to flooding.

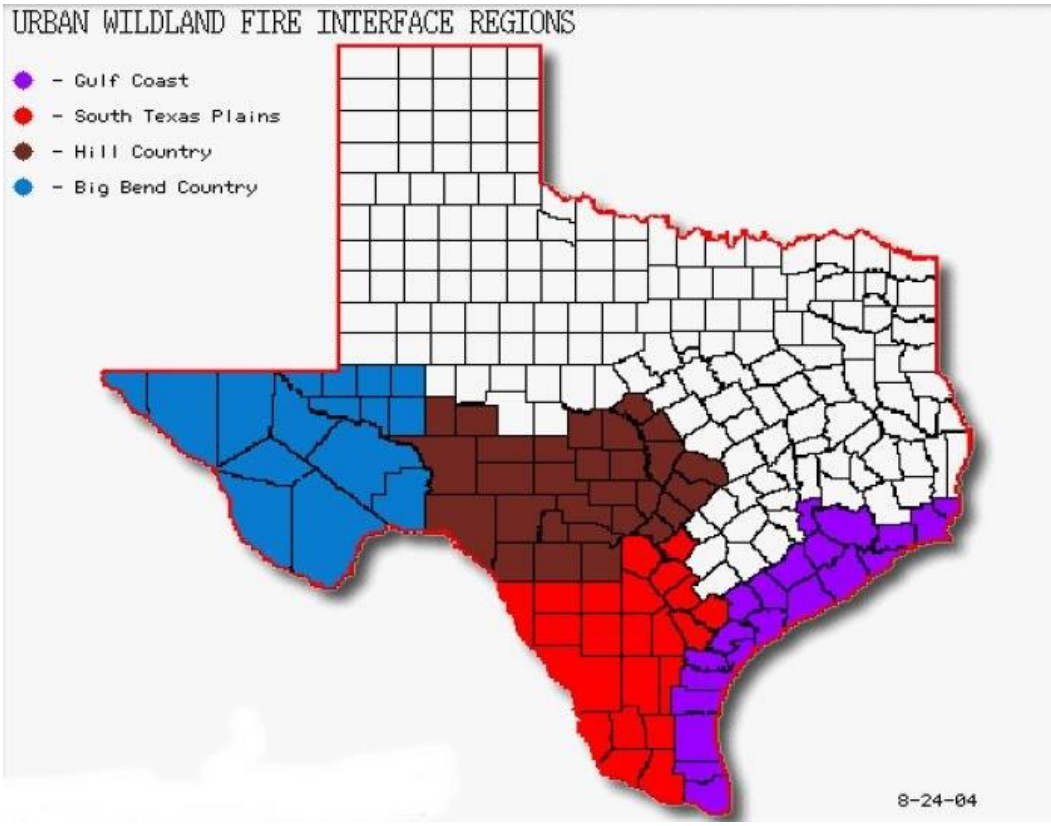
The potential impacts of flooding in Fredericksburg include but are not limited to the financial costs of replacing or rebuilding roads and bridges and utilities, disruption of transportation, costs incurred by private citizens to repair or rebuild homes and structures damaged by the flooding, and potential loss of tax revenue from a disruption of tourism in the city.

Given the frequency of flooding in the past ten years, there is a 10% probability that a flooding event will occur in Fredericksburg in any given year, with the possibility of at least one flooding event every year. Flooding is a hazard to Fredericksburg and will be included in this hazard mitigation plan.

Wildfire

Wildfire within the Fredericksburg city limits is not the same problem as in the unincorporated areas in Gillespie County. The primary wildfire problem faced by the City of Fredericksburg is a fire in the urban/wildland fire interface area. Wildland fires are fueled almost exclusively by natural vegetation, while Interface or intermix fires are urban/wildland fires in which vegetation and the built environment provide the fuel.[12]

Fredericksburg and unincorporated Gillespie County are part of the Hill Country Urban Wildland Fire Interface Region.



Please see Appendix H for a map showing Fredericksburg's Wildfire Urban Interface area.

As noted in this plan, new growth in and around Fredericksburg will occur outside the city limits. New housing projects are being proposed just outside the city limits with the expectation that the city will annex the projects either before the construction phase or immediately after construction is completed. This expansion will introduce new built-environment fuel into the predominantly rural landscape.

Between September 2011 and March 2016, the Fredericksburg Fire Department responded to 104 grass fires, most of which occurred in or near the city limits of Fredericksburg. In 2016 alone, there were 40 calls for service for wildland fires. In 2022, Fredericksburg Fire/EMS responded to 162 wildland fires. This is a 400 percent increase in wildland fires in this time frame. As Fredericksburg expands, this number is expected to increase. Drought conditions and lightning, significant contributors to wildfire, are common in Fredericksburg and will contribute to wildfires in the future.

Location

Wildfires can vary significantly in size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in open grasslands. The threat to people and property from wildfire is more significant in

the fringe areas where developed areas meet open grasslands, such as the WUI. It is estimated that 50 percent of the total population in Fredericksburg lives within the WUI. However, the entire City of Fredericksburg planning area is at risk for wildfires.

Impact and Extent of Future Threat

For the duration of this plan, the extent and threat of wildfire to the City of Fredericksburg are considered equal to the frequency observed in the past. As the city expands and more land is annexed, the threat is expected to grow and will be re-evaluated as part of the development of the next Hazard Mitigation Plan.

In an average, non-drought year, the City of Fredericksburg can expect that between 50 and 75 acres will be consumed by wildfire, mainly in the WUI area. In a drought year, depending on the severity of the drought, the City of Fredericksburg can expect that between 75 and 100 acres will be consumed by wildfire, again mainly in the WUI area but also in areas near city parks and open fields within the city limits.

The potential impacts of Wildfire on the City of Fredericksburg include but are not limited to the possible loss of historic buildings and artifacts, possible loss or damage to homes and businesses, costs associated with extinguishing wildfire, potential injury or death to firefighters and civilian populations and destruction of utilities (power poles and lines and roads).

Even with some mitigation actions, the City of Fredericksburg will remain vulnerable to wildfire. Natural vegetation, drought, and human interaction with the natural environment by residents and visitors create the potential for a wildfire event.

A Wildfire event poses a potentially significant risk to public health and safety, mainly if the wildfire is initially unnoticed and spreads quickly. The impacts associated with a wildfire are not limited to direct damage. Potential implications for the planning area include:

- Persons in the area at the time of the fire are at risk for injury or death from burns and smoke inhalation.
- First responders are at greater risk of physical injury since they are near the hazard while extinguishing flames, protecting property, or evacuating residents.
- First responders can experience heart disease, respiratory problems, and other long-term related illnesses from prolonged exposure to smoke, chemicals, and heat.
- Emergency services may be disrupted during a wildfire if facilities are impacted, roadways are inaccessible, or personnel cannot report for duty.
- Critical city and county departments may be unable to function and provide necessary services depending on the location of the fire and the structures or personnel impacted.

- Non-critical businesses may be directly damaged, suffer the loss of utility services, or be otherwise inaccessible, delaying normal operations and slowing recovery.
- Displaced residents may be unable to return to work immediately, further slowing economic recovery.
- Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility.
- Older homes are generally exempt from modern building code requirements, which may require fire suppression equipment.
- Some high-density neighborhoods feature small lots with structures close together, increasing the potential for fire to spread rapidly.
- Air pollution from smoke may exacerbate respiratory problems of vulnerable residents.
- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- Wildfires can cause erosion, degrading stream water quality.
- Wildlife may be displaced or destroyed.
- Historical or cultural resources may be damaged or destroyed.
- Tourism can be significantly disrupted, further delaying economic recovery for the area.
- Economic disruption negatively impacts the programs and services the community provides due to short and long-term losses in revenue.
- Fire suppression costs can be substantial, exhausting the community's financial resources.
- Residential structures lost in a wildfire may not be rebuilt for years, reducing the tax base for the community.

Vulnerabilities

The following critical facilities would be vulnerable to wildfire events inside the Fredericksburg City Limits:

All infrastructure is listed in Appendix B.

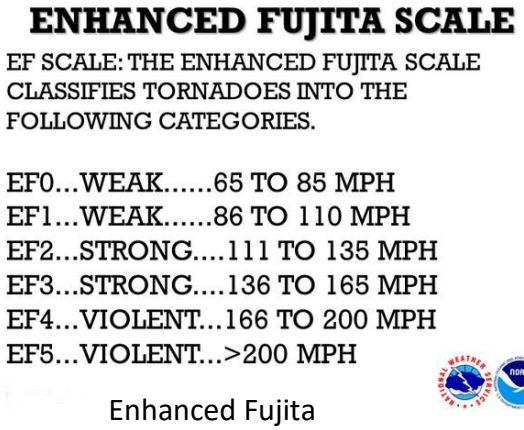
During these events, lives are at risk, and homes, businesses, and utilities will be at risk of being destroyed. Wildfires can also negatively affect the local business climate, based mainly on tourism, causing a decline in the city's tax revenues and property values.

History indicates a nearly 100% chance that wildfire will threaten Fredericksburg in any given year. Wildfire is considered a hazard in Fredericksburg and will be included in this hazard mitigation plan.

Tornadoes

The City of Fredericksburg and Gillespie County is in the southwestern portion of the "Tornado Alley" area. The American Meteorological Society defines Tornado Alley as the corridor stretching from central Texas northward into Oklahoma, Kansas, and Nebraska eastward into central Illinois and Indiana. This region contains the maximum tornado frequency in the continental United States. However, recent research at the NOAA National Severe Storm Laboratory has focused on the likelihood that tornadoes will cause significant damage in a much larger region. They designate a swath from central Texas northward to South Dakota as having the greatest risk of "significant tornadoes." Such twisters are rated EF2 or higher on the Enhanced Fujita Tornado Scale and have winds over 111 mph. [13]

The Enhanced Fujita Scale measures tornado intensity. This scale was accepted as the measuring standard for tornadoes in the United States on February 1, 2007, as an improvement to the original Fujita scale.



Enhanced Fujita

According to the NOAA Storm Events Database, there have been 16 recorded tornadoes in Gillespie County from 1962 - 2017. Since 1999, there have been six recorded tornadoes in Gillespie County. [14] One of these tornadoes touched down in Fredericksburg on November 16, 2004. The most recent tornadoes touched down on May 25, 2015, in Gillespie County near Cain City, about 2 miles northeast of the city. The tornado was verified as an EF-1 by the National Weather Service. The tornado destroyed a water pumping station owned by Fredericksburg, causing approximately $300,000 in damage. As a result of this damage and flooding caused by the El Nino weather events throughout the State of Texas during May 2015, the Mayor of Fredericksburg declared a disaster. The City of Fredericksburg is included in the Federal Disaster Declaration # 4223.

The most significant tornado recorded in Gillespie County since 1999 is an EF-3. There have been 2 EF-1 tornadoes in Gillespie County since 2002, with one being in Fredericksburg.

As previously noted, the largest tornado recorded in Gillespie County is EF-3. Tornados are usually associated with thunderstorms, and as will be reported elsewhere in this plan, Fredericksburg is also vulnerable to this type of storm. Although not expected in this area, it would be unwise to rule out the possibility of an EF-5 tornado in Gillespie and Fredericksburg.

Several studies want to define vulnerability to tornados as a product of social vulnerability, build vulnerability, and tornado incidence. In the real world, in the event of a tornado in Fredericksburg, residents will be at extreme risk of death and injury if in the path of the storm. The partial or complete destruction of homes, businesses, and utilities will place a severe economic burden on the community. The loss of businesses and the tax revenue they generate will be a significant problem for the city as it seeks to recover from a tornado.

If tornados occur at approximately the same frequency in the future as they have, we can expect a tornado in Gillespie County about every 3.5 years, and any tornado in the county can conceivably strike Fredericksburg. Again, assuming that we can expect the same frequency and type of tornado in the future, this will probably be an EF-1, EF-2, or EF-3 tornado. Fredericksburg is potentially at risk for any tornado that occurs in Gillespie County.

Location

As with thunderstorms, tornadoes do not have a specific geographic boundary and can occur uniformly throughout the City of Fredericksburg. It is assumed that the City of Fredericksburg planning area is uniformly exposed to tornado activity. The City of Fredericksburg planning area is in Wind Zone III, where tornado winds can be as high as 200 mph.

Impact and Extent of Future Threat

Because tornadoes often cross jurisdictional boundaries, all existing and future buildings, facilities, and populations in Fredericksburg are considered exposed to this hazard and could be impacted. The damage caused by a tornado is typically a result of high wind velocity, wind-blown debris, lightning, and large hail.

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

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

Even with some mitigation actions, the City of Fredericksburg will remain vulnerable to Tornados. The possible impacts of a tornado are the potential to destroy personal and public property, kill residents and tourists, and damage schools, businesses, utilities, and historical landmarks. These losses can inflict significant psychological trauma on the community as well as cause major financial hardship for years to come.

The extent of the risk in the future in terms of frequency and intensity of tornados will be considered equal to the historical average of one tornado every 3.5 years.

Vulnerabilities
All infrastructure listed in Appendix B

Every citizen of the City of Fredericksburg is vulnerable to tornados. The possible loss of historic buildings and artifacts, possible loss or damage to homes and businesses, the costs associated with loss of revenue from destroyed business and tourist attractions, and the injury or death to civilian populations and destruction of utilities (power poles and lines and roads) are examples of some of the ways our citizens are vulnerable to these destructive storms.

50-year history suggests that there is about a 30% chance of a tornado occurring in Gillespie County in any given year and about a 2% chance of a tornado touching down in Fredericksburg in any given year. Tornadoes are considered a hazard in Fredericksburg and will be included in this hazard mitigation plan.

Lightning

Section 3 of this document notes that lightning is produced by thunderstorms and may be produced by any thunderstorm. According to data from NOAA's severe storms database, Gillespie County will experience thunderstorms approximately 25 times yearly. Since any one of these storms can produce lightning, and since the exact timing and location of these storms are unpredictable, Fredericksburg must consider the possibility that each one of these 25 annual storms has the potential to move over the city, and with that comes the possibility of lightning, hail, high winds, and flooding.

This situation occurred on May 28, 2016, when a severe thunderstorm warning was issued for portions of Gillespie County, including Fredericksburg. Severe thunderstorms with cloud-to-ground lightning and baseball-sized hail were approaching the city from the Harper area during the peak hours of the annual Crawfish Festival held at Marketplatz on Main Street in Fredericksburg. The National Weather Service issued a severe thunderstorm warning for Fredericksburg and the surrounding area. This forced

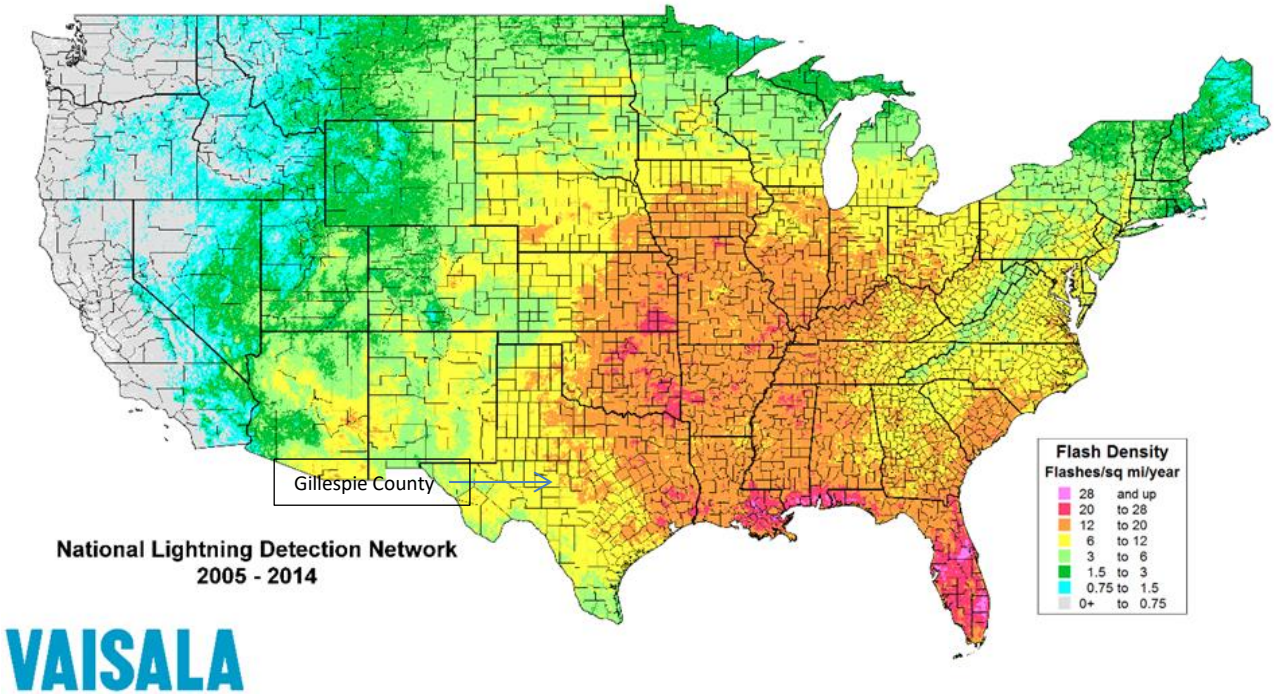
a voluntary evacuation of the festival that saw approximately 80% of the patrons leave, resulting in a loss of revenue for the organizers. Fortunately, the storm broke up before reaching the city, and there was no reported damage from this storm.

Lightning can strike virtually every square inch of the city of Fredericksburg. Lightning can carry an electric potential of more than 100 million volts and a current as strong as 100,000 amps. Compare that to a house, which only needs 200 volts and 220 amps.

As shown in the picture on page 64, Fredericksburg, located in Gillespie County, experienced between 6 and 12 lightning flashes per square mile per year. With a land mass totaling 1062 square miles, 6372 and 12,744 lightning flashes occur annually in Gillespie County.

Location

Lightning can strike in any geographic location and is common in Texas. The City of Fredericksburg is located in a region of the country that is moderately susceptible to lightning strikes. Therefore, lightning could occur at any location within the entire city. It is assumed that the whole city area is uniformly exposed to the threat of lightning.



Impact and Extent of Future Threat

Lightning events can pose a significant risk to people and create dangerous and demanding situations for public health and safety officials. As shown on the National Lightning Detection Network map above, Fredericksburg can expect up to 12 flashes of lightning per square mile of land mass per year, which is equal to 1741 lightning flashes

per year. In the future, we can expect the frequency of lightning strikes to remain the same. Impacts on the planning area can include:

- Fredericksburg is home to a thriving tourism industry. Lightning events could impact outdoor activities, placing visitors in imminent danger and potentially requiring emergency services.
- Individuals exposed to the storm can be directly struck, posing significant health risks and potential death.
- Structures can be damaged or crushed by falling trees damaged by lightning, resulting in physical harm to the occupants.
- Lightning strikes can result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and life safety.
- Extended power outages often increase structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Lightning strikes can be associated with structure fires and wildfires, creating additional risk to residents and first responders.
- Emergency operations and services may be significantly impacted due to power outages and loss of communications.
- City departments may be damaged, delaying response and recovery efforts for the entire community.
- Economic disruption due to power outages and fires negatively impacts the programs and services provided by the community due to short- and long-term losses in revenue.
- Some businesses not directly damaged by lighting events may be negatively impacted while utilities are restored, further slowing economic recovery.
- Businesses more reliant on utility infrastructure than others may suffer more significant damage without a backup power source.

Lightning impacts the community in many ways. Lightning strikes kill people, start fires, and destroy property. The massive electrical potential in a single bolt of lightning will kill or critically injure people and livestock. Lightning is the cause of both wildland fires and fires in homes and businesses. Lightning can destroy or disrupt utilities, such as electronic equipment, in homes and businesses. Baring rapid and severe climate change, in the future, we expect that the threat and impact of lightning in Fredericksburg will be at least as likely to occur as often as it has in the past.

In the future, we can expect lighting flashes to occur with at least the same frequency and intensity as we have seen in the past. The extent of the risk in the future in terms of frequency and number of strikes will be considered equal to the historical frequency in terms of the number and intensity of lightning strikes and the weather conditions that produce them.

Vulnerabilities
All infrastructure listed in Appendix B

Every citizen is vulnerable to lightning in several different ways. Lightning poses a direct threat to people (electrocution and burns), buildings, and utilities (mostly electrical grid-related utilities). The U.S. National Interagency Fire Center reported 9,000 wildland fires started by lightning from 2008-2012 that burned an average of 420 acres each. An average of four firefighters was killed per year from 2003- 2012 fighting lightning-caused fires, mostly in wildland fires. A recent study by the Insurance Information Institute states that over 100,000 homeowner insurance claims for lightning damages were paid for 2013 incidents in the U.S. for $5869 each (Insurance Information Institute 2014). The result is that paid lightning-caused insurance claims represent about US $3 per person annually. Much of this damage is due to electronic devices becoming more vulnerable and expensive than in the past. Communications towers that are struck by lightning may be disabled, disrupting communications.

The city of Fredericksburg estimates there is a 90% likelihood that lightning will threaten the city in any given year. Lightning is considered a hazard in Fredericksburg and will be included in this hazard mitigation plan.

Hail

Since 2002, 33 documented instances of hail have struck the ground in Fredericksburg. The most recent hailstorm in Fredericksburg occurred on May 27, 2022. Hailstones ranged from pea-sized hail to 1.5-inch diameter hail. Accurate dollar damage is challenging to find. However, the reported damage from these storms is $200,000.[15]

As documented in the above photos, a hail storm that occurred on May 9, 2013, caused severe damage throughout the northwestern portions of Fredericksburg. Many cars,

roofs, and windows were damaged or destroyed.[16] No reliable monetary damage figures are available on this storm. However, the photos below indicate the type of damage caused in the city.

In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future hailstorms will occur at the same frequency and intensity as they have in the past.

Location

Hailstorms are not confined to any specific geographic location and can vary significantly in size, location, intensity, and duration. All areas in the City of Fredericksburg planning area are equally exposed to this hazard.

Impact and Extent of Future Threat

Hail can have a significant economic impact in our area. Hailstones break windows, dent vehicles, strip crops, and can kill livestock and people. A hailstorm can devastate the economy of a small farming community in just a few minutes. It can also have a devastating effect on the hatching season of many game birds and other wildlife. We expect hail stones up to 3 inches in diameter may occur in future storms.

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

- Hail may create hazardous road conditions during and immediately following an event, delaying first responders from providing for or preserving public health and safety.
- Individuals and first responders exposed to the storm may be struck by hail, falling branches, or downed trees, resulting in injuries or possible fatalities.
- Residential structures can be damaged by falling trees, which can harm occupants physically.
- Large hail events will likely cause extensive roof damage to residential structures, siding damage, and broken windows, creating a spike in insurance claims and a rise in premiums.
- Automobile damage may be extensive depending on the hail's size and the storm's length.
- Hail events can result in power outages over widespread areas, increasing the risk to more vulnerable portions of the population who rely on power for health and life safety.

- An extended power outage can result in increased structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, damaged structures, hazardous spills, and debris often accompanying hail events, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Downed power lines and large debris, such as downed trees, can result in the inability of emergency response vehicles to access areas of the community.
- Hazardous road conditions may prevent critical staff from reporting for duty, limiting response capabilities.
- Economic disruption negatively impacts the programs and services the community provides due to short and long-term losses in revenue.
- Some businesses not directly damaged by the hail event may be negatively impacted while roads are cleared and utilities are restored, further slowing economic recovery.

The extent of the risk in the future in terms of frequency, number, and severity of hailstorms will be considered equal to the historical frequency in terms of number and severity, along with other hazards posed by the severe weather conditions that produce hail.

Vulnerability

All infrastructure listed in Appendix B

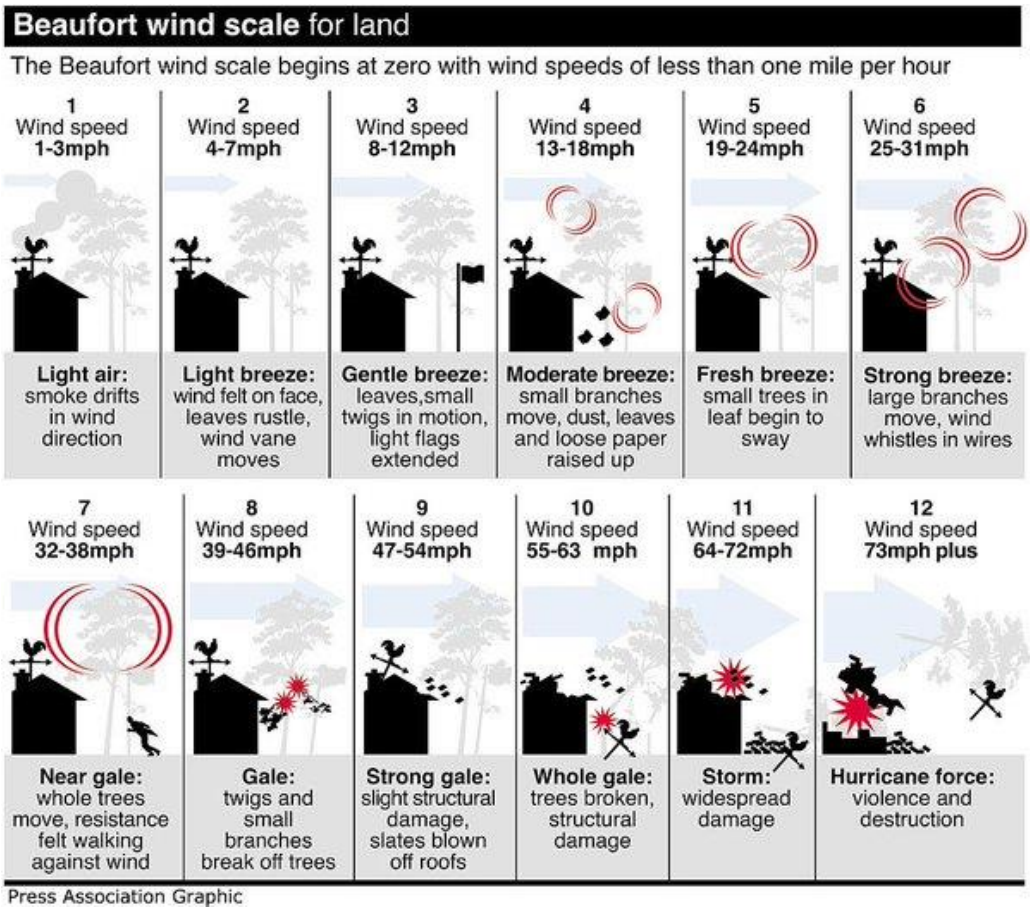
Farmers, cattlemen, owners, and operators of hunting ranches and wildlife operations, among others, are vulnerable to hail. Hail destroys crops, damages grazing/grasslands, and can kill small game animals and birds. Homeowners, business owners, owners of automobiles, and people who work outside in the elements are vulnerable to being injured in hailstorms.

As noted in section 3, any thunderstorm may cause hail, with severe thunderstorms producing hail up to 3 inches in diameter. There is virtually a 100% chance that hail will impact the city of Fredericksburg each year. Hail will be included in this hazard mitigation plan.

Windstorm

There have been seven documented windstorm events in Fredericksburg since 2022.[17] The highest recorded wind during these storms was 70 kts on May 9, 2013. Wind gusts over 50 mph have been reported all seven times during this timeframe. There have been no reports of deaths or injuries due to these windstorms. A windstorm on July 14, 2022, resulted in significant roof damage to two local businesses.

Property damage is the most common issue associated with high winds. High winds uproot trees, cause powerlines to snap, damage roofs, and cause debris to damage buildings and automobiles. In Fredericksburg, the most common cause of high winds is thunderstorms traversing the area.



As noted on the Beaufort wind scale, the highest reported wind value of 52 mph is considered a robust and gale-force wind capable of damaging structures, breaking limbs off trees, and dangerous roofs.

Windstorms may or may not be associated with thunderstorms traversing the county. If thunderstorms cause high winds, other hazards such as hail, lightning, or tornadoes may also be present.

In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future windstorms will occur at the same frequency and intensity as they have in the past.

Location
Windstorms are generally considered a common occurrence in Texas. Windstorms occur randomly, so it is impossible to predict where they will strike within The City of Fredericksburg. Thus, it is assumed that the entire city area is uniformly exposed to the threat of windstorms.

Impact and Extent of Future Threat
Windstorms impact the community by causing significant damage to crops, homes, buildings, and above-ground utilities. Debris thrown by high winds can break windows in cars and homes and strike and injure people, pets, and livestock. Insurance companies that have to pay out large claims due to windstorm damage are forced to raise insurance rates, which harms economic activity in the affected area. Referencing the Wind Zone Chart on page 37, Fredericksburg is in Wind Zone 3 and subject to winds up to 3-second gusts of 200 MPH.

The extent of the risk in the future in terms of frequency, number, and severity of windstorms will be considered equal to the historical frequency in terms of number and severity, along with other hazards posed by the severe weather conditions that produce dangerous windstorms.

Windstorm events can pose a significant risk to people and create dangerous and demanding situations for public health and safety officials. Impacts on Fredericksburg can include:

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

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

Vulnerability
All infrastructure listed in Appendix B

People, buildings, and utilities are vulnerable to physical damage from windstorms. Airborne debris breaks windows, damages buildings, and harms people and animals. Utility poles can break in high winds, taking down power and communications systems and causing economic disruption in the affected area.

Drought

Drought is a fact of life in Fredericksburg. According to the United States drought monitor, The City of Fredericksburg and the entirety of Gillespie County were in drought conditions every day from May 2011 until June 2015.[18] The county was again hit with drought from October 2017 until September 2018. Fredericksburg moved into drought conditions again in November 2020 and remained in those conditions. The NOAA National Severe Storms Database shows that long periods of drought occurred in Fredericksburg and throughout Gillespie County in 2005, 2008, 2011, 2017, and 2020. The drought periods ranged from abnormally dry conditions to long periods of exceptional drought, as defined by the Palmer Drought Category Index.

While there have been no reported deaths or injuries due to drought conditions in Fredericksburg, drought significantly impacts the city's residents. As aquifer levels fell, watering restrictions were implemented to preserve the local water supply. Trees, shrubs, and lawns dried up and died, forcing local merchants and residents to remove and replace dead vegetation.

Droughts are a significant problem for agricultural operations. Although there are no large agricultural operations in the city, Gillespie County has suffered substantial economic losses due to drought. These losses have translated into a reduced farm and ranch income in the county, which has harmed economic activity in Fredericksburg. For example, drought forced a reduction in cattle herds, which led to a loss of income for local feed stores.

In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future drought periods will occur at the same frequency and intensity as they have in the past. If the current theories concerning global warming are correct, the occurrence and duration of drought may become an even more significant hazard to Fredericksburg.

Location

Drought is an ordinary condition throughout Texas and the City of Fredericksburg. However, drought events can vary significantly in intensity and duration. There is no distinct geographic boundary to drought; therefore, it can occur throughout the City of Fredericksburg planning area.

Impact and Extent of Future Threat

In our community, drought includes economic impacts associated with crop loss and livestock loss in the county, wildfires, wind erosion of soils, the lack of food and drinking water for wild animals, and the loss or destruction of wildlife habitat. Other significant

[18] Texas Drought Monitor

impacts are anxiety or depression caused by economic losses from drought, dust-related health problems, reduced incomes, and fewer recreational activities.

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

Palmer Drought Index

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

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

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Drought is monitored nationwide by the National Drought Mitigation Center (NDMC). Indicators are used to describe broad-scale drought conditions across the United States. Indicators corresponding to the intensity of drought.

Based on the historical occurrences of drought and the location of Fredericksburg, the City of Fredericksburg can anticipate a range of droughts, from abnormally dry to exceptional or D0 to D4 based on the Palmer Drought Category.

Drought has the potential to impact people in Fredericksburg. While it is rare that drought, in and of itself, leads to a direct risk to the health and safety of people in the U.S., severe shortages could result in inadequate supply for human needs. Drought also is frequently associated with a variety of impacts, including:

- The number of health-related low-flow issues (e.g., diminished sewage flows, increased pollution concentrations, reduced firefighting capacity, and cross-connection contamination) will increase as the drought intensifies.
- Public safety from forest/range/wildfires will increase as water availability and pressure decreases.
- Respiratory ailments may increase as the air quality decreases.
- Jurisdictions and residents may disagree over water use/water rights, creating conflict.
- Political conflicts between municipalities, counties, states, and regions may increase.
- Increased law enforcement activities may be required to enforce water restrictions.
- Severe water shortages could result in inadequate supply for human needs and lower water quality for consumption.
- Firefighters may have limited water resources to aid firefighting and suppression activities, increasing risk to lives and property.
- During drought, there is an increased risk of wildfires and dust storms.
- The community may need increased operational costs to enforce water restrictions or rationing.
- Prolonged drought can lead to increased illness and disease related to drought.
- Utility providers can see decreases in revenue as water supplies diminish.
- Utility providers may reduce energy generation and service to their customers to prioritize critical service needs.
- Hydroelectric power generation facilities and infrastructure would have significantly diminished generation capability. Dams cannot produce as much electricity from low water levels as from high water.
- Wildlife will move to more sustainable locations, creating higher concentrations of wildlife in smaller areas, increasing vulnerability, and further depleting limited natural resources.
- Plant life will suffer from long-term drought. Wind and erosion will also threaten plant life as soil quality will decline.

- Dry and dead vegetation will increase the risk of wildfire.
- Land subsidence threat increases as groundwater is depleted.
- Drought poses a significant risk to annual and perennial crop production and overall crop quality, leading to higher food costs.
- Drought-related declines in production may lead to an increase in unemployment.

Vulnerability
All infrastructure listed in Appendix B

Although not as stark as vulnerabilities caused by other environmental factors, the widespread and prolonged nature of drought places significant strain on our community's environment and economy. Long drought often damages utility and transportation systems, causing water mains to break and roads to buckle. The risk of wildfire increases dramatically in times of drought, causing increased costs and danger for firefighters and other emergency personnel. The extreme heat, which often accompanies drought, puts elderly citizens at risk and forces agricultural interests in the county to sell livestock or lose crops, reducing the overall economy in our area.

It is difficult to assign an accurate risk factor to drought. Lying in the transition zone between humid and semiarid climates, the Hill Country experiences both wet and dry years; at Fredericksburg, eleven inches of precipitation was recorded in 1956 and forty-one inches the following year. [19] However, by simply counting the number of recorded drought events over the last 20 years dating back to 1996, Fredericksburg is exposed to a drought cycle about every four years. Therefore, there is a 20% chance of drought in any given year. Drought is considered a hazard in Fredericksburg and will be included in this hazard mitigation plan.

Extreme Heat

In 2022, Texas had 279 heat-related deaths.[20] No deaths or injuries in Fredericksburg have been reported directly attributable to extreme heat.

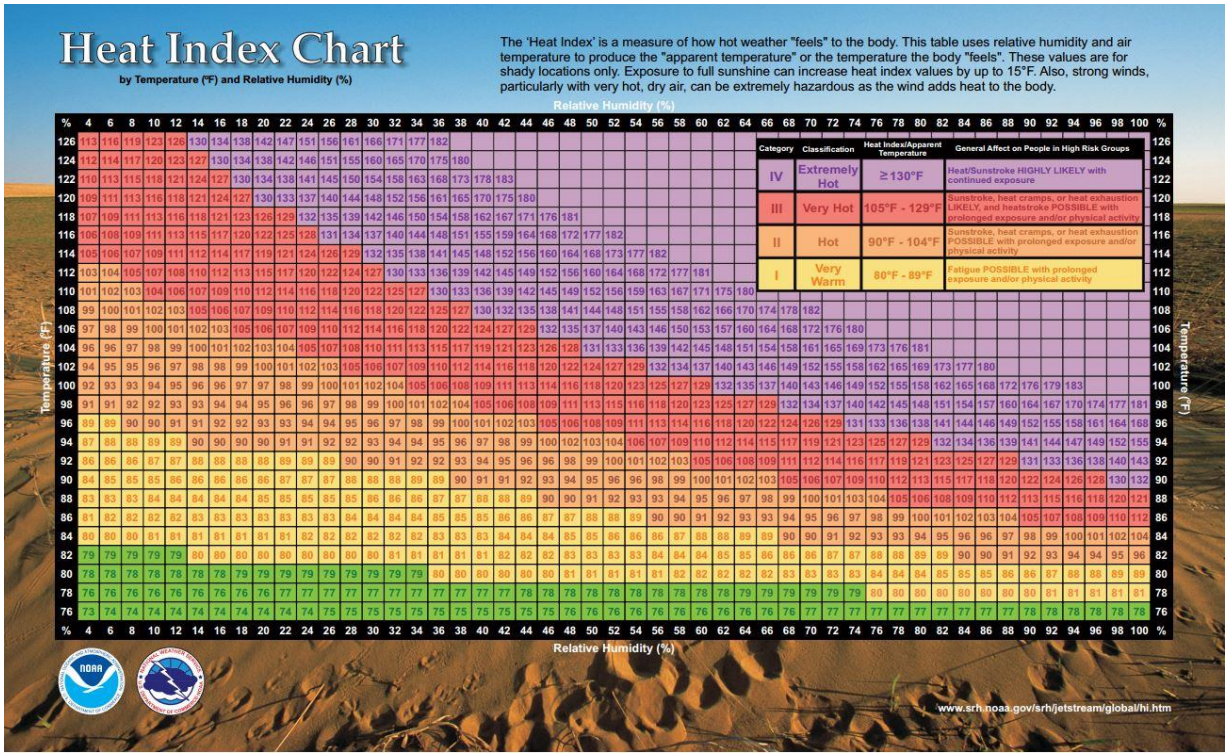
The National Weather Service Severe Events Database has two excessive heat events in the last 20 years. Both of these events have happened since 2018.

Heat-related illnesses and deaths are preventable. When extreme heat occurs, it's essential to be aware of those at most significant risk for experiencing its effects: the very young, the elderly, and people with chronic diseases and mental illness. However, even young, healthy individuals can succumb to heat if they participate in excessive physical exercise outdoors during hot weather.

The gradual nature of extreme heat's effects on the body makes it essential to be aware of these heat-related illnesses:

- Severe Sunburn
- Heat Cramps
- Heat Exhaustion
- Heat Stroke

Extreme heat is about more than just the temperature. Humidity plays a significant role in the effects of heat on the body. As the chart below indicates, a relative humidity of 36%, combined with the average daily high of 94 in August, results in a Heat index of 95, which can result in heat cramps or heat exhaustion. Higher temperatures and humidity will raise the heat index.



In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future occurrences of Extreme Heat, manifest in heatwaves or prolonged periods of extremely hot weather, will occur at the same frequency and intensity as they have in the past. If the current theories concerning global warming are correct, extreme heat may become an even more significant hazard to Fredericksburg.

Location

Though no deaths from extreme heat have been recorded in Fredericksburg, there have been heat-related deaths reported in other counties and counties in the region, including Bexar, Bandera, Blanco, and Kerr County. There is no specific geographic scope

for the extreme heat hazard. Extreme heat could occur in any area of Gillespie County, including the City of Fredericksburg.

Impact and Extent of Future Threat

Extreme heat impacts the community in many ways. Extreme heat is the deadliest natural disaster in the U.S., killing on average more people (about 600 per year) than hurricanes, lightning, tornadoes, earthquakes, and floods combined. Extreme heat causes the death of livestock, the loss of crops, and a reduction in the survival rate of wildlife. Extreme heat places the elderly, the young, and the infirm at risk of death or other heat-related injuries. Workers exposed to extreme heat are at risk for heat-related injuries and may suffer reduced income if they are unable or not permitted to work during extremely hot conditions. Electrical grids struggle and often fail to keep up with the additional demand placed on them by air conditioning and other load demands.

The extent of the risk in the future in terms of frequency, number, and severity of extreme heat days will be considered equal to the historical frequency in terms of number and severity.

The magnitude or intensity of an extreme heat event is measured according to temperature concerning the percentage of humidity. According to the National Oceanic Atmospheric Administration (NOAA), this relationship is referred to as the "Heat Index" and is depicted below. This index measures how hot it feels outside when humidity is combined with high temperatures.

NOAA's National Weather Service

Heat Index

Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution | Extreme Caution | Danger | Extreme Danger

The extent scale displays varying degrees of caution depending on the relative humidity and temperature. For example, when the temperature is at 90°F or lower, caution should be exercised if the humidity level is at or above 40 percent.
The most significant risk from extreme heat is to public health and safety. Potential impacts on the community may include:

- Vulnerable populations, particularly the elderly and infants, can face severe or life-threatening health problems from exposure to extreme heat, including hyperthermia, heat cramps, heat exhaustion, and heat stroke (or sunstroke).
- Response personnel, including utility workers, public works personnel, and other professions requiring individuals to work outside, are more subject to extreme heat-related illnesses since their exposure is typically greater.
- High energy demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts and elevating the risk of illness to vulnerable residents.
- Highways and roads may be damaged by excessive heat, causing asphalt roads to soften and concrete roads to shift or buckle.
- Vehicle engines and cooling systems typically run harder during extreme heat events, resulting in increased mechanical failures.
- Extreme heat events during drought can exacerbate the environmental impacts of drought, decreasing water and air quality and further degrading wildlife habitat.
- Extreme heat increases ground-level ozone (smog), increasing the risk of respiratory illnesses.
- Food suppliers can anticipate increased food costs due to increased production costs and crop and livestock losses.
- Outdoor activities may increase school injury or illness during extreme heat events.

Vulnerability

All infrastructure listed in Appendix B

People, wildlife, livestock, and utilities are vulnerable to extreme heat. Animals and people are vulnerable to heat-related injuries and death. Utility systems may be unable to keep up with additional demand and fail, increasing costs to grid operators and causing electrical outages and the loss of revenue to electrical suppliers and income to shops and businesses that depend on electricity.

Since the temperature and humidity conditions that place people in danger of heat-related injury or death have a 100% probability of affecting the citizens of Fredericksburg every year, Extreme Heat will be included in this hazard mitigation plan.

Severe Winter Storms

From 2003-2008, there were 115 deaths reported among Texas residents with exposure to excessive natural cold as the underlying cause of death. According to the NOAA Severe Storms Database, there were 13 severe winter storms throughout Gillespie County between 2002 and 2022. These were county-wide events that also affected Fredericksburg. No deaths or injuries were reported in these storms.

During winter months, freezing rain, sleet, and sometimes light snow mix and fall on roads and bridges. This combination often occurs when temperatures are at or slightly below freezing. This is an icing situation, making travel difficult, if not impossible, in some parts of the county. In the Fredericksburg city limits, in addition to the general icing conditions on some or all of the minor city streets, the bridge on U.S. 290 over Barons' Creek, the bridge on U.S. 87 South at Barons Creek, and the bridge on Texas State Highway 16 South over Barons Creek have all been the sight of icing in the past.

Winter Storm Uri in 2021 was a devastating event for the entire county. Infrastructure in both the city and county was pushed to the limits. The Emergency Operation Center was open for ten days. People were without water and electricity for multiple days in some cases. Due to the magnitude of the storm, there was very little help from outside agencies. A shelter was established at the Fredericksburg Elementary School/First Baptist Church and housed numerous people.
In the future, we must assume that barring significant, rapidly occurring climate change, we can expect severe winter storms to occur at the same frequency and intensity as they have.

Location
Winter storm events are not confined to specific geographic boundaries. Therefore, all existing and future buildings, facilities, and populations in Fredericksburg are considered exposed to a winter storm hazard and could be impacted.

Impact and Extent of Future Threat
The impacts of a severe winter storm affect almost everyone in our community. These may include:

- Ice accumulation on powerlines can cause widespread electrical outages.
- Tree limbs can become coated with ice and break, falling on homes, businesses, cars, people, and powerlines.
- Icy conditions can shut down roads, leaving motorists stranded and causing a significant reduction in economic activity until conditions improve.
- The loss of heat in homes that may accompany a power outage places people and pets at risk.

- Poor road visibility can severely limit visibility, causing injury or death to motorists.

The extent of the risk in the future in terms of frequency, number, and severity of winter storms will be considered equal to the historical frequency in terms of number and severity, along with other hazards posed by the severe weather conditions that produce and accompany severe winter storms.

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

Intensity Scale for Extreme Winter Weather Events

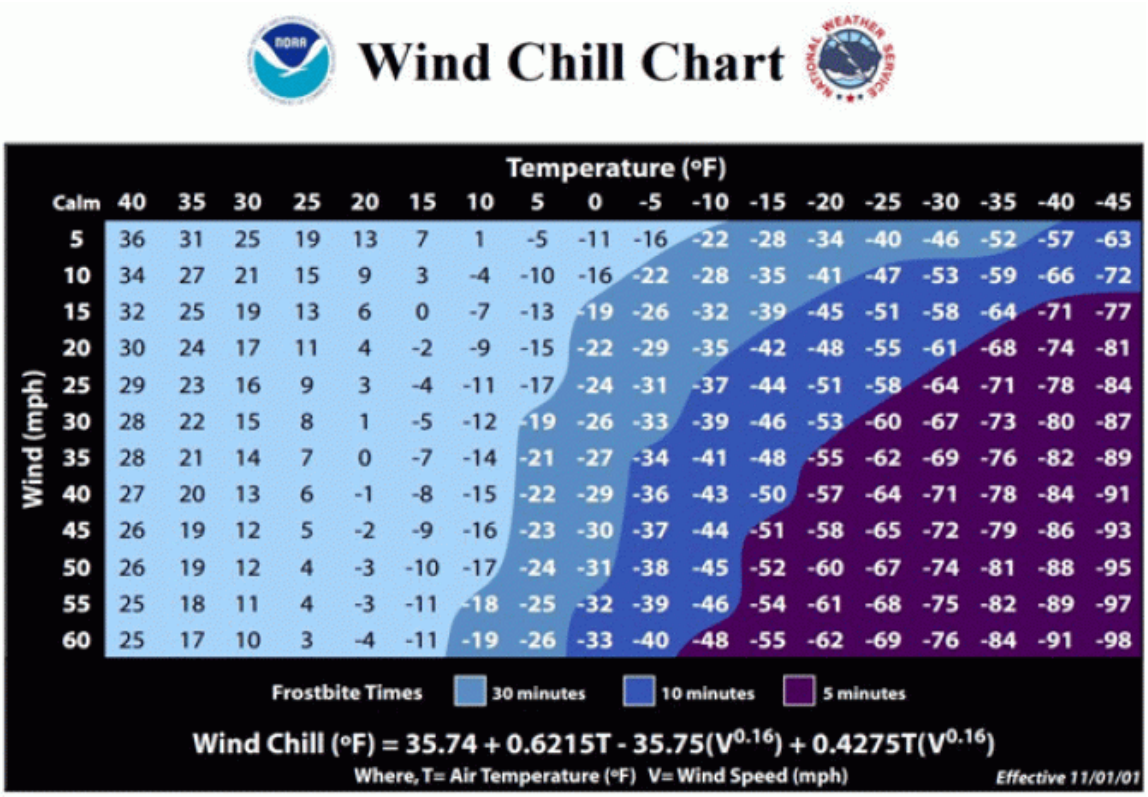
INTENSITY	TEMPERATURE RANGE (Fahrenheit)	EXTENT DESCRIPTION
Mild	40° – 50°	Winds less than 10 mph and freezing rain or light snow falling for short durations with little or no accumulations
Moderate	30° – 40°	Winds 10 – 15 mph and sleet and/or snow up to 4 inches
Significant	25° – 30°	Intense snow showers accompanied with strong gusty winds, between 15 and 20 mph with significant accumulation
Extreme	20° – 25°	Wind driven snow that reduces visibility, heavy winds (between 20 to 30 mph), and sleet or ice up to 5 millimeters in diameter
Severe	Below 20°	Winds of 35 mph or more and snow and sleet greater than 4 inches

Extent Scale – Winter Weather Alerts

Winter Weather Advisory	This alert may be issued for a variety of severe conditions. Weather advisories may be announced for snow, blowing or drifting snow, freezing drizzle, freezing rain, or a combination of weather events.
Winter Storm Watch	Severe winter weather conditions may affect your area (freezing rain, sleet, or heavy snow may occur separately or in combination.
Winter Storm Warning	Severe winter weather conditions are imminent.
Freezing rain or freezing drizzle	Rain or drizzle is likely to freeze upon impact, resulting in a coating of ice glaze on roads and all other exposed objects.
Sleet	Tiny particles of ice are usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.

Blizzard Warning	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most challenging winter storm, with visibility dangerously restricted.
Frost/Freeze warning	Below-freezing temperatures are expected and may cause significant damage to plants, crops, and fruit trees.
Wind Chill	A strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degrees lower in a calm atmosphere. The wind-chill factor is the integrated cooling power of the wind and temperature on exposed flesh.

Wind chill temperature measures how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30°F day would feel just as cold as a calm day with 0°Ftemperatures. Fredericksburg has never experienced a blizzard. However, based on previous occurrences recorded from 1996 through April 2018, it has been subject to winter storm watches, warnings, freezing rain, sleet, snow, and wind chill.



Vulnerability

All infrastructure listed in Appendix B

Our utility grid is vulnerable to icy conditions, often accompanying severe winter storms. Most of our electrical grid is overhead lines often damaged by ice. The number and severity of powerful winter storms in our area are insufficient to warrant de-icing

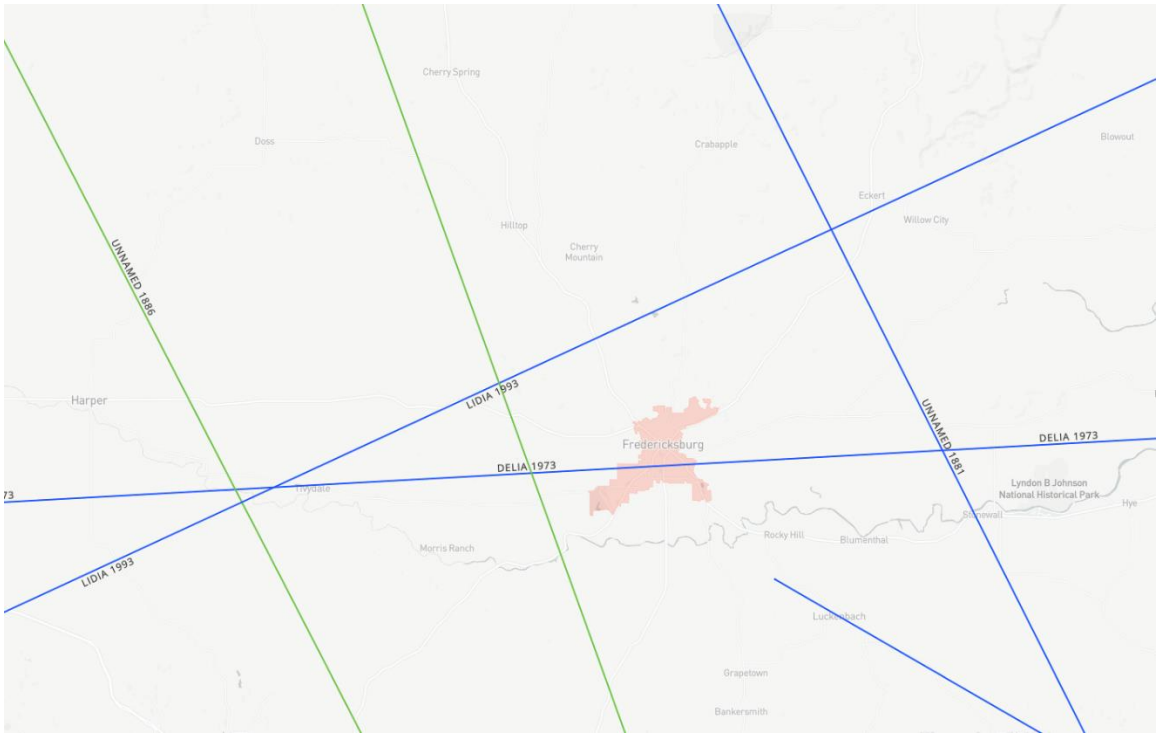
equipment purchases. Powerlines could be down for the event, causing significant disruption of schools, businesses, and transportation, causing a substantial disruption in commerce. Shut-in people, such as the elderly and infirm, may be unable to care for themselves, and emergency workers may be unable to reach and care for all those who need it.

Costs for this type of incident are hard to determine. These icing events have resulted in numerous traffic accidents over the years. They disrupt schools and businesses, force the government to pay overtime to road crews, and have caused city halls to remain closed or to open late. Based on the historical data in the NOAA Severe Climate Database, there is about a 65% chance that Fredericksburg will experience a severe winter storm in any given year. Therefore, severe winter storms will be included in this hazard mitigation plan.

Hurricane

As noted in Section 3 of this Plan, Hurricanes are a significant threat to the state of Texas. Though not located in a coastal county, hurricanes still affect Fredericksburg. The current Hazard Mitigation Plan for Fredericksburg notes that freshwater flooding is the highest-ranking cause of death from hurricanes and tropical storms.[21]

Based on historical occurrences, there is a moderate probability that a hurricane or tropical storm will impact Fredericksburg in the future. Between 1851 and September 2022, hurricanes or low storm tracks crossed Gillespie County.



However, Fredericksburg's inland location is a buffer to most of a hurricane's major destructive forces. The freshwater flooding, high winds, lightning, and hail likely to affect Fredericksburg are essentially the same as any other severe storm event. Therefore, hurricanes will not be included for mitigation in this plan. The plan will separately address the likely hazards, such as flooding, hail, and tornadoes from a hurricane.

The impacts of a hurricane and the vulnerabilities of our local citizens to the conditions that a hurricane may cause will be addressed separately under each of those hazards.

Dam Failure

There are no dams within the city limits of Fredericksburg. The four dams in Gillespie County are in the far eastern portion and pose no direct threat to Fredericksburg. Dam Failure is not considered a hazard for the City of Fredericksburg and will not be addressed in this plan. The citizens of Fredericksburg are not impacted by or vulnerable to a dam failure in Fredericksburg.

Coastal Erosion

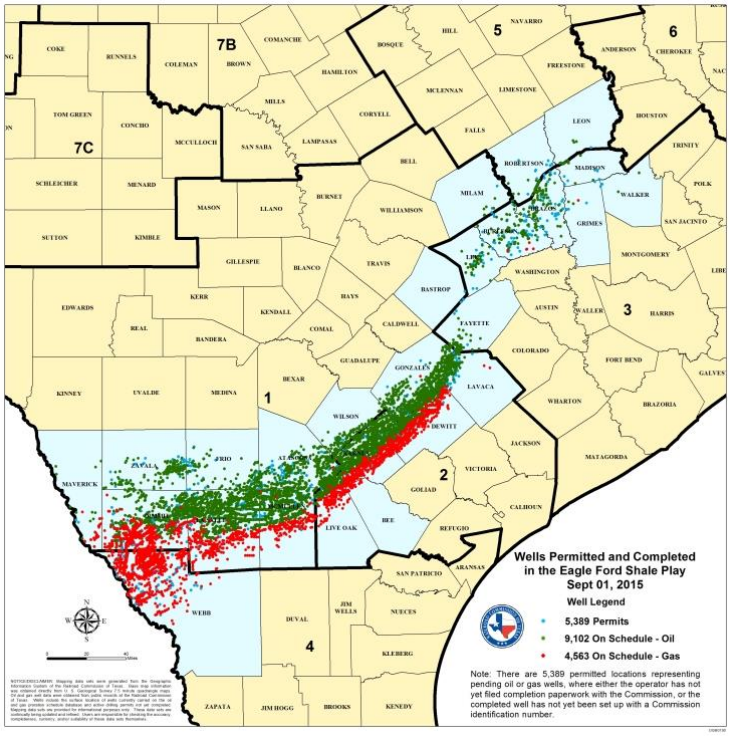
The City of Fredericksburg has no shoreline that meets the definition of Coastal Erosion as stated in Section 3 of this plan. Further, no major river or stream runs through the city. Coastal erosion is not considered a hazard to the City of Fredericksburg and will not be addressed in this plan. The citizens of Fredericksburg are not impacted by or vulnerable to a coastal in Fredericksburg.

Expansive Soils

There is no history of expansive soils being a hazard in Fredericksburg. The soil prevalent in Gillespie County and Fredericksburg is not of the type typically associated with expansive soils. The citizens of Fredericksburg are not impacted by or vulnerable to Expansive Soils. Expansive Soil is not considered a hazard to the City of Fredericksburg and will not be addressed in this plan.

Earthquake

According to the U.S. Geological Service, Fredericksburg and Gillespie County are in the lowest hazard earthquake zone in the United States. As noted in Section 3, earthquakes do occur in Texas. Also, earthquakes and seismic events throughout the state could increase due to the fracking process used in Texas oil exploration. However, the nearest oil exploration zone, the Eagle Ford Shale, is nearly 100 miles southeast of Fredericksburg. Earthquakes will not be included for mitigation in this plan. Emergency management and other city officials will monitor the situation. If there is evidence of earthquake activity in the Fredericksburg area in the future, the plan will be revised to reflect this hazard. Currently, the citizens of Fredericksburg are not impacted by or vulnerable to earthquakes.



Land Subsidence

Although the City of Fredericksburg depends entirely on underground water, no land subsidence has occurred in Fredericksburg. All water wells currently in use lie outside the city limits. No land subsidence has been observed in unincorporated Gillespie County. Land Subsidence will not be included for mitigation in this Plan. Local officials will monitor conditions in Gillespie County and revise this plan if required. The citizens of Fredericksburg are not impacted by or vulnerable to land subsidence in Fredericksburg.

Hazards to be included in the Hazard Mitigation Plan

Based on the above discussion, the City of Fredericksburg has decided to mitigate the following hazards. The hazards presented here were ranked as the greatest threat to the slightest danger according to the criteria established in the Hazard Analysis section of this Annex. Mitigation actions will be provided for each of the identified threats.

The threats chosen for mitigation and their threat ranking/prioritization are:

1. Hail
2. Flood
3. Tornadoes
4. Windstorm
5. Severe Winter Storm
6. Drought
7. Lightning
8. Wildfire
9. Extreme Heat

Mitigation Goals and Actions

The Mitigation Goals of the City of Fredericksburg

The goals of the City of Fredericksburg, as outlined in this plan, shall be as follows:

1. Protect public health and safety
2. Reduce damage to and loss of new and existing real property
3. Increase the awareness of public officials, community, and business leaders of the need for hazard mitigation and support actions to protect public health and safety
4. Generate support for and increase public awareness of the need for hazard mitigation

5. Maximize and update existing capabilities for identifying the need for and implementing hazard mitigation activities
6. Promote the sustainable growth

The Mitigation Strategy of the City of Fredericksburg

To achieve the goals identified in this plan, it shall be the strategy of the City of Fredericksburg to:

1. Take maximum advantage of current mitigation capabilities,
2. Seek opportunities available within the City or available through cooperation with our partners,
3. Identify facilities, equipment, and technology within current means to purchase and implement,
4. Identify and pursue funding available through Hazard Mitigation Grants and other sources to finance large projects that exceed our financial capability to accomplish without such funding,
5. Engage the entire community to educate our citizens on the need for and the methods to reduce the hazards identified in this Plan,
6. Identify new hazards in the future and update this Plan accordingly.

Tactics: The Adopted Mitigation Actions

The city of Fredericksburg has identified these mitigation actions to achieve the identified mitigation goals. These mitigation actions fully comply with the capabilities and authorities identified in Appendix B.

The mitigation actions presented in the tables below are prioritized following FEMA's Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLE+E) criteria for implementing each action. As a result of this process, an overall priority was assigned to each mitigation action.

As part of the economic evaluation of the STAPLE+E analysis, each action was analyzed in terms of the overall costs, measuring whether the potential benefit from the action outweighed its costs. As a result of this process, priority was assigned to each mitigation action.

The Staple Criteria used to develop these planning decisions are defined by FEMA:

- Social – Is the hazard mitigation strategy socially acceptable?
- Technical – Is the proposed action technically feasible, cost-effective, and does it provide the appropriate level of protection?

- Administrative – Does the community have the capability to implement the action, and is the lead agency capable of overseeing the project?
- Political – Is hazard mitigation action politically acceptable?
- Legal – Does the community have the authority to implement the proposed action?
- Economic – Does the hazard mitigation project justify the economic base, projected growth, and opportunity costs.
- Benefit-cost analysis is a mathematical method for comparing costs to the benefits to the community of a hazard mitigation action. If the benefits are greater than the costs, the project is cost-effective. Comparing the benefits ratios to costs for several hazard mitigation projects helps identify those offering the "greatest bang for the community's buck." The benefit-cost analysis gives decision-makers an understandable way to explain and defend their decisions. FEMA and the State will use benefit-cost analysis for many grant programs to determine whether a project is eligible. The community can save time and energy by limiting planning activities to projects more likely to receive funding.
- Environmental – Does the proposed action meet statutory considerations and the public desire for sustainable and environmentally healthy communities?

As a result of this analysis, each project was prioritized based on how planning team members scored each project.

- Priority 1: Satisfies STAPLE+E considerations.
- Priority 2: Moderately satisfies STAPLE+E considerations.
- Priority 3: Does not satisfy STAPLE+E considerations.

Mitigation Actions

Action 1: Implement a public education program using all communications processes available to inform the public on hazard mitigation actions that can be taken to protect themselves from the identified hazards.	
Hazard	Hail, Flood, Tornadoes, Windstorm, Severe Winter Storm, Drought, Lightning, Wildfire, Extreme Heat
Background	Educating people about the exact nature of the hazards present in the environment is the first and most crucial step in helping to mitigate these hazards. Knowing the threat and how to counter that threat is the best, least expensive way to help protect our citizens against these hazards.
Benefits	Educating the public about the natural hazards in their environment and how to protect themselves and their property against these hazards will help reduce the risk that they or their property will be

	harmed or damaged by these hazards and improve the overall quality of their life.
Priority	1
Estimated Cost	$5,000.00
Responsible Organization	Wildfire education program: Fredericksburg Fire Dept. All other education programs: Fredericksburg Emergency Management
Target Completion Date	Implementation date: 10/1/2024. Programs will be ongoing with no end date.
Funding Sources	City Department Budgets to share costs
Related Goals	Mitigation goals 1-6

Action 2: Purchase National Weather Service-approved radios for all identified critical buildings.	
Hazard	Hail, Tornadoes, Windstorm, Severe Winter Storm, Lightning, Extreme Heat, Wildfire, Drought, Flood
Background	NOAA Weather Radio is a nationwide network of radio stations broadcasting continuous weather information directly from National Weather Service (NWS) offices nationwide. The broadcasts include warnings, watches, forecasts, weather observations, and other hazard information 24 hours a day.
Benefits	Supervisory personnel in these buildings will have up-to-the-minute weather information. It can order city workers to seek shelter in hazardous weather.
Priority	1
Estimated Cost	$500.00
Responsible Organization	Fredericksburg Emergency Management
Target Completion Date	12/31/2024
Funding Sources	Applicable city department's annual budget
Related Goals	Mitigation goals 1,3,4

Action 3: Improve the public mass communication system to include IPAWS	
Hazard	Hail, Flood, Tornadoes, Windstorm, Severe Winter Storm, Drought, Lightning, Wildfire, Extreme Heat
Background	Update the City and County's mass communication software. This will allow public safety officials to notify residents and visitors promptly when an emergency occurs.
Benefits	Improve communication with the public.

Priority	1
Estimated Cost	$10,000
Responsible Organization	Emergency Management
Target Completion Date	3/31/2024
Funding Sources	City/County Budget process
Related Goals	Mitigation goals 1-6

Action 4: Partner with Gillespie County and other non-profits to improve existing buildings for shelter use.	
Hazard	Hail, Flood, Tornadoes, Windstorm, Severe Winter Storm, Lightning, Wildfire, Extreme Heat
Background	Recent weather events in Fredericksburg documented in this plan highlight that patrons have no safe evacuation alternatives from Marketplatz during festivals. Additionally, other hazards identified could require shelter facilities. Building a safe, hardened structure that could also be used for community events is a proven method for providing a safe place for visitors and residents to shelter in the event of severe weather.
Benefits	Improved public safety, improved community readiness, and resiliency
Priority	3
Estimated Cost	$500,000
Responsible Organization	Fredericksburg Emergency Management, Fredericksburg City Manager, Fredericksburg City Council, Gillespie County Commissioners Court, Gillespie County Office of Emergency Management, Local Non-profits.
Target Completion Date	12/31/2026
Funding Sources	Community Development Block Grants, FEMA PDM Grants, Fredericksburg City Budget, Gillespie County Budget
Related Goals	Mitigation Goal 1,3,4,5,6

Status of Mitigation Actions in Previous Plans

Action	Hazards Addressed in the previous plan	Status of Action	Explanation	Included in the new plan
Implement a public education program using all communications processes available to inform the public on hazard mitigation actions that can be taken to protect themselves from the identified hazards.	Flooding, dam/levee failure, tornado, TS/hurricane, thunderstorm, drought, hail, wildfire, winter storms, earthquakes, sinkholes, energy pipeline failures, hazardous materials incident, pandemic / infectious disease, terrorism	Complete/Will Continue	Educating the public about the natural hazards in their environment and how to protect themselves and their property against these hazards will help reduce the harm or damage they or their property and improve the overall quality of life. This will continue to take place through multiple educational avenues.	Yes
Purchase National Weather Service-approved radios to install in all identified critical buildings.	Flooding, dam/levee failure, tornado, TS/hurricane, thunderstorm, drought, hail, wildfire, winter storms, earthquakes, sinkholes, energy pipeline failures, hazardous materials incident, pandemic / infectious disease, terrorism	Partially Complete	Supervisory personnel in these buildings will have up-to-the-minute weather information. It can order city workers to seek shelter in hazardous weather. Some buildings were outfitted with the equipment. We will continue working to improve all buildings.	Yes
Install a Flood Early Warning System (FEWS) at Low Water Crossings.	Flooding	Not Complete	This was not funded during this time. A new approach to improving these areas through updated infrastructure is being pursued.	No
The City of Fredericksburg currently has a set of guidelines that developers and residents can utilize in designing and installing landscapes in the city. These	Drought	Complete	The City of Fredericksburg updated ordinances for new construction to be more drought-conscious moving forward.	Yes

guidelines can be placed in the appropriate city ordinance and enforced by building code officials.				
Purchase a lightning detection system for Marketplatz to protect the public from lightning during festivals and other events.	Lightning	Complete	The City of Fredericksburg purchased and installed this equipment. The equipment has been utilized at numerous events to detect lightning.	No
Partner with Gillespie County to construct an all-purpose safe structure to shelter residents in extreme weather events.	Hail, Flood, Tornadoes, Windstorm, Severe Winter Storm, Lightning, Wildfire, Extreme Heat	Incomplete	The City of Fredericksburg and Gillespie County do not have the proper funding for this type of structure. Moving forward, they will work with other non-profits to utilize existing buildings.	Yes

Adoption and Implementation

This document will be sent to the Texas Division of Emergency Management for review and approval. Once this is complete, it will be moved to FEMA for approval. After both agencies approve this document, the City Council will support it.

Annex B: Mitigation Plan for the Gillespie County

Hazard Analysis

Gillespie County, Texas, has determined that the following hazards affect its jurisdiction. The determination was based on the following factors:

1. Number of deaths or injuries caused in the jurisdiction by the identified hazards
2. The number of incidences of the identified hazard
3. The amount of monetary damage caused in the jurisdiction by the identified hazard
4. Input provided by committee members and local citizens, most of whom have lived their entire lives in the area

Each hazard and its effects on Gillespie County are addressed in this Annex. All hazards addressed by Gillespie County are assumed to be within all areas of the unincorporated county. Where a hazard is a threat to a specific location, it will be noted in the discussion.

For each identified hazard, it is necessary to determine the probability that the hazard will affect Gillespie County again in the future. Since the weather is unpredictable from day to day in Texas, the probability was determined by dividing the number of occurrences of each hazard by a period. The period was determined by the data amount and the database's completeness for each hazard. For example, if there were five severe

thunderstorms over ten years, there is a 50 % probability that a severe thunderstorm would affect the community in any given year.

Climate change and population growth are two factors in planning events. Climate change is challenging to predict, and it is currently unknown how these conditions will affect Gillespie County for these specific events. These conditions are monitored and will be updated as needed. Population growth in the region is growing exponentially. The increase in the number of people living in the area tremendously impacts the planning for all these events. The growth will produce more structures in the WUI, and more impervious surfaces will be installed. These factors and the increased number of people that could be affected were considered hazards.

There were no new community priorities in assessing these hazards and mitigation actions.

Flood

Historically, Gillespie County has experienced many flood events. Several of the significant events are listed below:

2007: In August 2007, flooding occurred in Gillespie County due to heavy, widespread rainfall. Flooding damaged streets and roads at 33 locations throughout the county.

2015: On May 24, 2015, the statewide flooding event that resulted in the Federal Disaster Declaration # 4223 also affected Gillespie County and the City of Fredericksburg. The Mayor of Fredericksburg issued a disaster declaration, and the city was subsequently included in this declaration. Gillespie County did not declare a disaster in the county's unincorporated areas.

2016: On May 25, 2016, heavy showers of rain caused by the massive rain system associated with the strong El Nino weather pattern affecting the state also affected Gillespie County. Heavy rains occurred over the entire area during May. On May 25th, over 5 inches of rain fell in a 1-hour time frame in the early morning hours, flooding many county roads to a depth of up to 5 feet.

2021: on May 1, 2021, a local heavy rainfall event occurred in Gillespie County. Numerous low-water crossings were flooded across the county. Two swift-water rescues occurred, including boat crews from Texas Task Force 1. All personnel were rescued with minimal injuries.

Flooding depths ranged from several inches to over 5 feet in many locations throughout the county. Flooding within Gillespie County typically occurs at the following locations:

- Alfred Petsch Crossing at the Pedernales River
- Goehmann Lane at the Pedernales River
- Friedrich Road at the Pedernales River
- Grapetown Road at Snake Creek
- Jung Lane at the Pedernales River
- Lower Crabapple Road at Middle Creek
- Luckenbach Road near South Grape Creek
- Old Kerr Highway at the Pedernales River
- Old San Antonio Road at the Pedernales River
- River Road at the Pedernales River
- Numerous low-water crossings located at the intersection of county roads and small creeks

There are no critical facilities located in a floodplain in Gillespie County.

Without some mitigation action in the areas prone to flooding, flooding of over 5 feet can be expected to continue in those locations.
During these events, bridges, buildings, utilities, livestock, and, of course, our citizens are vulnerable to the force and depth of the running water.

Gillespie County's Flood Damage Prevention Ordinance bases substantial damage and substantial on costs exceeding 50 percent of the market value at the time of the damage occurring or before the start of construction, respectively. As part of the County's floodplain development permitting process, which applies to all development within a particular flood hazard area, the applicant must provide the estimated project cost and if the project/improvement will exceed 50% of the market value. This information is then reviewed against market and insurance data for confirmation.

In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future flooding events will occur at approximately the same frequency and intensity as they have in the past. Flood depths ranging from 1 inch to 5 feet or more will continue to occur in Gillespie County.

Location
Locations of flood Zones A and AE in Gillespie County, based on the Digital Flood Insurance Rate Map (DFIRM) from FEMA, are illustrated in Appendix J.

The Extent of Future Threat
The extent of the risk in the future in terms of frequency, number, and severity of flooding events will be considered equal to the historical frequency in terms of number and severity, along with other hazards posed by the severe weather conditions that produce floods.

Impact

The potential impacts of flooding in Gillespie County include but are not limited to the financial costs of replacing or rebuilding roads, bridges, and utilities, disruption of transportation, costs incurred by private citizens to repair or rebuild homes and structures damaged by the flooding, and potential loss of tax revenue from a disruption of tourism in the county.

Flooding is the deadliest natural disaster in the U.S. each year, and it poses a constant and significant threat to the health and safety of the people in the planning area. Impacts on Fredericksburg can include:

- Flood-related rescues may be necessary at swift water and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way.
- Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities, and increasing sheltering needs for displaced residents.
- Health risks and threats to residents are elevated after the flood waters have receded due to contaminated flood waters (untreated sewage and hazardous chemicals) and mold growth typical in flooded buildings and homes.
- Significant flood events often result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and life safety.
- An extended power outage can result in increased structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Floods can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders are exposed to downed power lines, contaminated and potentially unstable debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Emergency operations and services may be significantly impacted due to damaged facilities.
- Significant flooding can result in the inability of emergency response vehicles to access areas of the community.
- Critical staff may suffer personal losses or be otherwise impacted by a flood event and unable to report for duty, limiting response capabilities.
- County departments may be flooded, delaying response and recovery efforts for the entire community.
- Private sector entities that the County and its residents rely on, such as utility providers, financial institutions, and medical care providers, may not be fully

operational and require assistance from neighboring communities until complete services can be restored.

- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the flood may be negatively impacted while utilities are restored, or water recedes, further slowing economic recovery.
- When the community is affected by significant property damage, it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and regular day-to-day operating expenses.
- Displaced residents may be unable to return to work immediately, further slowing economic recovery.
- Residential structures substantially damaged by a flood may not be rebuilt for years, and uninsured or underinsured residential structures may never be rebuilt, reducing the tax base for the community.

Vulnerabilities

All infrastructure listed in Appendix B

All citizens of Gillespie County are vulnerable to flooding events. Those living near creeks and rivers are vulnerable to the force of flood water, which destroys their homes and businesses and kills livestock, game animals, and crops. Those not directly affected by the flooding are vulnerable to the loss of income associated with agricultural and tourist-based economic losses. Floods often disrupt transportation and utilities, and the costs incurred by private citizens to repair or rebuild homes and structures damaged by the flooding represent a potential loss of tax revenue to the county.

A property's vulnerability to a flood depends on its location and proximity to the floodplain. Structures along the banks of a waterway are the most vulnerable and often repetitive loss structures.

Critical facilities within Gillespie County that lie within a designated flood plain include:

- Portions of LBJ State Park
- 4 Dams

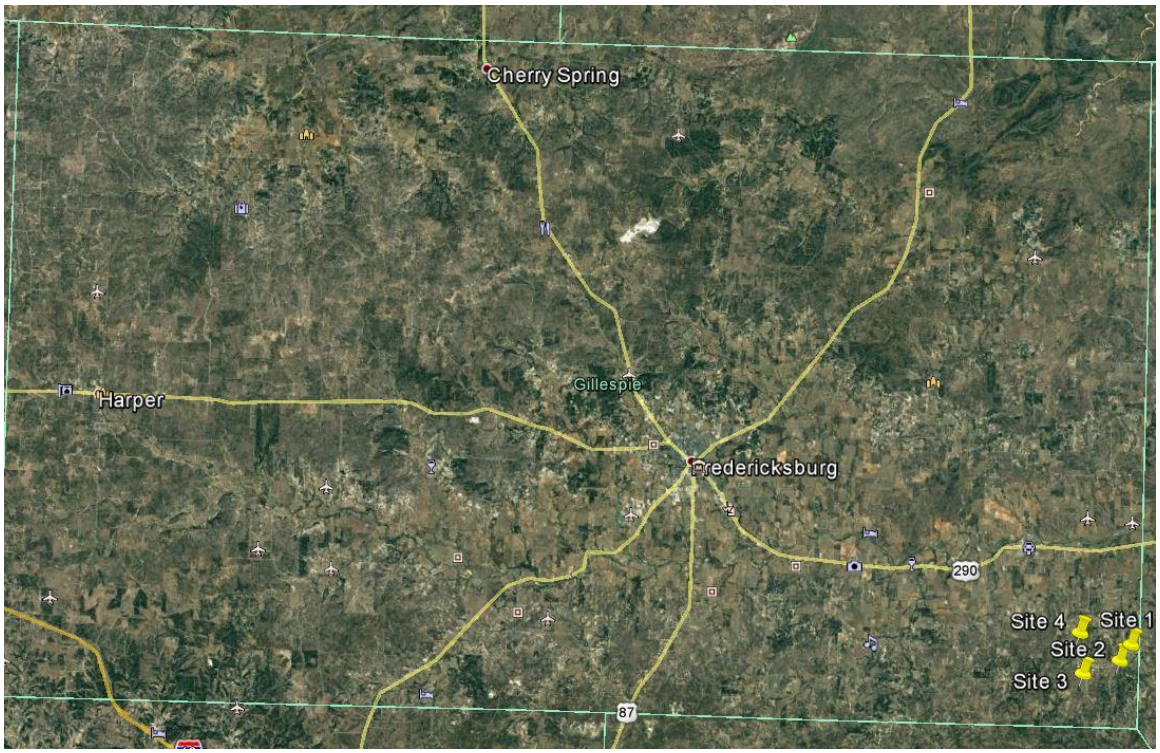
Additionally, roads, utility infrastructure, and older, pre-existing houses built before the enactment of current ordinances remain vulnerable to flooding. The county encourages development outside the flood plain.

The data obtained from NOAA suggests that there is virtually a 100% chance of flooding occurring somewhere in Gillespie County in any given year. Flooding will be included in this hazard mitigation plan.

Dam Failure

There are four dams in Gillespie County. These dams, located in the county's eastern portion, are operated by the Gillespie County Water Control and Improvement District #1. Emergency Action Plans have been developed for these sites. They are on file with all appropriate agencies, including the Texas Water Development Board, The Gillespie County Office of Emergency Management, The Gillespie County Sheriff's Office, and The Texas Commission on Environmental Quality. Appendix D of this document notes the exact location of each dam.

Flooding is the most prominent effect of dam failure. If the dam failure is severe, a large amount of water will enter the downstream waterways, forcing them out of their banks. Significant environmental effects may result in flooding that could disperse debris and hazardous materials downstream that can damage local ecosystems. In addition, debris carried downstream can block traffic flow, cause power outages, and disrupt local utilities such as water and wastewater. Surge waves resulting from dam breaks have the potential to create significant losses.



All four dam locations are located in the southeastern corner of Gillespie County. No failures, injuries, or deaths have been reported at these dams.

Each dam has an emergency action plan detailing actions to be taken in case of a breach or failure at that location. Each plan lists houses or developments in immediate danger if there is a failure at that site. However, development in the county is in danger of

rendering these plans obsolete. Population throughout the county is growing, and homes are being built in or near the inundation zones around these dams.

None of these dams has ever been breached or suffered a structural failure. Because of this, the probability that one of these dams will fail is very low. However, we must anticipate that such a breach or collapse can occur.

It is difficult to determine precisely how deep the flood waters would be at either of the dam sites should any of these dams suffer a breach or structural failure. Factors to consider are the depth of the water in the dam, the type and location of the dam's failure, and which of the dams has failed. Using Williams Creek Watershed Dam No. 1 as the worst-case example, since it is the largest of the four dams, it is possible that flooding water up to a depth of 9 feet could inundate the downstream area of the dams.

Location
See Appendix K for inundation maps for each of the four dams located in Gillespie County. These inundation maps are also available on the Gillespie County Web Site. These dams are all a part of the Williams Creek Watershed in southeast Gillespie County.

Impact
The impacts of a dam failure in Gillespie County would include but not be limited to damage or destruction of homes and other buildings in the inundation zone, death or injury to people in the path of the released water, death or injury to livestock in the path of the released water and the erosion of soils in the path of the discharged water. Impacts of a dam failure could include any or all of the following hazards:

- Flood-related rescues may be necessary at swift water and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way.
- Health risks and threats to residents are elevated after the flood waters have receded due to contaminated flood waters (untreated sewage and hazardous chemicals) and mold growth typical in flooded buildings and homes.
- Floods can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders are exposed to downed power lines, contaminated and potentially unstable debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Significant flooding can result in the inability of emergency response vehicles to access areas of the community.
- Critical staff may suffer personal losses or be otherwise impacted by a flood event and unable to report for duty, limiting response capabilities.

- Private sector entities that the County and its residents rely on, such as utility providers, financial institutions, and medical care providers, may not be fully operational and require assistance from neighboring communities until complete services can be restored.
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the flood may be negatively impacted while utilities are restored, or water recedes, further slowing economic recovery.
- When the community is affected by significant property damage, it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and regular day-to-day operating expenses.
- Displaced residents may be unable to return to work immediately, further slowing economic recovery.
- Residential structures substantially damaged by a flood may not be rebuilt for years, and uninsured or underinsured residential structures may never be rebuilt, reducing the tax base for the community.

Vulnerability

The following critical facilities would be vulnerable to Dam Failures in Gillespie County:

- Schumann Road
- Farm to Market Road 1623
- Lower Albert Road
- Lindig Ranch Road

In addition to these facilities, numerous privately owned structures are identified as in the inundation zone and vulnerable to dam failure.

People living downstream of these dams may be killed or injured by the water released by the dam's failure. Homes, businesses, livestock, and wildlife can be damaged or destroyed by the water released in a dam failure.

Since one of these dams has never failed, the probability of experiencing a failure at one of these sites is very low but cannot be ruled out. The population growth in the county dictates that Gillespie County monitor development around the dam sites and be prepared for the possibility of failure at these locations.
Dam failure is considered a hazard to Gillespie County and will be included in this hazard mitigation plan.

Wildfire

Wildfire is a common occurrence in Gillespie County. The majority of land in Gillespie County is rural or undeveloped property. Much of this land is grassland or is home to large amounts of ash juniper, more commonly called cedar. Drought, which will be discussed later in this Annex, is essential in the wildfire problem. Extended dry periods cause shallow-rooted plants to die or go dormant. When these events follow periods of rainfall, there is an abundance of fuel available for the fire to burn.

When conditions are dry, there is a high risk of wildfire in all parts of Gillespie County. In addition to the overall wildfire risk in Gillespie County, it is estimated that 18,919 people, or 78% of the total area population, live within the Wildland Urban Interface area.[22]

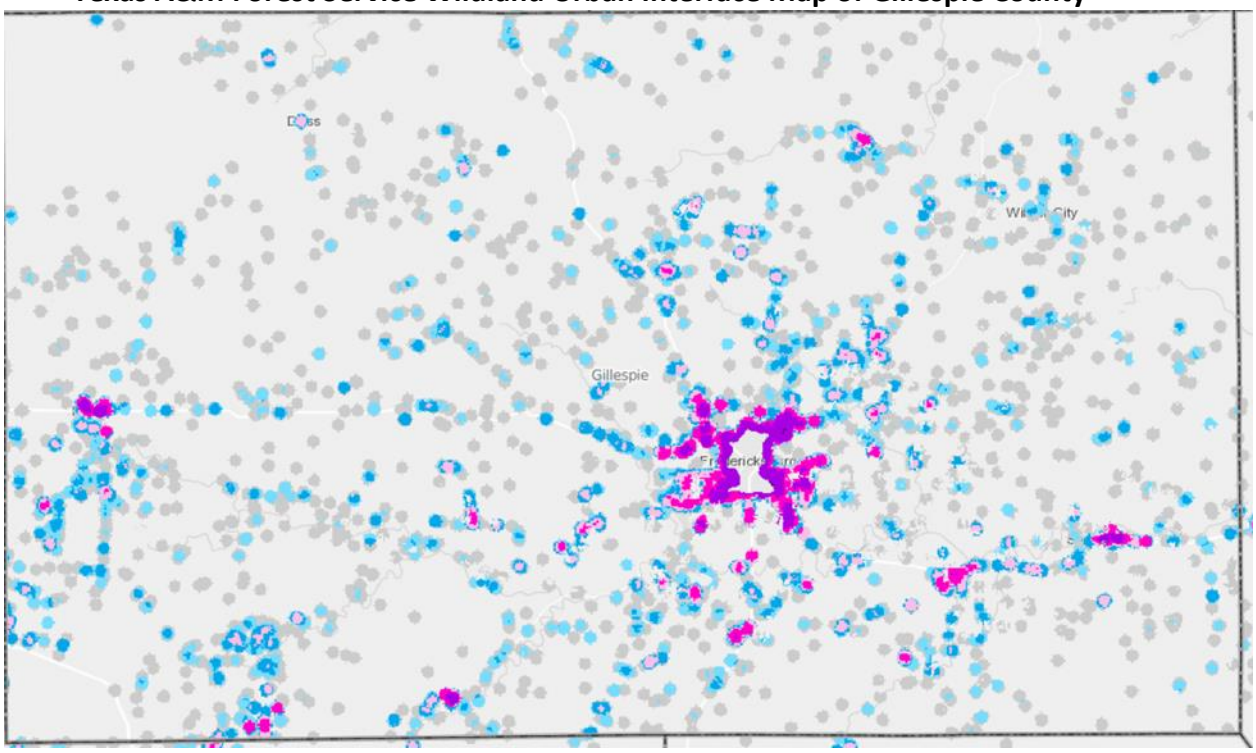
These charts, provided by the Texas A&M Forest Service, demonstrate wildfire hazards to Gillespie County. A 100% wildfire risk affects some portion of Gillespie County each year. These fires may be small or start on small land and turn into significant fires.

Based on current trends, the wildfire risk in Gillespie County will increase. The number of grass/brush fires that the county fire department has responded to has increased year over year since 2010. We expect wildfire/grass/brush fires to continue to occur at the same frequency as in the past.

On August 2, 2022, a fire occurred in the Willow City area of Gillespie County. A piece of machinery started the fire. The fire quickly spread and turned into a canopy fire. The fire consumed 1459 acres and damaged multiple structures. The fire did not grow in size after the first day, but it took ten days to extinguish the fire using resources from local, regional, state, and federal jurisdictions.

Below is a Texas A&M Forest Service map showing the Wildland Urban Interface areas in Gillespie County. The areas of dark purple are the areas most at risk.

Texas A&M Forest Service Wildland Urban Interface Map of Gillespie County



Location

Wildfires can vary significantly in size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in open grasslands. The threat to people and property from wildfire is more significant in the fringe areas where developed areas meet open grasslands, such as the WUI. It is estimated that 80 percent of the total population in Gillespie County lives within the WUI. However, the entire Gillespie County planning area is at risk for wildfires.

Some of the larger wildfires of the 2022 Fire Season:

- Big Sky Fire (Willow City)- 1459 Acres
- Henke-Kott Fire (South Gillespie County) 400 acres
- Ram Fire (Harper) 100 acres

Impact

Even with some mitigation actions, Gillespie County will remain vulnerable to wildfire. Natural vegetation, drought, and human interaction with the natural environment by residents and visitors create the potential for a wildfire event. During these events, lives are at risk, and homes, businesses, and utilities will be at risk of being destroyed.

The potential impacts of Wildfire on Gillespie County include but are not limited to the possible loss of historic buildings and artifacts, possible loss or damage to homes and

businesses, costs associated with extinguishing wildfire, potential injury or death to firefighters and civilian populations, and destruction of utilities (power poles and lines and roads).

A Wildfire event poses a potentially significant risk to public health and safety, mainly if the wildfire is initially unnoticed and spreads quickly. The impacts associated with a wildfire are not limited to direct damages. Potential implications for the planning area include:

- Persons in the area at the time of the fire are at risk for injury or death from burns and smoke inhalation.
- First responders are at greater risk of physical injury since they are close to the hazard while extinguishing flames, protecting property, or evacuating residents.
- First responders can experience heart disease, respiratory problems, and other long-term related illnesses from prolonged exposure to smoke, chemicals, and heat.
- Emergency services may be disrupted during a wildfire if facilities are impacted, roadways are inaccessible, or personnel cannot report for duty.
- Critical city and county departments may be unable to function and provide necessary services depending on the location of the fire and the structures or personnel impacted.
- Non-critical businesses may be directly damaged, suffer the loss of utility services, or be otherwise inaccessible, delaying normal operations and slowing recovery.
- Displaced residents may be unable to return to work immediately, further slowing economic recovery.
- Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility.
- Older homes are generally exempt from modern building code requirements, which may require fire suppression equipment in the structure.
- Air pollution from smoke may exacerbate respiratory problems of vulnerable residents.
- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- Wildfires can cause erosion, degrading stream water quality.
- Wildlife may be displaced or destroyed.
- Historical or cultural resources may be damaged or destroyed.
- Tourism can be significantly disrupted, further delaying economic recovery for the area.
- Vegetated dunes can be stripped, significantly damaging the function of the dunes to protect inland areas from the destructive forces of wind and waves.
- Economic disruption negatively impacts the programs and services the community provides due to short and long-term losses in revenue.

- Fire suppression costs can be substantial, exhausting the community's financial resources.
- Residential structures lost in a wildfire may not be rebuilt for years, reducing the tax base for the community.

The Extent of Future Threat
For the duration of this plan, the extent of the risk in the future in terms of frequency, size, and impact of wildfire will be considered equal to the historical frequency in terms of number, severity, and impact. As the county population grows and development into new areas expands, the threat of wildfire can also be expected to grow. It will be further addressed in the next hazard mitigation plan.

In an average, non-drought year, Gillespie County can expect that between 400 and 500 acres will be consumed by wildfire, mainly in the more rural areas and along major transportation corridors. In a drought year, depending on the severity of the drought, Gillespie County can expect that between 500 and 800 acres will be consumed by wildfire, again mainly in the more rural areas and along major transportation corridors.

Vulnerabilities
All infrastructure listed in Appendix B

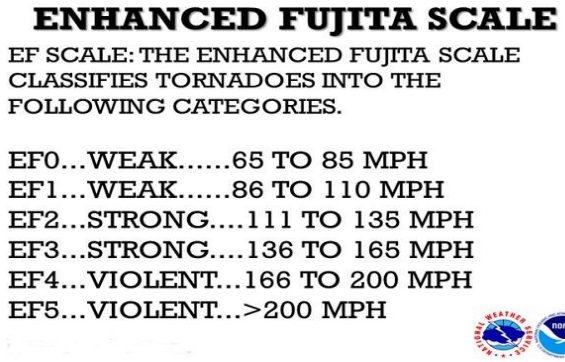
During these events, lives are at risk, and homes, businesses, and utilities will be at risk of being destroyed. Wildfires can also negatively affect the local business climate, primarily based on tourism, causing a decline in the county's tax revenues and property values.

Wildfire is considered a hazard in Gillespie County and will be included in this hazard mitigation plan.

Tornadoes

Gillespie County is in the southwestern portion of the “Tornado Alley” area. The American Meteorological Society defines Tornado Alley as the corridor stretching from central Texas northward into Oklahoma, Kansas, and Nebraska eastward into central Illinois and Indiana. This region contains the maximum tornado frequency in the continental United States. However, recent research at the NOAA National Severe Storm Laboratory has focused on the likelihood that tornadoes will cause significant damage in a much larger region. They designate a swath from central Texas northward to South

Dakota as having the greatest risk of "significant tornadoes." Such twisters are rated EF2 or higher on the Enhanced Fujita Tornado Scale and have winds over 113 mph. [23]



Enhanced Fujita Scale The Enhanced Fujita Scale measures tornado intensity. This scale was accepted as the measuring standard for tornadoes in the United States on February 1, 2007, as an improvement to the original Fujita scale.

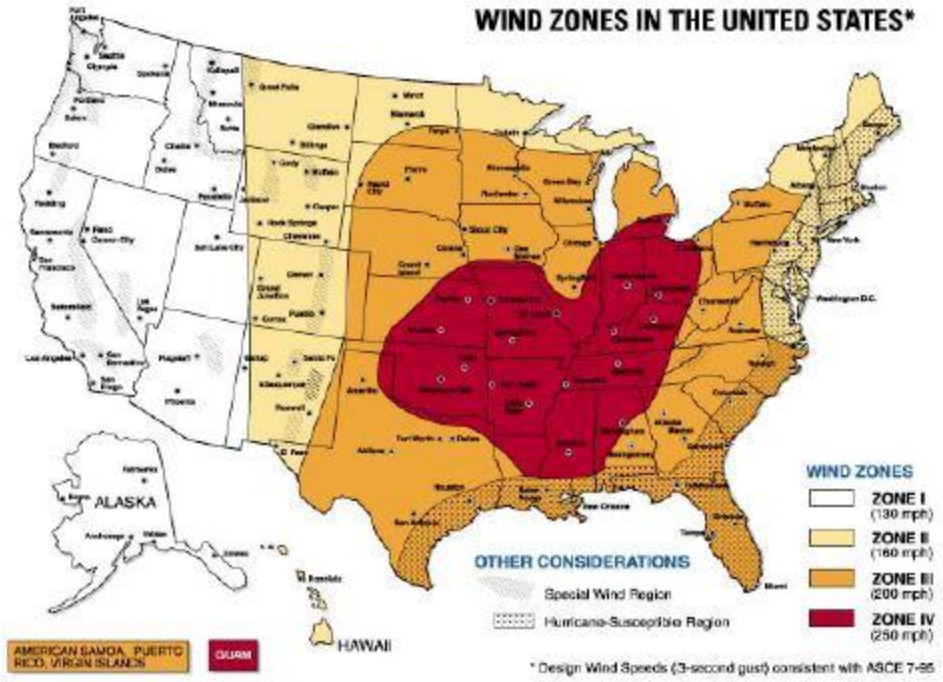
According to the NOAA Storm Events Database, five recorded tornadoes have occurred since 2002. The most recent tornado happened on April 12, 2020, just north of Fredericksburg. This was an EF1 tornado, and it was reported to have done $100,000 worth of property damage.

The most significant tornado recorded in Gillespie County since 1999 is an EF-3. There have been 2 EF-3 tornadoes in Gillespie County since 1999. The county remains vulnerable to tornadoes and will include tornadoes in this mitigation plan. 50-year history suggests that there is about a 30% chance of a tornado occurring in Gillespie County in any given year.

Assuming that tornados occur at approximately the same frequency in the future as they have in the past, we can expect a tornado in Gillespie County about every 3.5 years. Again, assuming that we can expect the same frequency and type of tornado in the future, this will probably be an EF-1, EF-2, or EF-3 tornado. The entire county is potentially at risk for any tornado in Gillespie County.

Location

As with thunderstorms, tornadoes do not have any specific geographic boundary and can occur throughout Gillespie County uniformly. The Gillespie County planning area is assumed to be uniformly exposed to tornado activity. The Gillespie County planning area is in Wind Zone III, where tornado winds can be as high as 200 mph.



Impact
Even with some mitigation actions, Gillespie County will remain vulnerable to Tornados. A single tornado has the potential to destroy, kill residents and tourists, and damage schools, businesses, utilities, and historical landmarks. These losses can inflict significant psychological trauma on the community as well as cause major financial hardship for years to come.

The Extent of Future Threat
For the duration of this plan, the extent of the risk in the future in terms of frequency and intensity of tornados will be considered equal to the historical average of one tornado every 3.5 years.

Vulnerabilities:
All infrastructure listed in Appendix B

The potential impacts of Tornados on Gillespie County include but are not limited to the possible loss of historic buildings and artifacts, possible loss or damage to homes and businesses, costs associated with loss of revenue from destroyed business and tourist attractions, and the injury or death to civilian populations and destruction of utilities (power poles and lines and roads).

Tornadoes are considered a hazard in Gillespie County and will be included in this hazard mitigation plan.

Lightning

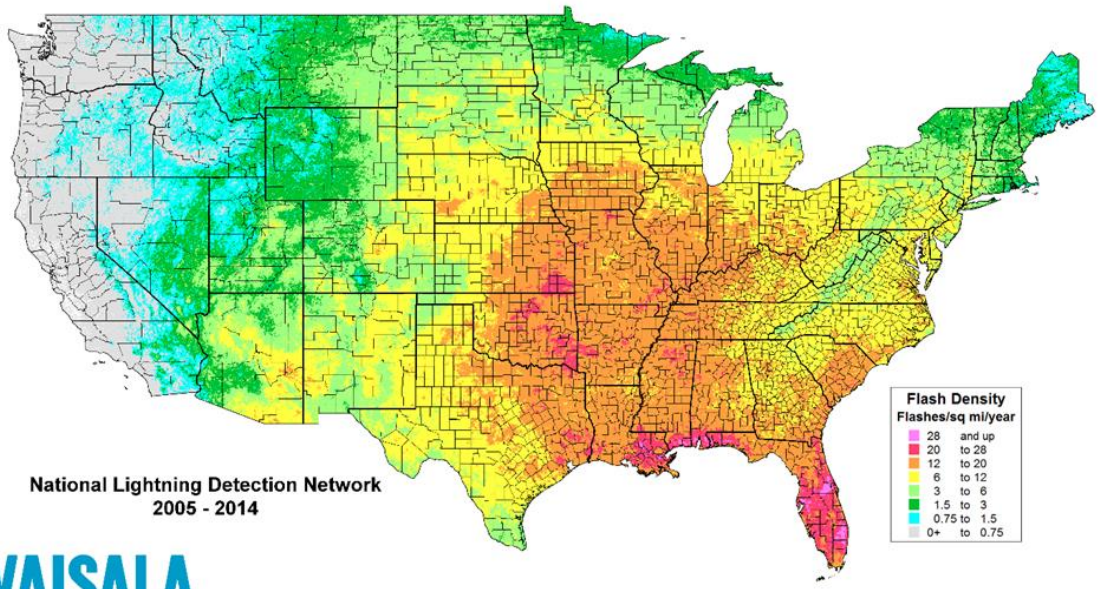
Section 3 of this document notes that lightning is produced by thunderstorms and may be produced by any thunderstorm. According to data from NOAA's severe storms database, Gillespie County will experience thunderstorms approximately 25 times yearly. Since any one of these storms can produce lightning, and since the exact timing and location of these storms are unpredictable, Gillespie County must consider the possibility that each one of these 25 annual storms has the potential to cause damage via lightning, hail, high winds, and flooding.

This situation occurred on May 28, 2016, when a severe thunderstorm warning was issued for portions of Gillespie County. Severe thunderstorms with cloud-to-ground lightning and baseball-sized hail were approaching Fredericksburg from the Harper area during the peak hours of the annual Crawfish Festival held at Marketplatz on Main Street in Fredericksburg. The National Weather Service issued a severe thunderstorm warning for Fredericksburg and the surrounding area. This forced a voluntary evacuation of the festival that saw approximately 80% of the patrons leave, resulting in a loss of revenue to the organizers. Although the storm passed north of the city, there were widespread reports of damage in and around Harper from this storm.

In the future, we can expect lighting flashes to occur with at least the same frequency and intensity as we have seen in the past.

Location

Lightning can strike in any geographic location and is common in Texas. The Gillespie County planning area, including the City of Fredericksburg, is located in a region of the country that is moderately susceptible to a lightning strike. Therefore, lightning could occur at any location within the entire planning area. It is assumed that the Gillespie County planning area is uniformly exposed to the threat of lightning.



The Extent of Future Threat

In the future, we can expect lighting flashes to occur with at least the same frequency and intensity as we have seen in the past. As shown on the National Lightning Detection Network map above, Gillespie County can expect up to 12 flashes of lightning per square mile of land mass per year, which is equal to 12696 lightning flashes per year.

Impact

Lightning strikes kill people, start fires, and destroy property. The massive electrical potential in a single bolt of lightning will kill or critically injure people and livestock. Lightning is the cause of both wildland fires and fires in homes and businesses. L lightning can destroy or disrupt utilities, such as electronic equipment in homes and businesses.

Lightning events can pose a significant risk to people, creating dangerous and demanding situations for public health and safety officials. Impacts on the planning area can include:

- Gillespie County is home to a thriving tourism industry. Lightning events could impact outdoor activities, placing visitors in imminent danger and potentially requiring emergency services.
- Individuals exposed to the storm can be directly struck, posing significant health risks and potential death.
- Structures can be damaged or crushed by falling trees damaged by lightning, resulting in physical harm to the occupants.
- Lightning strikes can result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and life safety.

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

Vulnerabilities
All infrastructure listed in Appendix B

Every citizen is vulnerable to lightning in several different ways. Lightning poses a direct threat to people (electrocution and burns), buildings, and utilities (mostly electrical grid-related utilities). The U.S. National Interagency Fire Center reported 9,000 wildland fires started by lightning from 2008-2012 that burned an average of 420 acres each. An average of four firefighters was killed per year from 2003- 2012 fighting lightning-caused fires, mostly in wildland fires. A recent study by the Insurance Information Institute states that over 100,000 homeowner insurance claims for lightning damages were paid for 2013 incidents in the U.S. for $5869 each (Insurance Information Institute 2014). The result is that paid lightning-caused insurance claims represent about US $3 per person annually. Much of this damage is due to electronic devices becoming more vulnerable and expensive than in the past. Communications towers that are struck by lightning may be disabled, disrupting communications.

Gillespie County estimates there is a 90% likelihood that lightning will threaten the county in any given year. Lightning will be included as a hazard in this hazard mitigation plan.

Hail

The NOAA Severe Storms Database records that since 2002, there have been 76 documented instances of hail striking the ground in unincorporated Gillespie County. Hailstones ranged from pea-sized hail to 3-inch diameter hail. The reported damage from these storms is $102,000 in property damage and $5,000,000 in crop damage. This

data does not include crop damage estimates from a hail storm on May 9, 2013. This storm destroyed approximately 95% of Gillespie County's peach crop. [24]

A hailstorm near Harper in April 2006 caused the $5,000,000 in crop damage mentioned previously. Once again, this was agricultural damage caused by the destruction of a significant portion of the county's peach crop. The most recent occurrence documented in the National Weather Service Severe Storms occurred in 2016 when a thunderstorm produced 1.25-inch hail near Harper. This storm system threatened Fredericksburg during the Crawfish Festival evacuation discussed earlier in this plan.

In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future hail storms will occur at the same frequency and intensity as they have in the past.

Location

Hailstorms are not confined to any specific geographic location and can vary significantly in size, location, intensity, and duration. All areas in Gillespie County are equally exposed to this hazard.

Impact

- Hail may create hazardous road conditions during and immediately following an event, delaying first responders from providing for or preserving public health and safety.
- Individuals and first responders exposed to the storm may be struck by hail, falling branches, or downed trees, resulting in injuries or possible fatalities.
- Residential structures can be damaged by falling trees, which can harm occupants physically.
- Large hail events will likely cause extensive roof damage to residential structures, siding damage, and broken windows, creating a spike in insurance claims and a rise in premiums.
- Automobile damage may be extensive depending on the hail's size and the storm's length.
- Hail events can result in power outages over widespread areas, increasing the risk to more vulnerable portions of the population who rely on power for health and life safety.
- An extended power outage can result in increased structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, damaged structures, hazardous spills, and debris often accompanying hail events, elevating the risk of

[24] Associated Press, Lubbock Online Reports

injury to first responders and potentially diminishing emergency response capabilities.
- Downed power lines and large debris, such as downed trees, can result in the inability of emergency response vehicles to access areas of the community.
- Hazardous road conditions may prevent critical staff from reporting for duty, limiting response capabilities.
- Economic disruption negatively impacts the programs and services the community provides due to short and long-term losses in revenue.
- Some businesses not directly damaged by the hail event may be negatively impacted while roads are cleared and utilities are restored, further slowing economic recovery.

The extent of the risk in the future in terms of frequency, number, and severity of hailstorms will be considered equal to the historical frequency in terms of number and severity, along with other hazards posed by the severe weather conditions that produce hail.

Hail can have a significant economic impact in our area. A hail storm can devastate the economy of a small farming community in just a few minutes. It can also have a devastating effect on the hatching season of many game birds and other wildlife.

The Extent of Future Threat
The extent of the risk in the future in terms of frequency, number, and severity of hailstorms will be considered equal to the historical frequency in terms of number and severity, along with other hazards posed by the severe weather conditions that produce hail. We expect hail stones up to 3 inches in diameter may occur in future storms.

Vulnerability
All infrastructure listed in Appendix B

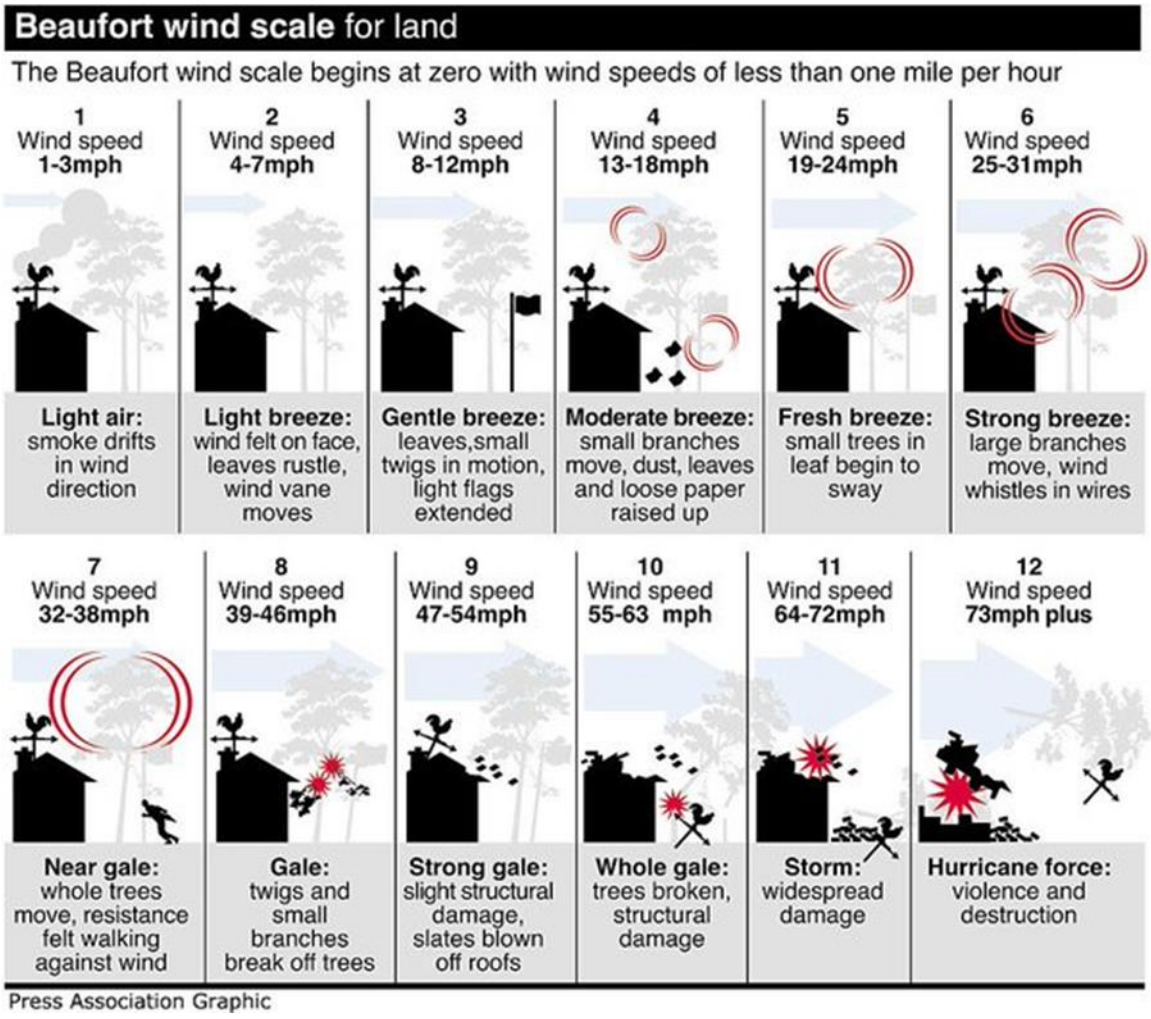
Farmers, cattlemen, owners, and operators of hunting ranches and wildlife operations, among others, are vulnerable to hail. Likewise, Gillespie County's Peach crops are susceptible to hail. Homeowners, business owners, owners of automobiles, and people who work outside in the elements are vulnerable to the damage caused by hailstorms.

Gillespie County has a well-documented history of damage from hail. As noted in Section 3 of this plan, any thunderstorm has the potential to produce hail, creating a nearly 100% chance that hail will affect the county every year. Therefore, hail will be included in this hazard mitigation plan.

Windstorm

There have been 15 documented windstorm events in Gillespie County since 2002.[25] The highest recorded wind during these storms was 80 kts during this. The most recent documented windstorm was at the Fredericksburg/Gillespie County Airport on July 14, 2022, with wind speeds at 51 kts. There have been no reports of deaths or injuries due to these windstorms. Property damage estimates total $750,000.

Property damage is the most common issue associated with high winds. High winds uproot trees, cause powerlines to snap, damage roofs, and cause blowing debris to damage buildings and automobiles. In Gillespie County, the most common form of high winds is thunderstorms traversing the area.



As noted on the Beaufort wind scale, the highest reported wind value of 62 mph is considered whole gale force winds capable of breaking full trees and causing structural damage.

Windstorms may or may not be associated with thunderstorms traversing the county. If thunderstorms cause high winds, other hazards such as hail, lightning, or tornadoes might also be present.

In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future wind storms will occur at the same frequency and intensity as they have in the past.

Location
Windstorms are generally considered a common occurrence in Gillespie County. Windstorms occur randomly, so it is impossible to predict where they will strike within Gillespie County. Thus, it is assumed that the Gillespie County planning area is uniformly exposed to the threat of windstorms.

Impact and Extent of Future Threat
Windstorms can cause significant damage to crops, homes, buildings, and above-ground utilities. Debris thrown by high winds can break windows in cars and homes and strike and injure people, pets, and livestock. Insurance companies that have to pay out large claims due to windstorm damage are forced to raise insurance rates, which harms economic activity in the affected area. Referencing the Wind Zone Chart on page 37, Gillespie County is in Wind Zone 3 and subject to winds up to 3-second gusts of 200 MPH.

Windstorm events can pose a significant risk to people and create dangerous and demanding situations for public health and safety officials. Impacts on the planning area can include:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees, causing severe injury or death.
- Structures can be damaged or crushed by falling trees, resulting in physical harm to the occupants.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may make roadways unsafe, preventing first responders from answering calls for assistance or rescue.
- During exceptionally heavy wind events, first responders may be prevented from responding to calls, as the winds may reach a speed at which their vehicles and equipment are unsafe to operate.
- Thunderstorm wind events often result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and life safety.
- Extended power outages often increase structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.

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

Vulnerability
All infrastructure listed in Appendix B

People, buildings, and utilities are vulnerable to physical damage from windstorms. Airborne debris breaks windows, damages buildings, and harms people and animals. Utility poles can break in high winds, taking down power and communications systems and causing economic disruption in the affected area.

The 20-year history going back to 1996 suggests that there is a nearly 100% chance of a high wind event in Gillespie County in any given year. Windstorms are considered a hazard in Fredericksburg and will be included in this hazard mitigation plan.

Drought

Drought is a fact of life in Gillespie County. According to the United States drought monitor, The City of Fredericksburg and the entirety of Gillespie County were in drought conditions every day from May 2011 until June 2015. The county was again hit with

drought from October 2017 until September 2018. Fredericksburg moved into drought conditions again in November 2020 and remained in those conditions. The NOAA National Severe Storms Database shows that long periods of drought occurred throughout Gillespie County in 2005, 2008, 2011, 2017, and 2020. The drought periods ranged from abnormally dry conditions to long periods of exceptional drought, as defined by the Palmer Drought Category Index.

While there have been no reported deaths or injuries due to drought conditions in Gillespie County, drought significantly impacts the city's residents. As aquifer levels fell, watering restrictions were implemented to preserve the local water supply. Trees, shrubs, and lawns dried up and died, forcing local merchants and residents to remove and replace dead vegetation.

Droughts are a significant problem for agricultural operations. Although there are no large agricultural operations in the city, Gillespie County has suffered substantial economic losses due to drought. These losses have translated into a reduced farm and ranch income in the county, which has harmed economic activity in Fredericksburg. For example, drought forced a reduction in cattle herds, leading to a loss of income for local feed stores.

In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future drought periods will occur at the same frequency and intensity as they have in the past. If the current theories concerning global warming are correct, the occurrence and duration of drought may become an even more significant hazard to Gillespie County.

Location

Drought is an ordinary condition that occurs regularly throughout Texas and Gillespie County. However, drought events can vary significantly in intensity and duration. There is no distinct geographic boundary to drought; therefore, it can occur throughout the entire Gillespie County planning area.

Impact and Extent of Future Events

In Gillespie County, drought includes economic impacts associated with crop loss and livestock loss in the county, wildfires, wind erosion of soils, the lack of food and drinking water for wild animals, and the loss or destruction of wildlife habitat. Other significant impacts are anxiety or depression caused by economic losses from drought, dust-related health problems, reduced incomes, and fewer recreational activities.

The Palmer Drought Index measures the extent of the duration and intensity of long-term drought-inducing circulation patterns. Long-term drought is cumulative, with the intensity of drought during the current month dependent upon the current weather patterns plus the cumulative patterns of previous months. The hydrological impacts of

drought (e.g., reservoir levels, groundwater levels, etc.) take longer to develop. The Palmer Drought Index depicts the magnitude of drought, while the following table describes the classification descriptions.

Palmer Drought Index

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

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

Drought is monitored nationwide by the National Drought Mitigation Center (NDMC). Indicators are used to describe broad-scale drought conditions across the United States. Indicators corresponding to the intensity of drought.

Based on the historical occurrences of drought and the location of Gillespie County, the entire planning area can anticipate a range of droughts, from abnormally dry to exceptional or D0 to D4 based on the Palmer Drought Category.

Drought has the potential to impact people in Gillespie County. While it is rare that drought, in and of itself, leads to a direct risk to the health and safety of people in the U.S., severe shortages could result in inadequate supply for human needs. Drought also is frequently associated with a variety of impacts, including:

- Recreational activities that rely on water, such as hunting and fishing, may be curtailed, resulting in fewer tourists and lower revenue.
- The number of health-related low-flow issues (e.g., diminished sewage flows, increased pollution concentrations, reduced firefighting capacity, and cross-connection contamination) will increase as the drought intensifies.
- Public safety from forest/range/wildfires will increase as water availability and pressure decreases.
- Respiratory ailments may increase as the air quality decreases.
- There may be an increase in disease due to wildlife concentrations (e.g., rabies, Rocky Mountain spotted fever, Lyme disease).
- Jurisdictions and residents may disagree over water use/water rights, creating conflict.
- Political conflicts between municipalities, counties, states, and regions may increase.
- Water management conflicts may arise between competing interests.
- Increased law enforcement activities may be required to enforce water restrictions.
- Severe water shortages could result in inadequate supply for human needs and lower water quality for consumption.
- Firefighters may have limited water resources to aid firefighting and suppression activities, increasing risk to lives and property.
- During drought, there is an increased risk of wildfires and dust storms.
- The community may need increased operational costs to enforce water restrictions or rationing.
- Prolonged drought can lead to increased illness and disease related to drought.
- Utility providers can see decreases in revenue as water supplies diminish.
- Utility providers may reduce energy generation and service to their customers to prioritize critical service needs.
- Hydroelectric power generation facilities and infrastructure would have significantly diminished generation capability. Dams cannot produce as much electricity from low water levels as from high water.
- Fish and wildlife food and habitat will be reduced or degraded over time during a drought, and disease will increase, especially for aquatic life.
- Wildlife will move to more sustainable locations, creating higher concentrations of wildlife in smaller areas, increasing vulnerability and further depleting limited natural resources.
- Severe and prolonged drought can result in the reduction of a species or cause the extinction of a species altogether.

- Plant life will suffer from long-term drought. Wind and erosion will also threaten plant life as soil quality will decline.
- Dry and dead vegetation will increase the risk of wildfire.
- Land subsidence threat increases as groundwater is depleted.
- Drought poses a significant risk to annual and perennial crop production and overall crop quality, leading to higher food costs.
- Drought-related declines in production may lead to an increase in unemployment.

Vulnerability
All infrastructure listed in Appendix B

Although not as stark as vulnerabilities caused by other environmental factors, the widespread and prolonged nature of drought places significant strain on our community's environment and economy. Long drought often damages utility and transportation systems, causing water mains to break and roads to buckle. The risk of wildfire increases dramatically in drought, causing increased cost and danger for firefighters and other emergency personnel. The extreme heat, which often accompanies drought, puts elderly citizens at risk and forces agricultural interests in the county to sell livestock or lose crops, reducing the overall economy in Gillespie County.

It is difficult to assign an accurate risk factor to drought. Lying in the transition zone between humid and semiarid climates, the Hill Country experiences both wet and dry years; at Fredericksburg, eleven inches of precipitation was recorded in 1956 and forty-one inches the following year. [26] However, by simply counting the number of recorded drought events over the last 20 years dating back to 1996, Fredericksburg is exposed to a drought cycle about every four years. Therefore, there is a 20% chance of drought in any given year. Given the long-term nature of a drought, the actual percentage of time spent under drought conditions is much greater than the statistical probability of drought. Since 2006, Gillespie County has been in some form of drought, as defined by the Palmer Drought Severity Index, 78% of the time. Dating back 20 years to 1996, there is about a 20% chance of drought in any given year in Gillespie County. Drought is considered a hazard in Gillespie County and will be included in this hazard mitigation plan.

Extreme Heat

In 2022, Texas had 279 heat-related deaths. No deaths or injuries in Gillespie County have been reported directly attributable to extreme heat.

The National Weather Service Severe Events Database has two excessive heat events in the last 20 years. Both of these events have happened since 2018.

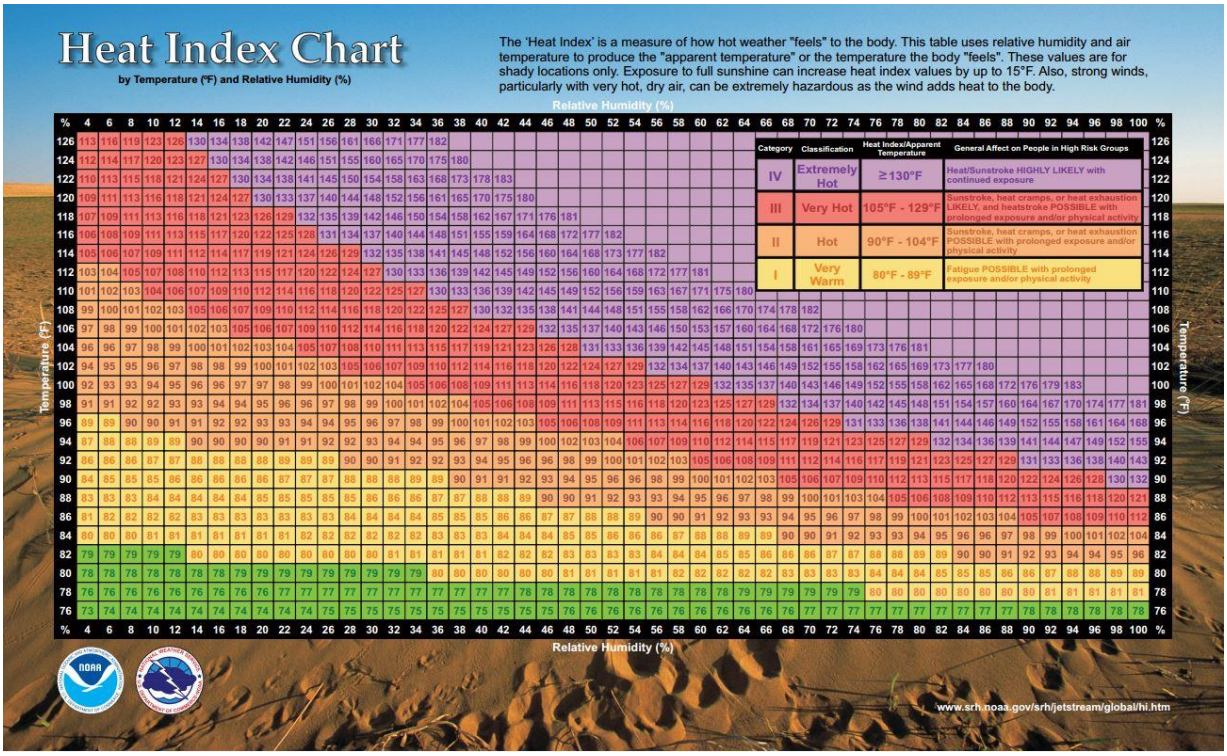
Fredericksburg has the only official weather reporting station in Gillespie County. The highest temperature ever recorded in Fredericksburg is 109° Fahrenheit. This was recorded on three separate occasions: July 2, 1980, August 10, 1953, and September 5, 2000. The record high recorded on September 5, 2000, corresponds to the drought experienced then. Although record temperatures could occur on any date, the average daily high in August is 94°, which is the warmest month.

Heat-related illnesses and deaths are preventable. When extreme heat occurs, it's essential to be aware of those at most significant risk for experiencing its effects: the very young, the elderly, and people with chronic diseases and mental illness. However, even young and healthy individuals can succumb to heat if they participate in overly strenuous physical exercise outdoors during hot weather.

The gradual nature of extreme heat's effects on the body makes it essential to be aware of these heat-related illnesses:

- Severe Sunburn
- Heat Cramps
- Heat Exhaustion
- Heat Stroke

Extreme heat is about more than just the temperature. Humidity plays a significant role in the effects of heat on the body. As the chart on the next page indicates, a relative humidity of 36% on the average daily high of 94 in August results in a Heat index of 95, which can result in heat cramps or heat exhaustion. Higher temperatures and humidity will raise the heat index.



In the future, we must assume that barring significant, rapidly occurring climate change, we can expect that future occurrences of Extreme Heat, manifest in heatwaves or prolonged periods of extremely hot weather, will occur at the same frequency and intensity as they have in the past. If the current theories concerning global warming are correct, extreme heat may become an even more significant hazard to Gillespie County.

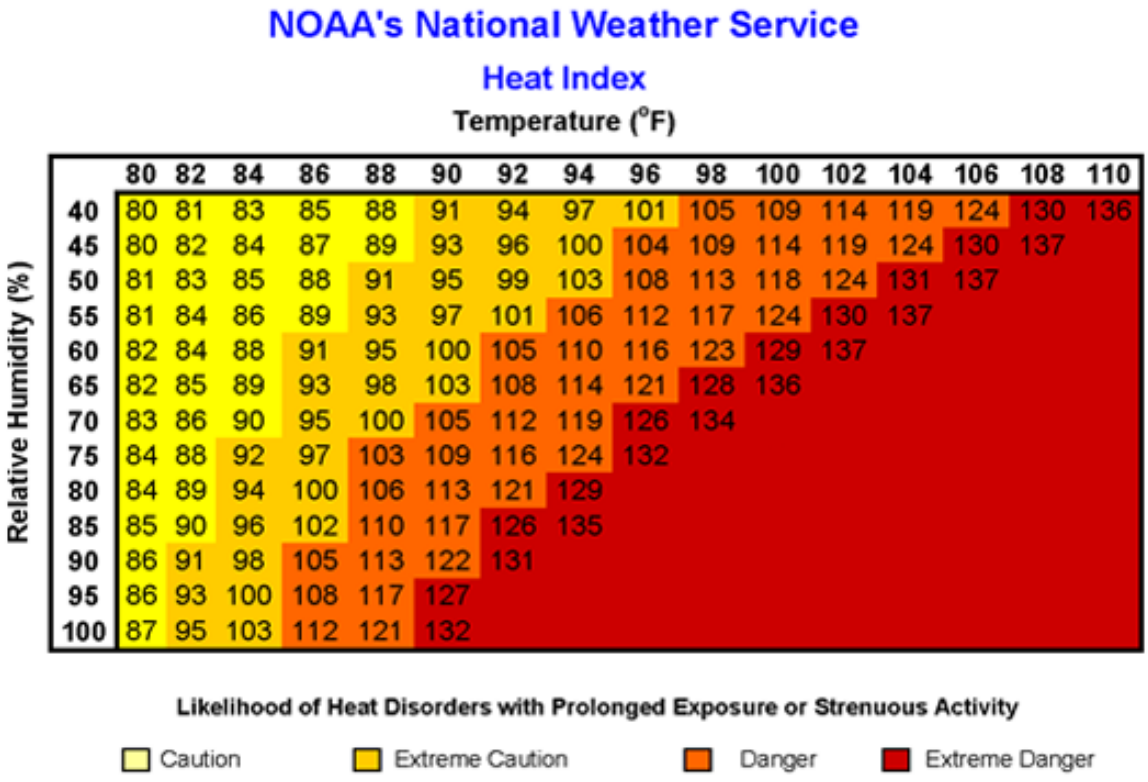
Location

Though no deaths from extreme heat have been recorded in Gillespie County, there have been heat-related deaths reported in other counties in the region, including Bexar, Bandera, Blanco, and Kerr County. There is no specific geographic scope for the extreme heat hazard. Extreme heat could occur in any area of Gillespie County, including the City of Fredericksburg.

Impact and Extent of Future Risk

Extreme heat is the most deadly natural disaster in the U.S., killing on average more people (about 600 per year) than hurricanes, lightning, tornadoes, earthquakes, and floods combined. Extreme heat causes the death of livestock, the loss of crops, and a reduction in the survival rate of wildlife. Extreme heat places the elderly, the young, and the infirm at risk of death or other heat-related injuries. Workers exposed to extreme heat are at risk for heat-related injuries and may suffer reduced income if they are unable or not permitted to work during extremely hot conditions. Electrical grids struggle and often fail to keep up with the additional demand placed on them by air conditioning and other load demands.

The magnitude or intensity of an extreme heat event is measured according to temperature concerning the percentage of humidity. According to the National Oceanic Atmospheric Administration (NOAA), this relationship is referred to as the "Heat Index" and is depicted below. This index measures how hot it feels outside when humidity is combined with high temperatures.



The extent scale displays varying degrees of caution depending on the relative humidity and temperature. For example, when the temperature is at 90°F or lower, caution should be exercised if the humidity level is at or above 40 percent.
The most significant risk from extreme heat is to public health and safety.

Potential impacts on the community may include:

- Vulnerable populations, particularly the elderly and infants, can face severe or life-threatening health problems from exposure to extreme heat, including hyperthermia, heat cramps, heat exhaustion, and heat stroke (or sunstroke).

- Response personnel, including utility workers, public works personnel, and other professions requiring individuals to work outside, are more subject to extreme heat-related illnesses since their exposure is typically greater.
- High energy demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts and elevating the risk of illness to vulnerable residents.
- Highways and roads may be damaged by excessive heat, causing asphalt roads to soften and concrete roads to shift or buckle.
- Vehicle engines and cooling systems typically run harder during extreme heat events, resulting in increased mechanical failures.
- Extreme heat events during drought can exacerbate the environmental impacts of drought, decreasing water and air quality and further degrading wildlife habitat.
- Extreme heat increases ground-level ozone (smog), increasing the risk of respiratory illnesses.
- Food suppliers can anticipate increased food costs due to increased production costs and crop and livestock losses.
- Outdoor activities may increase school injury or illness during extreme heat events.

Vulnerability

All infrastructure listed in Appendix B

People, wildlife, livestock, and utilities are vulnerable to extreme heat. Animals and people are vulnerable to heat-related injuries and death. Utility systems may be unable to keep up with additional demand and fail, increasing costs to grid operators and causing electrical outages and the loss of revenue to electrical suppliers and income to shops and businesses that depend on the electricity.

Given that temperature and humidity conditions that place people in danger of severe heat-related injury or death have a 100% probability of affecting the citizens of Gillespie County every year, Extreme Heat will be included in this hazard mitigation plan.

Winter Storms

From 2003-2008, there were 115 deaths reported among Texas residents with exposure to excessive natural cold as the underlying cause of death. According to the NOAA Severe Storms Database, there were 13 severe winter storms throughout Gillespie County between 2002 and 2022. These were county-wide events that also affected Fredericksburg. No deaths or injuries were reported in these storms.

During winter months, freezing rain, sleet, and sometimes light snow mix and fall on roads and bridges. This combination often occurs when temperatures are at or slightly below freezing. This results in an icing situation, making travel difficult in some parts of the county, if not impossible. In the Fredericksburg city limits, in addition to the general icing conditions on some or all of the minor city streets, the bridge on U.S. 290 over Barons' Creek, the bridge on U.S. 87 South at Barons Creek, and the bridge on Texas State Highway 16 South over Barons Creek have all been the sight of icing in the past.

Winter Storm Uri in 2021 was a devastating event for the entire county. Infrastructure in both the city and county was pushed to the limits. The Emergency Operation Center was open for ten days. People were without water and electricity for multiple days in some cases. Due to the magnitude of the storm, there was very little help from outside agencies. A shelter was established at the Fredericksburg Elementary School/First Baptist Church and housed numerous people.

In the future, we must assume that barring significant, rapidly occurring climate change, we can expect severe winter storms to occur at the same frequency and intensity as they have.

Location

Winter storm events are not confined to specific geographic boundaries. Therefore, all existing and future buildings, facilities, and populations in Gillespie County are considered to be exposed to a winter storm hazard and could potentially be impacted.

Impact and Extent of Future Threat

The impacts of a severe winter storm affect almost everyone in our community. These may include:

- Ice accumulation on powerlines can cause widespread electrical outages.
- Tree limbs can become coated with ice and break, falling on homes, businesses, cars, people, and powerlines.
- Icy conditions can shut down roads, leaving motorists stranded and causing a significant reduction in economic activity until conditions improve.
- The loss of heat in homes that may accompany a power outage places people and pets at risk.

- Poor road visibility can severely limit visibility, causing injury or death to motorists.

The extent of the risk in the future in terms of frequency, number, and severity of winter storms will be considered equal to the historical frequency in terms of number and severity, along with other hazards posed by the severe weather conditions that produce and accompany severe winter storms.

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

Intensity Scale for Extreme Winter Weather Events

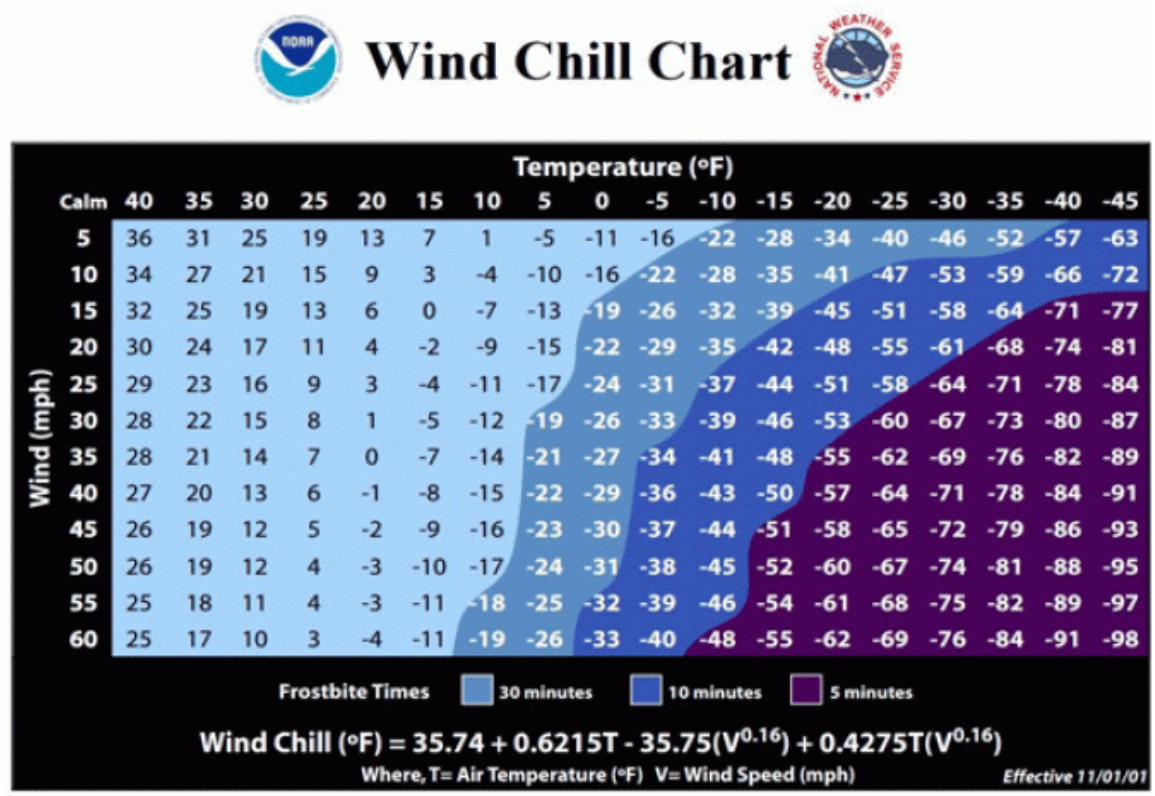
INTENSITY	TEMPERATURE RANGE (Fahrenheit)	EXTENT DESCRIPTION
Mild	40° – 50°	Winds less than 10 mph and freezing rain or light snow falling for short durations with little or no accumulations
Moderate	30° – 40°	Winds 10 – 15 mph and sleet and/or snow up to 4 inches
Significant	25° – 30°	Intense snow showers accompanied with strong gusty winds, between 15 and 20 mph with significant accumulation
Extreme	20° – 25°	Wind driven snow that reduces visibility, heavy winds (between 20 to 30 mph), and sleet or ice up to 5 millimeters in diameter
Severe	Below 20°	Winds of 35 mph or more and snow and sleet greater than 4 inches

Extent Scale – Winter Weather Alerts

Winter Weather Advisory	**This alert may be issued for a variety of severe conditions. Weather advisories may be announced for snow, blowing or drifting snow, freezing drizzle, freezing rain, or a combination of weather events.**
Winter Storm Watch	Severe winter weather conditions may affect your area (freezing rain, sleet, or heavy snow may occur separately or in combination.
Winter Storm Warning	Severe winter weather conditions are imminent.
Freezing rain or freezing drizzle	Rain or drizzle is likely to freeze upon impact, resulting in a coating of ice glaze on roads and all other exposed objects.
Sleet	Small particles of ice are usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.

Blizzard Warning	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most perilous winter storm, with visibility dangerously restricted.
Frost/Freeze warning	Below-freezing temperatures are expected and may cause significant damage to plants, crops, and fruit trees.
Wind Chill	A strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degrees lower in a calm atmosphere. The wind-chill factor is the integrated cooling power of the wind and temperature on exposed flesh.

Wind chill temperature measures how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30°Fday would feel just as cold as a calm day with 0°Ftemperatures. Gillespie County has never experienced a blizzard. However, based on previous occurrences recorded from 1996 through April 2018, it has been subject to winter storm watches, warnings, freezing rain, sleet, snow, and wind chill.



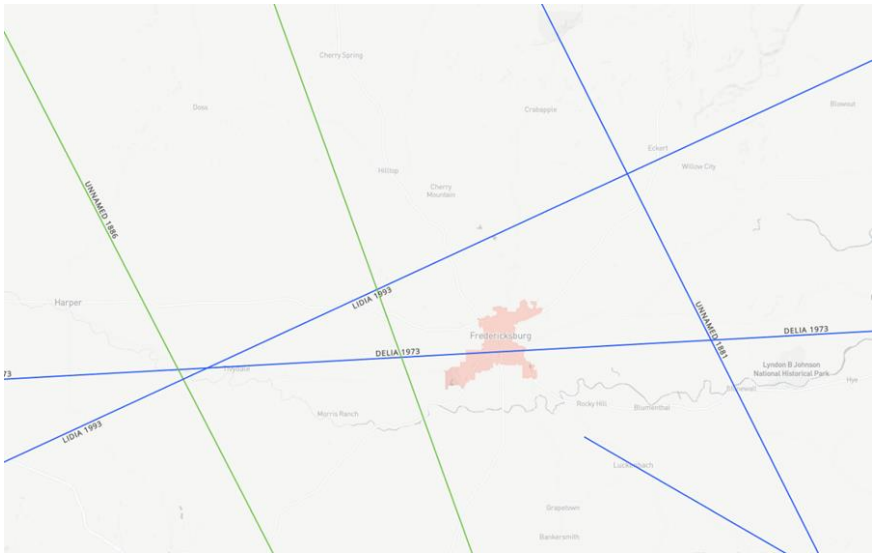
All infrastructure is listed in Appendix B.

Our utility grid is vulnerable to icy conditions, often accompanying severe winter storms. Most of our electrical grid is overhead lines often damaged by ice. The number and severity of powerful winter storms in our area are insufficient to warrant de-icing equipment purchases. Powerlines could be down for the event, causing significant disruption of schools, businesses, and transportation, causing a substantial disruption in commerce. Shut-in people, such as the elderly and infirm, may be unable to care for themselves, and emergency workers may be unable to reach and care for all those who need it.

Costs for this type of incident are hard to determine. These icing events have resulted in numerous traffic accidents over the years. They disrupt schools and businesses, force the government to pay overtime to road crews, and have caused county offices to remain closed or to open late. Based on the historical data in the NOAA Severe Climate Database, there is about a 65% chance that Gillespie County will experience a severe winter storm in any given year. Therefore, severe winter storms will be included in this hazard mitigation plan.

Hurricane

As noted in Section 3 of this Plan, Hurricanes are a significant threat to the state of Texas. Though not located in a coastal county, hurricanes still affect Fredericksburg. The current Hazard Mitigation Plan for Fredericksburg notes that freshwater flooding is the highest-ranking cause of death from hurricanes and tropical storms.
Based on historical occurrences, there is a moderate probability that a hurricane or tropical storm will impact Gillespie County in the future. Between 1851 and September 2022, hurricanes or low storm tracks crossed Gillespie County.



Based on historical occurrences, there is a moderate probability that a hurricane or tropical storm will impact Fredericksburg in the future. Between 1851 and September 2010, 4 hurricane or low storm tracks crossed Gillespie County.

However, Gillespie County's inland location is a buffer to most of a hurricane's major destructive forces. The freshwater flooding, high winds, lightning, and hail likely to affect the county are essentially the same as any other severe storm event. Therefore, hurricanes will not be included for mitigation in this plan. The plan will separately address the likely hazards, such as flooding, hail, and tornadoes from a hurricane. The impacts of a hurricane and the vulnerabilities of our local citizens to the conditions that a hurricane may cause will be addressed separately under each of those hazards.

Coastal Erosion

Gillespie County has no shoreline that meets the definition of Coastal Erosion as stated in Section 3 of this plan. Further, no major river or stream runs through the county. The citizens of Gillespie County are not impacted by or vulnerable to Coastal Erosion. Coastal Erosion is not considered a hazard to Gillespie County and will not be addressed in this plan.

Expansive Soils

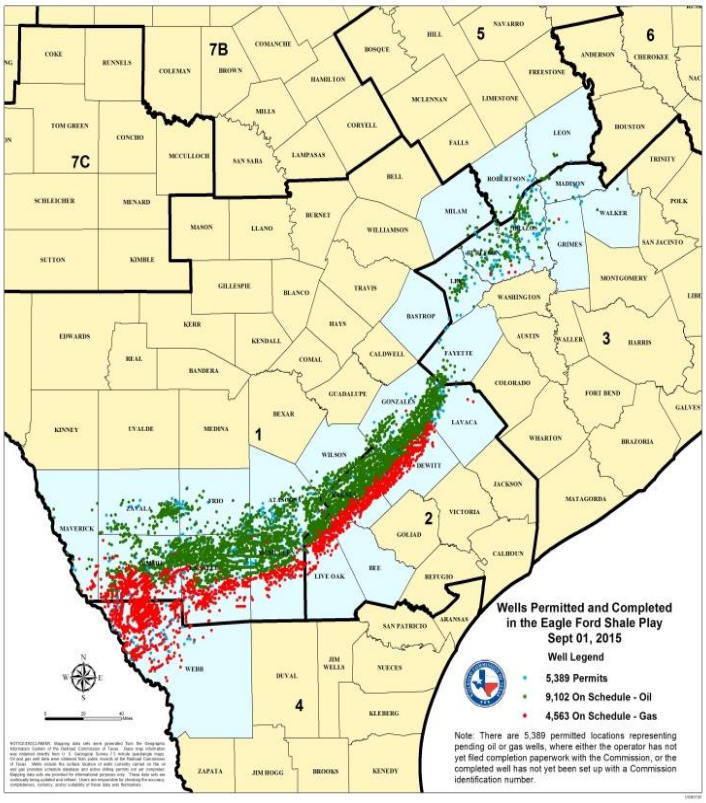
There is no history of expansive soils being a hazard in Gillespie County. The soil prevalent in Gillespie County is not typically associated with expansive soils. The citizens of Gillespie County are not impacted by or vulnerable to Expansive Soils. Expansive Soil is not considered a hazard to Gillespie County and will not be addressed in this plan.

Earthquake

According to the U.S. Geological Service, Gillespie County is in the lowest-hazard earthquake zone in the United States. As noted in Section 3, earthquakes do occur in Texas. Earthquakes and seismic events throughout the state could increase due to the fracking process used in Texas oil exploration. However, the nearest oil exploration zone, the Eagle Ford Shale, is nearly 100 miles southeast of Fredericksburg. The citizens of Gillespie County are not impacted by or vulnerable to Earthquakes. Therefore, they will not be included for mitigation in this plan. Emergency management and other county officials will monitor the situation. If there is evidence of earthquake activity in Gillespie County in the future, the plan will be revised to reflect the new hazard.

Land Subsidence

Although Gillespie County depends entirely on underground water, no land subsidence has been observed in unincorporated Gillespie County. The citizens of Gillespie County are not impacted by or vulnerable to land subsidence. Land Subsidence will not be included for mitigation in this Plan. Local officials will monitor conditions in Gillespie County and revise this plan if required.



Hazards to be included in the Hazard Mitigation Plan

After thoroughly discussing these hazards, Gillespie County has decided to mitigate them. The hazards presented here were ranked as the greatest threat to the least danger according to the criteria established in the Hazard Analysis section of this Annex. Mitigation actions will be provided for each of the identified threats.

The threats chosen for mitigation and their threat ranking/prioritization are:

1. Flood
2. Wildfire
3. Drought
4. Windstorm
5. Hail
6. Tornado
7. Severe Winter Storms
8. Lightning
9. Extreme Heat
10. Dam/Levee Failure

Mitigation Goals and Actions

The Mitigation Goals of Gillespie County

The mitigation goals of Gillespie County, as outlined in this plan, shall be as follows:

1. Protect public health and safety.
2. Reduce damage to and loss of new and existing real property.
3. Increase the awareness of public officials, community, and business leaders of the need for hazard mitigation and support actions to protect public health and safety.
4. Generate support for and increase public awareness of the need for hazard mitigation.

5. Maximize and update existing capabilities for identifying the need for and implementing hazard mitigation activities.
6. Promote sustainable growth.

The Mitigation Strategy of Gillespie County

To achieve the goals identified in this plan, it shall be the strategy of Gillespie County to:

1. Take maximum advantage of current mitigation capabilities,
2. Seek opportunities available within the county or available through cooperation with our partners,
3. Identify facilities, equipment, and technology within current means to purchase and implement,
4. Identify and pursue funding available through Hazard Mitigation Grants and other sources to finance large projects that exceed our financial capability to accomplish without such funding,
5. Engage the entire community to educate our citizens on the need for and the methods to reduce the hazards identified in this Plan,
6. Identify new hazards in the future and update this Plan accordingly.

Tactics: The Adopted Mitigation Actions

Gillespie County has identified these mitigation actions to achieve the identified mitigation goals. These mitigation actions fully comply with the capabilities and authorities identified in Appendix B.

The mitigation actions presented in the tables below are prioritized following FEMA's Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLE+E) criteria for implementing each action. As a result of this process, an overall priority was assigned to each mitigation action.

As part of the economic evaluation of the STAPLE+E analysis, each action was analyzed in terms of the overall costs, measuring whether the potential benefit from the action outweighed its costs. As a result of this process, priority was assigned to each mitigation action.

The Staple Criteria used to develop these planning decisions are defined by FEMA:

- Social – Is the hazard mitigation strategy socially acceptable?
- Technical – Is the proposed action technically feasible, cost-effective, and does it provide the appropriate level of protection?
- Administrative – Does the community have the capability to implement the action and whether the lead agency is capable of overseeing the project.

- Political – Is hazard mitigation action politically acceptable?
- Legal – Does the community have the authority to implement the proposed action?
- Economic – Does the hazard mitigation project justify the economic base, projected growth, and opportunity costs?
- Benefit-cost analysis is a mathematical method for comparing costs to the benefits to the community of a hazard mitigation action. If the benefits are greater than the costs, the project is cost-effective. Comparing the ratios of benefits to costs for several hazard mitigation projects helps identify those offering the "greatest bang for the community's buck." The benefit-cost analysis gives decision-makers an understandable way to explain and defend their decisions. FEMA and the State will use benefit-cost analysis for many grant programs to determine whether a project is eligible. The community can save time and energy by limiting planning activities to projects more likely to receive funding.
- Environmental – Does the proposed action meet statutory considerations and the public desire for sustainable and environmentally healthy communities?

As a result of this analysis, each project was prioritized based on how planning team members scored each project.

- Priority 1: Satisfies STAPLE+E considerations
- Priority 2: Moderately satisfies STAPLE+E considerations
- Priority 3: Does not satisfy STAPLE+E considerations

Mitigation Actions

Action 1: Implement a public education program using all communications processes available to inform the public on hazard mitigation actions that they can take to protect themselves from the identified hazards.	
Hazard	Hail, Flood, Tornadoes, Windstorms, Severe Winter Storms, Drought, Lightning, Wildfire, Extreme Heat/Dam/Levee Failure
Background	Educating people about the exact nature of the hazards present in the environment is the first and most crucial step in helping to mitigate these hazards. Knowing the threat and how to counter that threat is the best, least expensive way to help protect our citizens against these hazards.
Benefits	Educating the public about the natural hazards in their environment and how to protect themselves and their property against these hazards will help reduce the risk that they or their property will be harmed or damaged by these hazards and improve the overall quality of their life.
Priority	1: High

Estimated Cost	$2,000.00
Responsible Organization	Wildfire education program: All Gillespie County Fire Departments. All other education programs: Gillespie County Office of Emergency Management.
Target Completion Date	Implementation date: 10/01/2024. Programs will be ongoing with no end date.
Funding Sources	County Annual Budget, County Fire Department fundraising activities, Texas Water Development Board Grants.
Related Goals	Mitigation Goals 1-6

Action 2: Purchase National Weather Service-approved radios and install them in all identified critical buildings.	
Hazard	Hail, Tornadoes, Windstorm, Severe Winter Storm, Lightning, Extreme Heat, Wildfire, Drought, Flood, and Dam Failure.
Background	NOAA Weather Radio is a nationwide network of radio stations broadcasting continuous weather information directly from National Weather Service (NWS) offices nationwide. The broadcasts include warnings, watches, forecasts, weather observations, and other hazard information 24 hours a day.
Benefits	Supervisory personnel in these buildings will have up-to-the-minute weather information. It can order county workers to seek shelter in hazardous weather.
Priority	1: High
Estimated Cost	$500.00
Responsible Organization	Gillespie County Office of Emergency Management
Target Completion Date	12/31/2026
Funding Sources	Radios will be purchased from the operating budget of each county department.
Related Goals	Mitigation Goals 1,3,4

Action 3: Identify and map significant public and private water sources throughout the county during emergencies.	
Hazard	Drought, Wildfire
Background	Fire departments use large amounts of water to fight fires. All this water comes from wells or small, unreliable streams or tanks in Gillespie County. Catching rainwater would make more water available

	to these fire departments and reduce the demand for groundwater supplies.
Benefits	Increased water supply to first responders
Priority	2 Medium
Estimated Cost	$5,000
Responsible Organization	County Fire Departments, Emergency Management, and Gillespie County Communications
Target Completion Date	12/31/2025
Funding Sources	Texas Water Development Board Grants, HMPG Grants
Related Goals	Mitigation Goals 1,2,5,6

Action 4: Develop a database of the county's special needs/high-risk people who could/do need assistance during a severe natural hazard event.	
Hazard	Hail, Flood, Tornadoes, Windstorms, Severe Winter Storms, Drought, Lightning, Wildfire, Extreme Heat/Dam/Levee Failure
Background	Identifying high-risk populations before a crisis will help save lives and reduce injuries.
Benefits	Potential to save lives and reduce injuries to citizens and first responders during a severe weather event
Priority	2 Medium
Estimated Cost	$10,000
Responsible Organization	Gillespie County Office of Emergency Management
Target Completion Date	12/31/2025
Funding Sources	County Budget Process, HMPG Grants
Related Goals	Mitigation Goals 1,4,5,6

Action 5: Partner with Gillespie County and other non-profits to improve existing buildings for shelter use.	
Hazard	Hail, Flood, Tornadoes, Windstorm, Severe Winter Storm, Lightning, Wildfire, Extreme Heat
Background	Recent weather events in Fredericksburg documented in this plan highlight that patrons have no safe evacuation alternatives from Marketplatz during festivals. Additionally, other hazards identified

	could require shelter facilities. Building a safe, hardened structure that could also be used for community events is a proven method for providing a safe place for visitors and residents to shelter in the event of severe weather.
Benefits	Improved public safety, improved community readiness, and resiliency
Priority	3: Low
Estimated Cost	$500,000
Responsible Organization	Fredericksburg Emergency Management, Fredericksburg City Manager, Fredericksburg City Council, Gillespie County Commissioners Court, Gillespie County Office of Emergency Management
Target Completion Date	12/31/2026
Funding Sources	HMGP Grants, FEMA PDM Grants, Community Development Block Grants, Fredericksburg City Budget, Gillespie County Budget
Related Goals	Mitigation Goal 1,3,4,5,6

Action 6: Partner with Gillespie County Water Control and Improvement District #1 to rehab the remaining dams and bring them up to federal standards.	
Hazard	Dam Failure
Background	Two of the four dams in Gillespie County have been or are being rehabbed to meet federal standards on dam safety. With the assistance of federal grants, the remaining two will need to be evaluated and updated to meet national standards.
Benefits	Improved public safety, improved community readiness, and resiliency
Priority	2; Medium
Estimated Cost	$9,000,000
Responsible Organization	Gillespie County Water Control and Improvement District #1.
Target Completion Date	12/31/2030
Funding Sources	Federal Grants
Related Goals	Mitigation Goal 1,2,3,4,5,6

Action 7: Partner with Hill County Underground Water Conservation District to ensure the sustainability of local aquifers through monitoring and metering current and future wells.	
Hazard	Drought

Background	The Central Texas Region, including Gillespie County, has experienced numerous years of drought conditions. Gillespie County is entirely dependent upon groundwater.
Benefits	Improved public safety, improved community readiness, and resiliency
Priority	1: High
Estimated Cost	$0
Responsible Organization	Gillespie County and Hill Country Underground Water Conservation District
Target Completion Date	Continuous Monitoring
Funding Sources	Hill Country Underground Water Conservation District
Related Goals	Mitigation Goal 1,2,3,4,5,6

Status of Mitigation Actions in Previous Plans

Gillespie County Hazard Mitigation was adopted on June 11, 2018.

Action	Hazards Addressed in the previous plan	Status of Action	Explanation	Included in the new plan?
Implement a public education program using all communications processes available to inform the public on hazard mitigation actions that they can take to protect themselves from the identified hazards.	Hail, Flood, Tornadoes, Windstorms, Severe Winter Storms, Drought, Lightning, Wildfire, Extreme Heat/Dam/Levee Failure	Complete/Will Continue	Educating the public about the natural hazards in their environment and how to protect themselves and their property against these hazards will help reduce the harm or damage they or their property and improve the overall quality of life. This will continue to take place through multiple educational avenues.	Yes
Purchase National Weather Service-approved radios and install them in all identified critical buildings.	Hail, Tornadoes, Windstorm, Severe Winter Storm, Lightning, Extreme Heat, Wildfire, Drought, Flood, and Dam Failure.	Incomplete	This was not completed due to budget issues.	Yes
Compile a complete contact database covering all dams in Gillespie County to alert residents below the dam of a	Dam/Levee Failure	Incomplete	This was incomplete due to budget issues and the inability to maintain	No

possible/impending emergency at the dams.			accurate information.	
Install rainwater collection systems at all county fire department stationhouses.	Drought, Wildfire	Partially Complete	4 out of 5 departments have a sustainable water source.	Yes
Develop a database of special needs/high-risk people in the county who could/do need assistance during a severe natural hazard event.	Hail, Flood, Tornadoes, Windstorms, Severe Winter Storms, Drought, Lightning, Wildfire, Extreme Heat/Dam/Levee Failure	Incomplete	Budget issues and inability to maintain	Yes
Partner with the City of Fredericksburg to construct an all-purpose safe structure to shelter residents in extreme weather events.	Hail, Flood, Tornadoes, Windstorm, Severe Winter Storm, Lightning, Wildfire, Extreme Heat	Incomplete	The City of Fredericksburg and Gillespie County do not have the proper funding for this type of structure. Moving forward, they will work with other non-profits to utilize existing buildings.	Yes
Obtain solar-powered signs for 35 low-water crossings (county-wide).	Flooding	Incomplete	Funding has not been available to implement this action.	No

Adoption and Implementation

This document will be sent to the Texas Division of Emergency Management for review and approval. Once this is complete, it will be moved to FEMA for approval. After both agencies approve this document, it will be supported through the Commissioners Court.

List of Appendixes

Appendix A: Planning Team

Planning Team Members

The City of Fredericksburg and Gillespie County Hazard Mitigation Plan planning team was organized using a direct representative model. At the beginning of the process, the Gillespie County Office of Emergency Management sent notices to city and county departments asking for input and participation. The planning committee chairman addressed the Gillespie County Commissioners Court in session, explained the process, and sought their feedback and participation. The following departments and organizations responded to the request and participated throughout the process.

Organization	Department	Title
Gillespie County Commissioners Court	Precinct 3	County Commissioner
Gillespie County Office of Emergency Management	Emergency Management	Emergency Management Coordinator
City of Fredericksburg	EMS	Administrator
City of Fredericksburg	Public Works	Director
City of Fredericksburg	Public Works	Floodplain Manager
City of Fredericksburg	Public Works	GIS Engineer
City of Fredericksburg	Development Services	Director
City of Fredericksburg	Development Services	Building Official
City of Fredericksburg	Fire Department	Chief
City of Fredericksburg	Communications	Director
City of Fredericksburg	Police	Chief of Police
National Weather Service	Southern Region	Forecaster
Fredericksburg ISD	Superintendents' Office	Superintendent
Gillespie County	Emergency Management	Fire Marshall
Gillespie County Health Division	Health	Director
Gillespie County	Communications Center	Director of Dispatch
Gillespie County	Sheriff's Office	Sheriff
Gillespie County	Economic Development Commission	Executive Director
Texas Department of Transportation	Gillespie County Office	Maintenance Supervisor
Hill Country Memorial Hospital	Emergency Management	Emergency Management Coordinator

American Red Cross serving Texas Hill Country	Hill Country Chapter	Senior Disaster Program Manager
United Way	United Way of San Antonio and Bexar County	Outreach Coordinator

Appendix B: Jurisdictional Capabilities

Capability Assessment: City of Fredericksburg

Existing Plans and Policy
City of Fredericksburg Comprehensive Plan
City of Fredericksburg Drainage Master Plan
International Building Code 2015
International Residential Code 2015
International Electrical Code 2015
International Plumbing Code 2015
International Fuel Gas Code 2015
Subdivision Ordinance March 2014
Capital Improvements Plan (Ord. No. 8-058, § 11.804, 11-18-1997; Ord. No. 17-029, § 5-282, 12-3-2007)
Flood Damage Prevention Code (Code 1992, § 3.702; Ord. No. 11-014, § 3.702, 8-6-2001), Article XI City of Fredericksburg Code of Ordinances
International Fire Code 2015
Zoning Ordinance (Code 1992, § 12.101) Chapter 211 of the Texas Local Government Code March 2016
International Property Maintenance Code 2009
Stormwater Control Ordinance, Article XIII City of Fredericksburg Code of Ordinances July 2017
Historic Preservation Ordinance July 2017

Administrative and Technical
GIS Technician
City Engineer/Director of Public Works and Utilities
Emergency Management Coordinator
Assistant Emergency Management Coordinator
Floodplain Administrator
Building Inspector
Code Enforcement Officer
Street Dept.-Road building equipment and crews

Financial Capabilities/Assets Available to Fredericksburg

Taxing Authority through State of Texas Property Tax Code (Code 1992, § 1.301)
Issue Bonds
Utility Fees (Water, Wastewater, Electric, and Sanitation)
Drainage Utility Fee
Development Impact Fees (Ord. No. 8-058, § 11.801, 11-18-1997)
Taxation of Telecommunication Services (Code 1992, art. 1.500)
Building Permit Fees
Hotel Occupancy Tax (HOT Tax)
FEMA Public Assistance
FEMA Hazard Mitigation Grant Program
FEMA/NFIP Flood Mitigation Assistance
FEMA Pre-Disaster Mitigation HUD Community Development Block Grants

Education and Outreach

Firewise/Storm Ready
Hazard Awareness Campaigns
CivicReady Mass Communication Software
City of Fredericksburg Web Site
City of Fredericksburg Facebook Site
City of Fredericksburg Twitter Account
Floodplain Information Web Page

Critical Facilities

Critical facilities are structures and institutions necessary for a community's response and recovery from emergencies. Critical facilities must continue to operate during and following a disaster to reduce the severity of impacts and accelerate recovery.

Critical Facilities	High Potential Loss Facilities	Infrastructure Systems
Fredericksburg City Hall	Hazardous Materials Sites	Transportation Systems
Emergency Operations Center	Water Plants Reclamation Facility	Power Utilities
Evacuation Shelters	Landfill	Communication Systems
Law Enforcement Center	Water Well Fields	Water and Waste Water Systems
FISD Schools		U.S. Highway 290
Hill Country Memorial Hospital		State Highway 16
Consolidated Warehouse		U.S. Highway 87
Fredericksburg Fire Department Headquarters		
Fredericksburg Fire Department Substation Frederick Road		
Fredericksburg Fire Department Substation Friendship Lane		
EMS Headquarters and Substation		
Airport (County-Owned)		

Capability Assessment: Gillespie County

Existing Plans and Policy
Flood Damage Prevention Ordinance

Administrative and Technical
Emergency Management Coordinator
Asst. Emergency Management Coordinator
Flood Plain Manager
Road Building equipment and crews
Gillespie County Central Appraisal District
County 911 Coordinator
Gillespie County Communications Center

Financial Capabilities/Assets Available to Gillespie County
Property Tax Authority
Sales Tax Authority
Bond Issuing Authority
FEMA Public Assistance
FEMA Hazard Mitigation Grant Program
FEMA Pre-Disaster Mitigation
FEMA/NFIP Flood Mitigation Assistance
HUD Community Development Block Grants

Education and Outreach
Firewise/Storm Ready
Hazard Awareness Campaigns
CivicReady Mass Communication Software
Gillespie County Website

Critical Facilities

Critical facilities are structures and institutions necessary for a community's response and recovery from emergencies. Critical facilities must continue to operate during and following a disaster to reduce the severity of impacts and accelerate recovery.

Critical Facilities	High Potential Loss Facilities	Infrastructure Systems
County Fire Departments	Hazardous Materials Sites	Power Utilities
County Maintenance Yards	Energy Pipelines	Transportation Systems
Emergency Operations Center		Communications Systems
Evacuation Shelters		State Highway 16
Gillespie County Fairgrounds		US Highway 290
Gillespie County Communications Center		U.S. Highway 87
Gillespie County Courthouse		CTEC Electrical Grid
Gillespie County Jail		
Hill Country Memorial		
All Schools		
Sheriff's Office Facilities/ Law Enforcement Center		
Gillespie County Airport		

Appendix C: Meeting Dates and Discussion Topics

1. Monthly Hazard Mitigation Committee Meetings. These monthly meetings have numerous stakeholders discussing hazards and potential hazards in both the City of Fredericksburg and Gillespie County.

2. The first public meeting was held on December 8, 2022, at the Fredericksburg Fire/EMS training room at 126 W. Main St. The meeting was held in conjunction with our monthly Hazard Mitigation Committee meeting. The meeting was made public by the City Secretary's office. The purpose of this meeting was to inform the public about the reason and requirements for a current Hazard Mitigation Plan and to seek public input on hazards facing the jurisdictions covered in the plan. Outside of the citizens who regularly attended this meeting, no citizens participated.

3. The second Public Meeting was held on January 26, 2023, at the exact location as above. This meeting was made public through the City Secretary's office and the Gillespie County Judge's office. The meeting was again held with our monthly Hazard Meeting Committee meeting. Once again, no citizens outside the new attendees came to this meeting.

4. The third Public Meeting was held on February 23, 2023, at the location above. This meeting was made public through the City Secretary's office and the Gillespie County Judge's office. The meeting was again held with our monthly Hazard Meeting Committee meeting. Once again, no citizens outside the new attendees came to this meeting.

Appendix D: Dam Locations

1. Williams Creek Watershed Dam No. 1: Latitude 30° 10.7 N, Longitude 98° 35.7 W
2. Williams Creek Watershed Dam No. 2: Latitude 30° 10.2 N, Longitude 98° 36.1 W
3. Williams Creek Watershed Dam No. 3: Latitude 30° 09.6 N, Longitude 98° 37.5 W
4. Williams Creek Watershed Dam No. 4: Latitude 30° 11.0 N, Longitude 98° 37.6 W

Appendix E: Acronyms

Acronyms

AACOG	Alamo Area Council of Governments
TIP	Capital Improvements Plan
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
HUD	Housing and Urban Development
ISD	Independent School District
NFIP	National Flood Insurance Program

Appendix F: Risk Assessment Data

The method below was used to analyze the 2018 Hazard Mitigation Plan risk. When updating/revising the 2024 plan, this was reviewed and considered relevant for the updated version.

Final Risk Analysis and Ranking of Hazards
Respondents were asked to rank hazards from highest to lowest probability of affecting the respective jurisdiction. The highest risk was scored as a 1, the second highest was achieved as a 2, etc. Score values were then totaled. The lowest score corresponds to the most elevated evaluated risk.

Gillespie County

1.	Flood	25
2.	Wildfire	35
3.	Drought	66
4.	Windstorm	73
5.	Hail	75
6.	Tornado	76
7.	Severe Winter Storms	100
8.	Lightning	103
9.	Extreme Heat	126
10.	Dam/Levee Failure	144

City of Fredericksburg

1.	Hail	32
2.	Flood	49
3.	Tornado	56
4.	Windstorm	63
5.	Severe Winter Storms	79
6.	Drought	86
7.	Lightning	91
8.	Wildfire	93
9.	Extreme Heat	123

Appendix G: Links and Helpful Information

Please click the link or copy and paste the web address into your browser for more information.

City of Fredericksburg, Texas: fbgtx.org

Gillespie County, Texas: www.gillespiecounty.org

Texas Division of Emergency Management Mitigation Section: https://www.dps.texas.gov/dem/Mitigation/index.htm

FEMA Mitigation Web Site: https://www.fema.gov/what-mitigation

FEMA FLOOD MAP SERVICE CENTER: https://www.fema.gov/flood-mapping-products

Texas Water Development Board http://www.twdb.texas.gov/index.asp

Texas A&M Forest Service http://texasforestservice.tamu.edu/

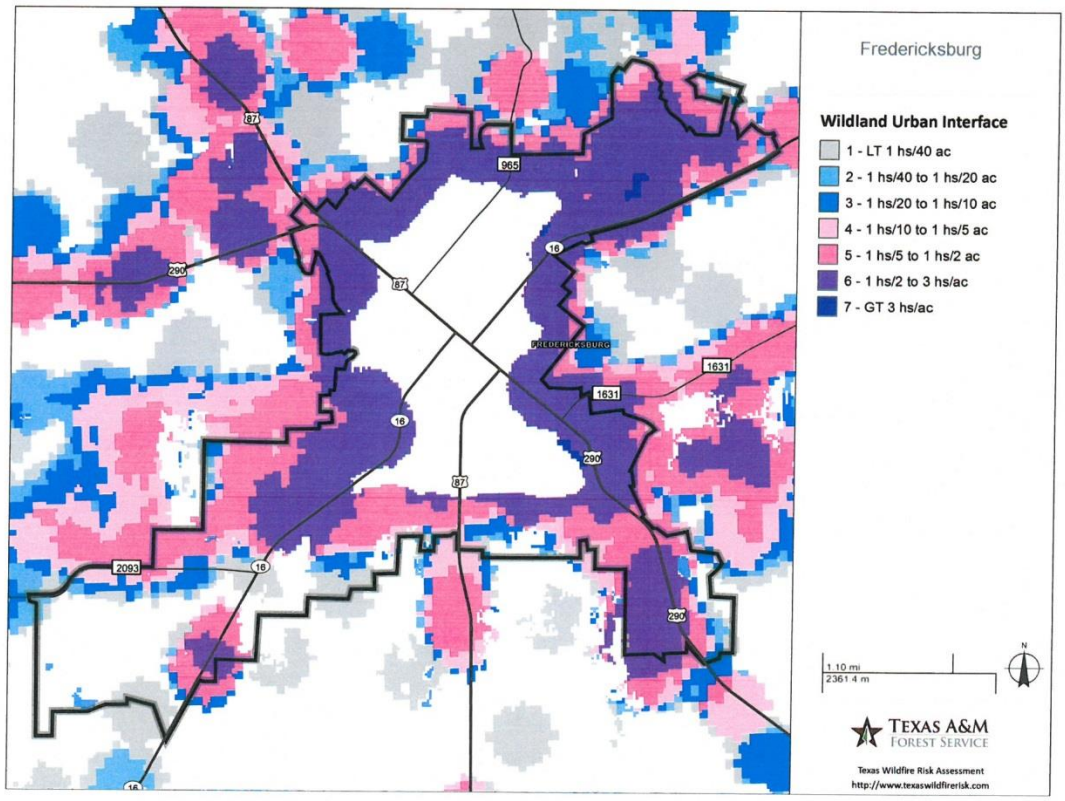
National Weather Service http://www.weather.gov/

National Integrated Drought Information System: https://www.drought.gov/drought/

National Severe Storms Laboratory: http://www.nssl.noaa.gov/

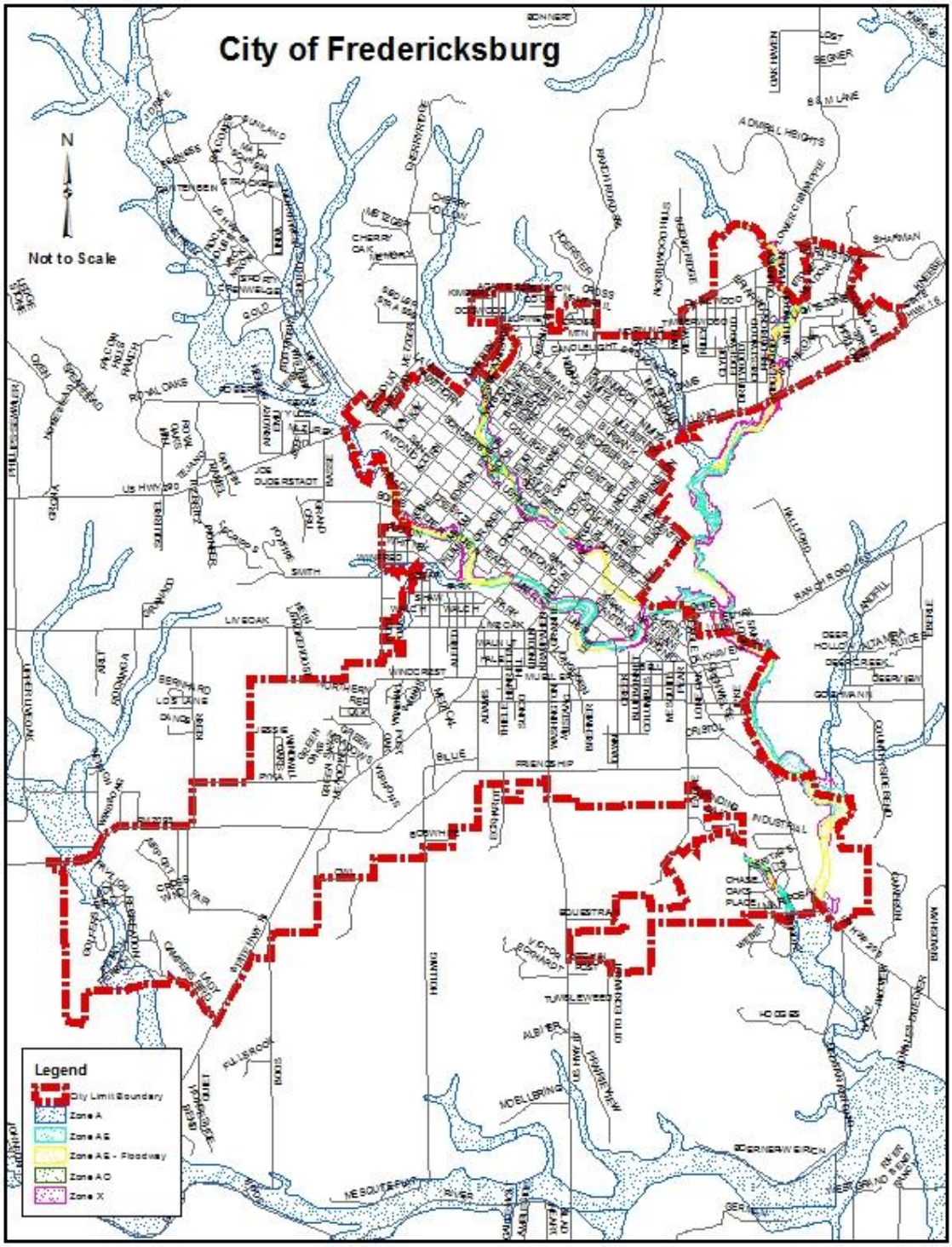
Appendix H: Wildland Urban Interface

The legend indicates the number of houses per acre in the Interface area. For example, 1hs/40 = 1 house per 40 acres.

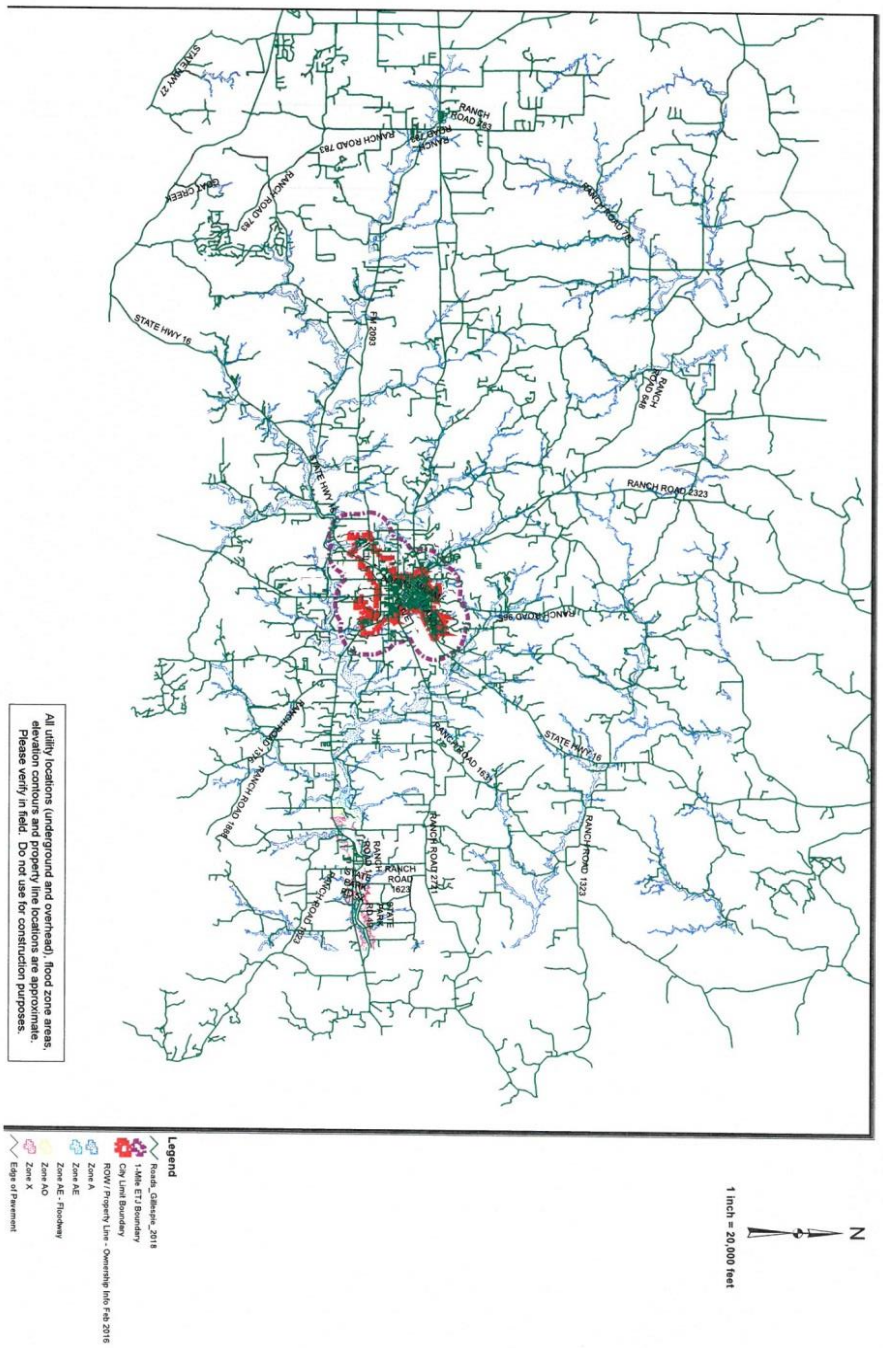


Texas A&M Forest Service 7 TWRA Summary Report

Appendix I: Flood Plain Map for the City of Fredericksburg



Appendix J: Flood Plain Map for Gillespie County



Appendix K: Inundation Maps

Williams Creek Water Shed Site 1

Plate 1

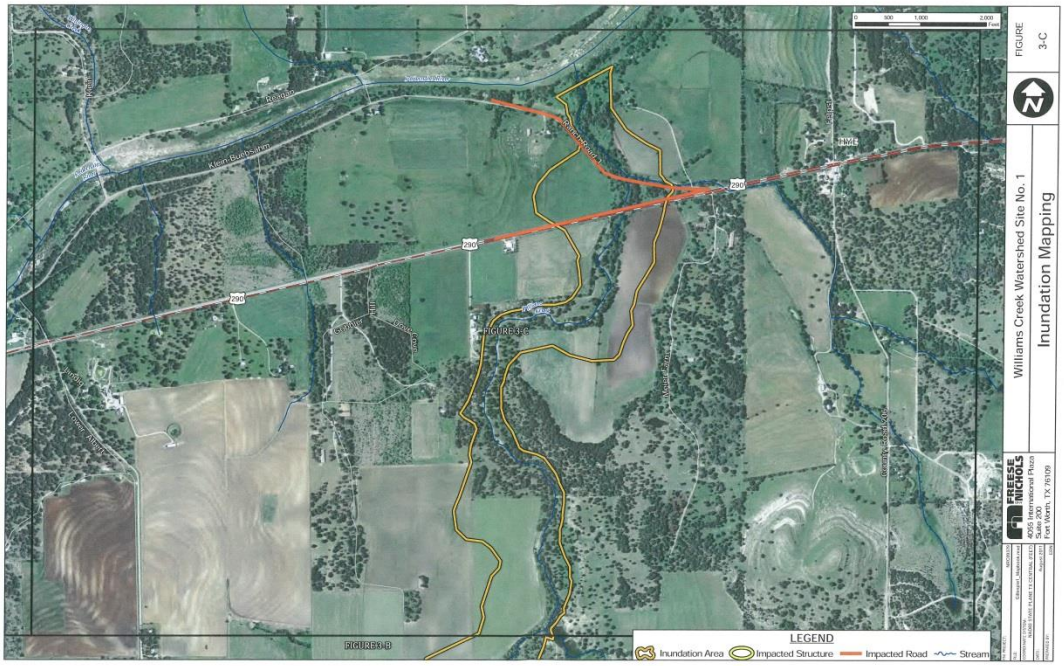


Plate 2

Williams Creek Water Shed Site 2

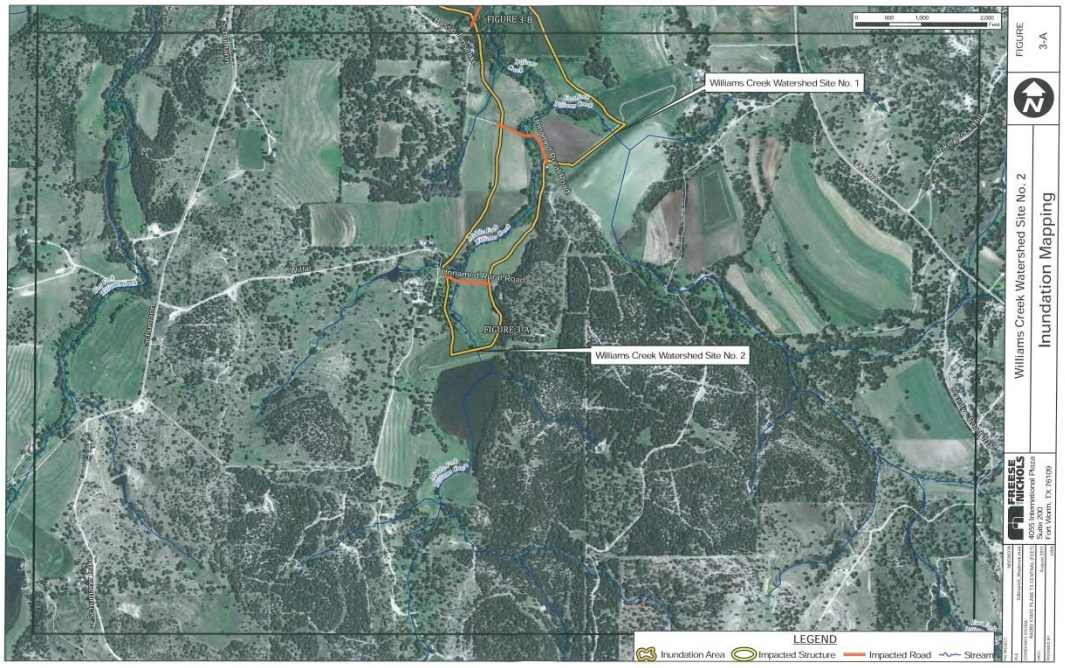


Plate 1

Plate 2

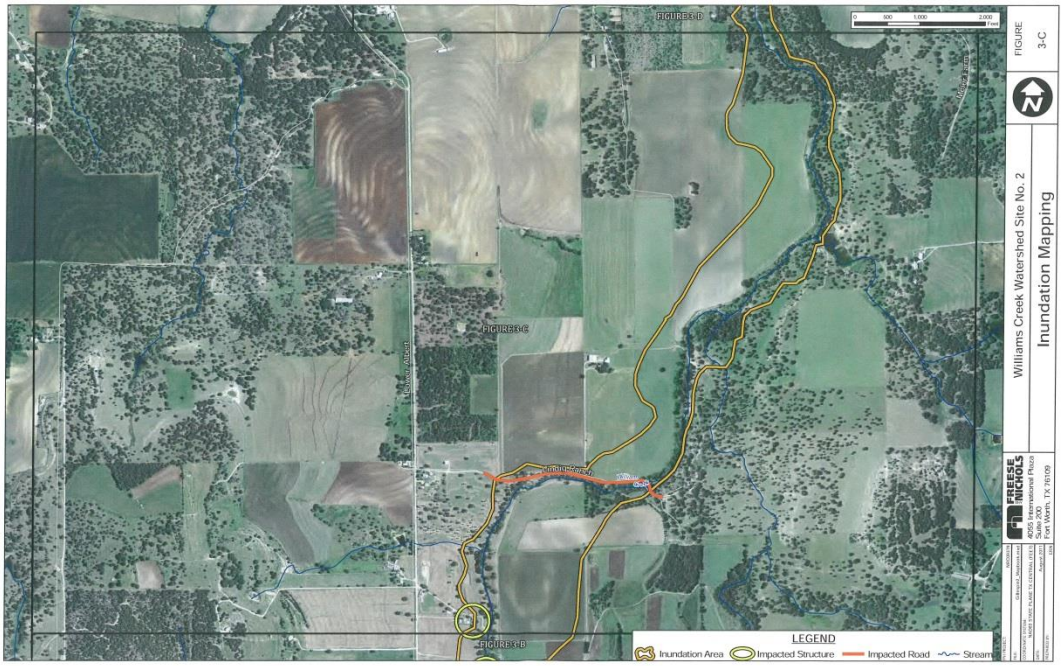


Plate 3

Plate 4

Williams Creek Watershed Site 3

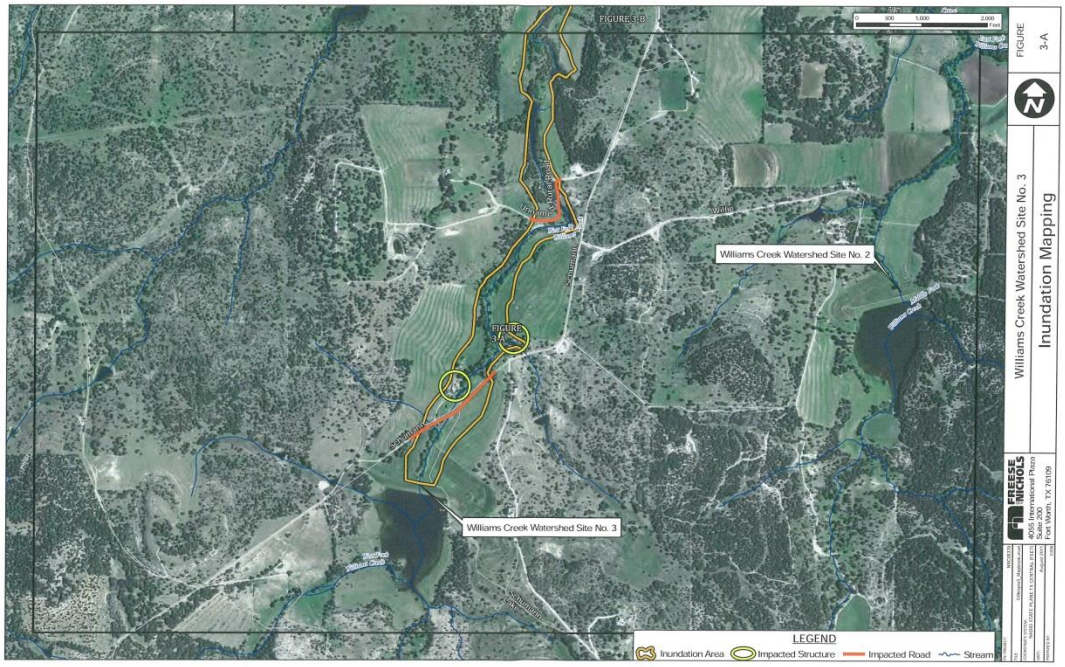


Plate 1

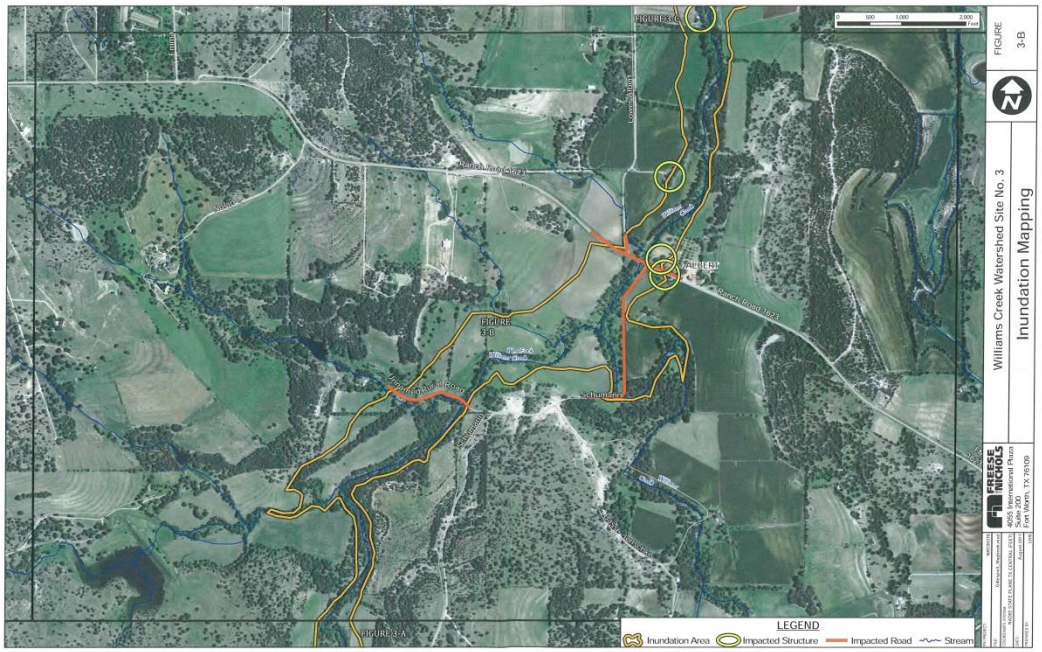


Plate 2

Plate 3

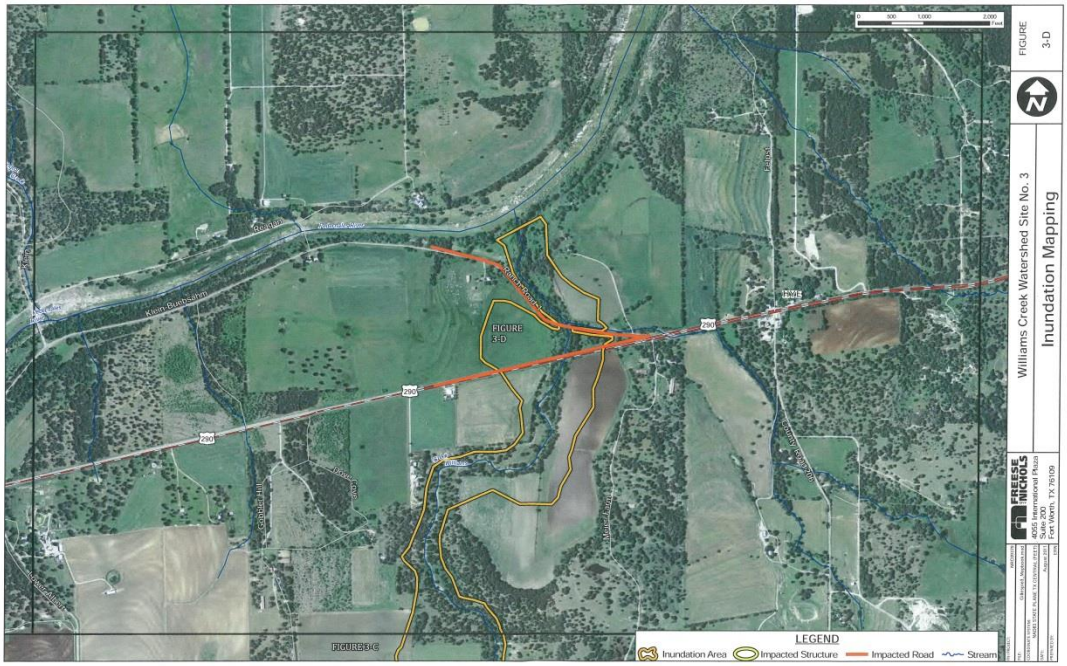


Plate 4

Williams Creek Watershed Site 4

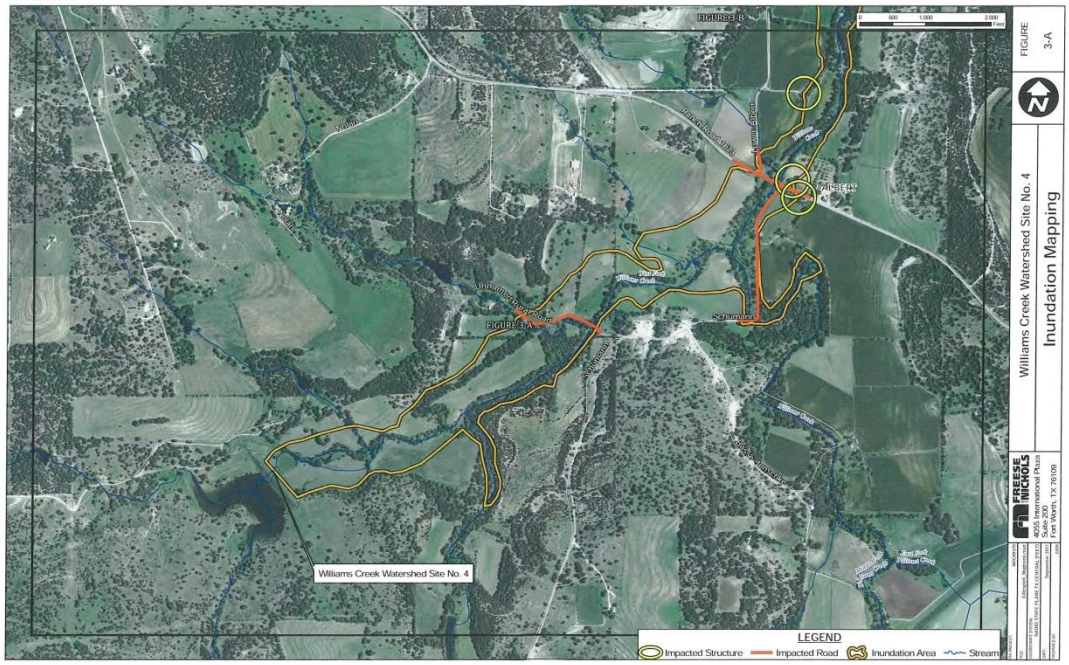


Plate 1

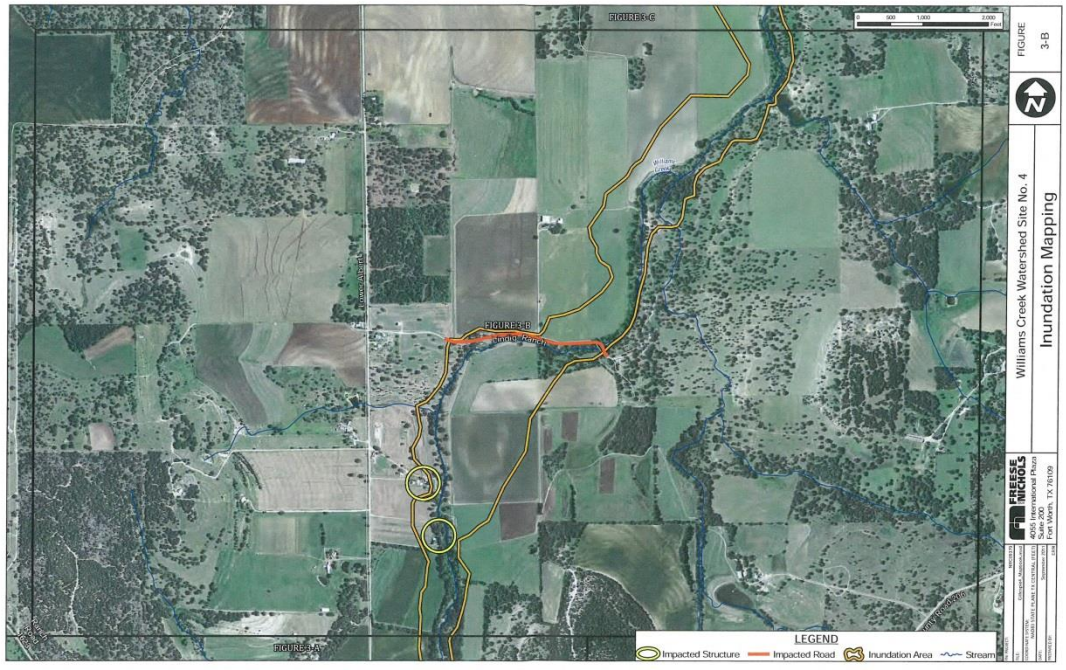


Plate 2

Williams Creek Watershed Site 4

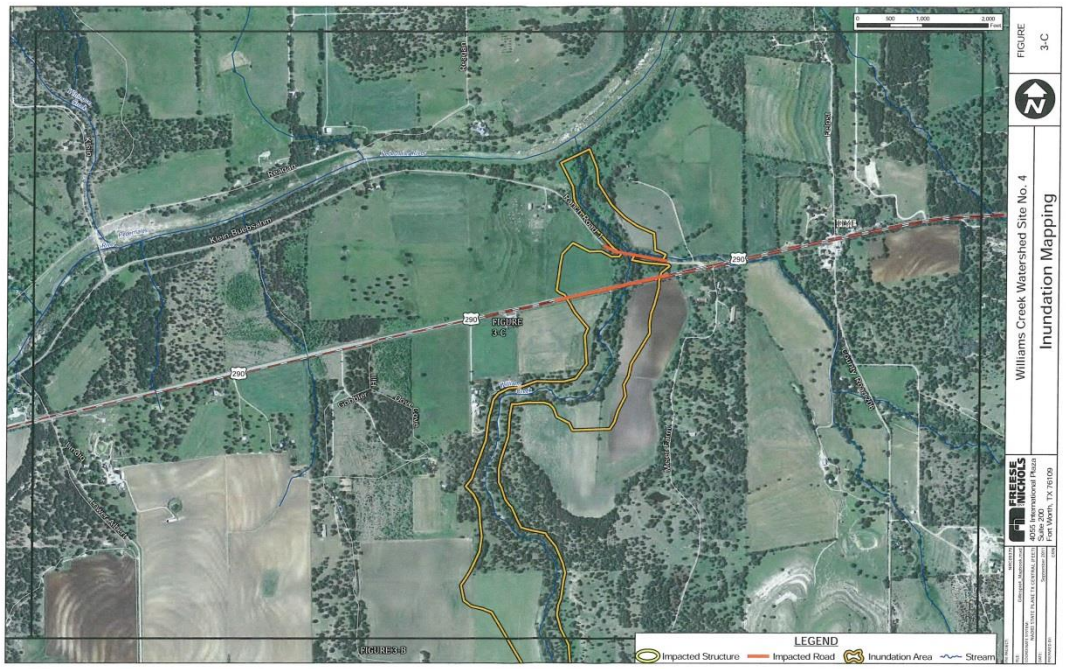


Plate 3

Central Texas Electric Co-op
P.O.BOX 553 • FREDERICKSBURG, TEXAS 78624-0553
A Touchstone Energy® Cooperative
The power of human connections®

January 10, 2024

Gillespie County Commissioners Court
101 W Main Street, Suite 9
Fredericksburg, Texas 78624
Attn: Keith Kramer (kkramer@gillespiecounty.org)

Re: WO#231763

Dear Mr. Kramer:

This letter is in regard to our phone conversation on 1-08-2024 regarding the attached Application for Permit Authorizing Construction Within the Public Road Right-of-Way of a Gillespie County Maintained Road at and along Kerr Road and the intersection of FM 2093 (Tivydale Road).

The project we are asking application for is to construct a new three-phase tie line.

The dimensions for the project will be approximately ten feet (10') wide by 502' feet in length from the intersection of FM 2093 north along the east right-of-way line of Kerr Road. The new construction will consist of four (4) 45-foot poles, two (2) anchors, and three (3) guy wires.

During construction and up to completion of this project, the right-of-way will be returned to its original state. Attached is a copy of the Texas Department of Transportation Traffic Control Plan Conventional Road shoulder work.

The work locations for this project are new pole #302, GPS location 30.251841, -98.90635, install a new 45-foot pole. Anchor and guy wire GPS location30.25191, -98.906272, install two (2) anchors and three (3) guy wires. New pole #301 GPS location 30.251977, -98.9060272, install a new 45-foot pole. New pole #300 GPS location 30.252657, -98.906266, install 45-foot pole. New pole #299 GPS location 30.252974, -98.906242, install a 45-foot pole. Ending at existing pole #101-130052P GPS location 30.253221, -98.906255, existing pole location for completion of project.

The construction will consist of four (4) new 45-foot three-phase poles, each having 8-foot long crossarms and four (4) conductors. Two (2) new anchors will be installed along with three (3) guy wires between new pole #302 and new pole #301. New poles and anchors will be located within the right-of-way 18 inches west of the east right-of-way line along Kerr Road.

New pole seating depth will be 6.5 feet. One anchor will be set 7-feet deep and the second anchor will be set 8-feet deep.

Also attached are construction drawings approved by CTEC Electrical Engineer. Please contact me at our Fredericksburg office at 830-992-2264 if you have any questions or would like to make a site visit.

Thank you in advance,

Patrick Duecker
Patrick Duecker
Staking Technician

attachments
PD:cs

APPLICATION FOR PERMIT AUTHORIZING CONSTRUCTION WITHIN THE PUBLIC ROAD RIGHT-OF-WAY OF A GILLESPIE COUNTY MAINTAINED ROAD

ORIGINAL COPY OF THIS APPLICATION WITH FEE AND ATTACHMENTS SHOULD BE SUBMITTED TO:

Commissioner for Precinct with jurisdiction over the roadway subject to the construction permit application.

101 W. Main, Unit #9
Fredericksburg, Texas 78634

I. Applicant Information:

Date of Application: 01-08-2024

Check Type of Ownership: [X] Corporation [ ] Partnership [ ] Individual

Applicant Name: Central Texas Electric Cooperative, Inc. (Patrick Duecker)

Address: 386 Friendship Lane, Fredericksburg, Texas 78624

Phone: 830-992-2264 Fax: E-Mail: pat.duecker@ctec.coop

Applicant's Contractor on this project:

Name: J.P.L. (James PowerLine) (Bruce Ottmers - CTEC Contractor Rep)

Address: 386 Friendship Lane, Fredericksburg, Texas 78624

Phone: 830-992-0223 Fax: E-Mail: bruce.ottmers@ctec.coop

II. Permit Information:

Place a check mark in the box on those statements which are applicable to your company:

(a) This application is for a:

[ ] PIPROW Permit-Private Improvement in Right-of-Way
[X] UR Permit-Utility installed in Road Right-of-way

(b) [ ] New Facility [ ] Repair [ ] Modernization

III. Construction Details:

Please provide a detailed description of the proposed construction, to be constructed in conformity with the Gillespie County Regulations and Procedures Authorizing Permits for Construction within the Public Road Right-of-Way of County Maintained Roads and Permit Procedures as attachments to this Application, including plat or site maps, design drawings, and specifications including depths, widths and description of materials as required by said regulation and procedures.

(a) Check the following type of construction you are seeking a permit to construct in the county road right-of-way:

[ ] Driveway or culvert installation
[ ] Gas Line (§181.021 Texas Utilities Code
[X] Electric Utilities §181.041 Texas Utilities Code.
[ ] Telephone or Telegraph Corporations §181.081 Texas Utilities Code
[ ] Community Antenna and Cable TV §181.101 Texas Utilities Code
[ ] This project is not included in the above listed entities.

(b) [X] An existing facility is to be modernized or expanded or the property where the new construction is to be conducted is located in the public road right-of-way.

IV. Representation, Releases and Warranties:

(a) Applicant will use Best Management Practices to minimize erosion, contamination, sedimentation and a commitment to restore the work area to its former state of usefulness, including revegetation of the project at applicant's sole cost and expense.

(b) Applicant will utilize the traffic control measures within this application or attachments to this application in conformity with the Texas Manual of Uniform Traffic Control Devices.

(c) Applicant estimates the start date of this project to be February 1, 2024, with an anticipated date of completion of February 29, 2024 .

(d) Applicant will provide details regarding the minimum depth of any utility installation, as well as any safety features, such as cathodic corrosion protection, casing or sleeve pipe to facility subsequent repairs of any utility/pipeline, and the location of such utility/pipeline in relation to the traveled portion of the roadway, as well as any drainage facilities related to the roadway.

(e) Applicant will provide full design drawings for any driveway, culvert or other type of construction, and whether the driveway will be permanent or temporary, including any drainage considerations and line of sight dimensions.

(f) Applicant will, by signing this Application, affirm that it has read the terms and conditions contained in the Gillespie County Regulations and Procedures Authorizing Permits for Construction within the Public Road Right-of-Way of County Maintained Roads, as well as the Permit Procedures authorized therein, and all representations, releases and waivers related to any permits issued pursuant to the said Regulations.

(g) Applicant will provide a site map indicating the approximate location of all improvements on the county road right-of-way as part of the application detail.

V. Affirmation of Information:

To the best of my knowledge, the above information, plus any information contained in any attachments, is an accurate description of project details.

Date: 01-08-2024

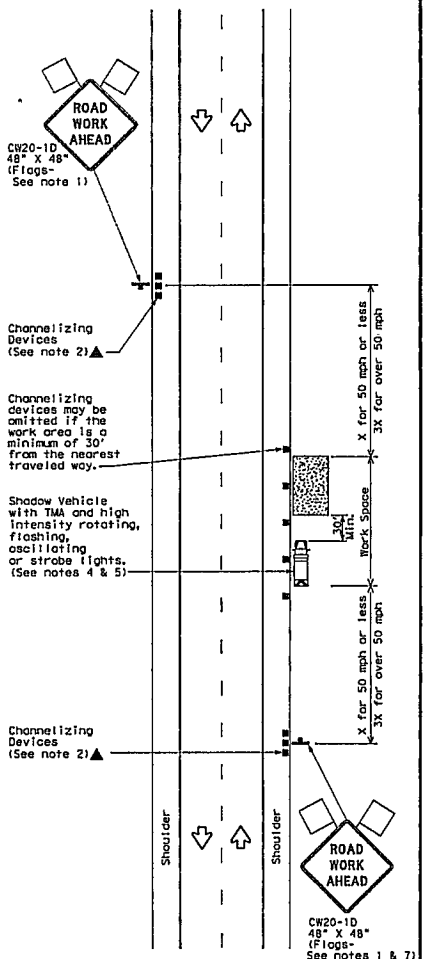
Patrick Duecker

Applicant or Applicant's Representative

Bruce Ohlmer

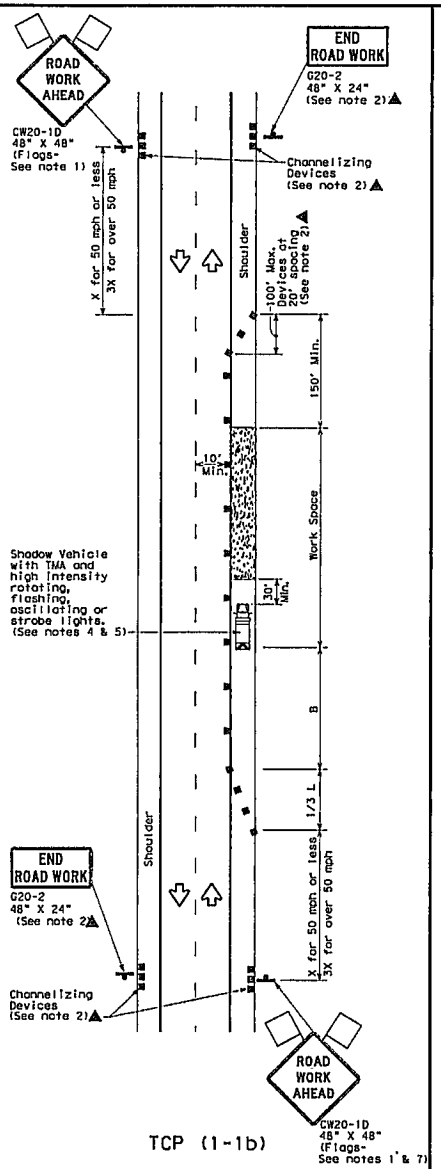
Contractor or Contractor's Representative

DATE:
FILE:



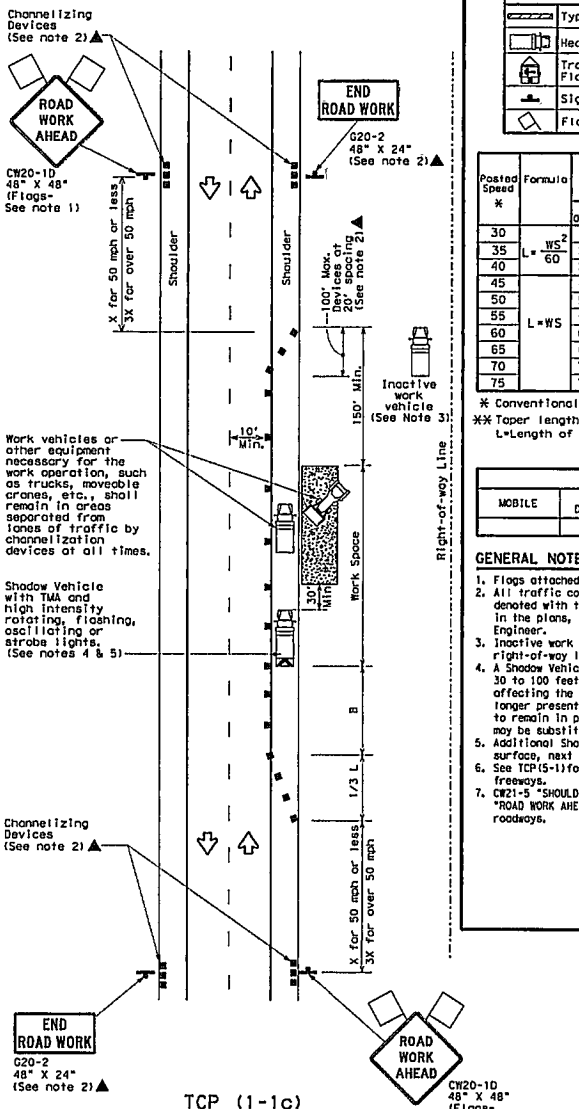
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
6. See TCP(5-1)for shoulder work on divided highways, expressways and freeways.
7. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	CW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	DIST	COUNTY		SHEET NO.

151

tyler technologies

Remittance:
Tyler Technologies, Inc
(FEIN 75-2303920)
P.O. Box 203556
Dallas, TX 75320-3556

Invoice

Invoice No	Date	Page
130-143424	02/01/2024	1 of 3

Questions:
Tyler Technologies- Public Safety
Phone: 1-800-772-2260 Press 2, then 5
Email: ar@tylertech.com

Bill To: GILLESPIE COUNTY
COUNTY AUDITOR'S OFFICE
101 W. MAIN, UNIT #4
FREDERICKSBURG, TX 78624-3700

Ship To: GILLESPIE COUNTY AUDITOR'S OFFICE
101 W. MAIN, UNIT #4
FREDERICKSBURG, TX 78624-5405

Cust No.-BillTo-ShipTo	Ord No	PO Number	Currency	Terms	Due Date
45430 - MAIN - 104	24891		USD	NET30	03/02/2024

Date	Description	Units	Rate	Extended Price
Contract No.: Gillespie County, TX				
	New World Enterprise Third Party Interface Standard Maintenance- New World State/NCIC Interface/On-Line CAD State/NCIC Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	1,950.11	1,950.11
	New World Fire Mobile Unit Standard Maintenance - Dispatch/Messaging Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	606.72	606.72
	Additional New World Enterprise Standard Maintenance for CAD - BOLOs Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	866.73	866.73
	Additional New World Enterprise Standard Maintenance for CAD - CAD Auto Routing Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	1,300.08	1,300.08
	Additional New World Enterprise Standard Maintenance for CAD - CAD AVL Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	1,300.08	1,300.08
	Additional New World Enterprise Standard Maintenance for CAD - Web CAD Monitor Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	2,166.80	2,166.80
	New World Enterprise Third Party Interface Standard Maintenance - CAD Paging Interface Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	1,300.08	1,300.08
	New World Enterprise Third Party Interface Standard Maintenance - E-911 Interface Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	1,300.08	1,300.08
	New World Enterprise Third Party Interface Standard Maintenance - NG911 Interface Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	2,166.80	2,166.80
	New World Enterprise Third Party Interface Standard Maintenance Pre-Arrival Questionnaire Interface Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	1,300.08	1,300.08
	Law Enforcement Management Data Mart (CAD) Standard Maintenance - Includes 2 users Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	433.37	433.37
	New World Enterprise Third Party Interface Standard Maintenance - Fire Records Interface Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	1,733.45	1,733.45
	New World Enterprise Combined LE/Fire/EMS CAD Standard Maintenance Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	8,199.19	8,199.19
	New World Law Enforcement Mobile Unit Standard Maintenance- Mobile Message - Dispatch/Messaging/LE State/NCIC via Switch Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	1,733.43	1,733.43
	New World Law Enforcement Mobile Unit Standard Maintenance- Mobile Message - In-Car Mapping / AVL Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	541.71	541.71
	New World Law Enforcement Mobile Unit Standard Maintenance- Mobile Message - In-Car Mapping / AVL Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	433.37	433.37
	New World Law Enforcement Mobile Unit Standard Maintenance- Mobile Message - State Photo Download	1	433.37	433.37

tyler technologies

Remittance:
Tyler Technologies, Inc
(FEIN 75-2303920)
P.O. Box 203556
Dallas, TX 75320-3556

Invoice

Invoice No	Date	Page
130-143424	02/01/2024	2 of 3

Questions:
Tyler Technologies - Public Safety
Phone: 1-800-772-2260 Press 2, then 5
Email: ar@tylertech.com

Bill To: GILLESPIE COUNTY
COUNTY AUDITOR'S OFFICE
101 W. MAIN, UNIT #4
FREDERICKSBURG, TX 78624-3700

Ship To: GILLESPIE COUNTY AUDITOR'S OFFICE
101 W. MAIN, UNIT #4
FREDERICKSBURG, TX 78624-5405

Cust No.-BillTo-ShipTo	Ord No	PO Number	Currency	Terms	Due Date
45430 - MAIN - 104	24891		USD	NET30	03/02/2024

Date	Description	Units	Rate	Extended Price
	Maintenance Start: 06/Mar/2024, End: 05/Mar/2025			
	New World Law Enforcement Mobile Unit Standard Maintenance- Mobile Message - Drivers Lic Mag Stripe Reader/Barcode Reader Interface Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	433.37	433.37
	New World Law Enforcement Mobile Unit Standard Maintenance- Mobile Message - Drivers Lic Mag Stripe Reader/Barcode Reader Interface Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	541.71	541.71
	New World Law Enforcement Mobile Unit Standard Maintenance- Mobile Message - Dispatch/Messaging/LE State/NCIC via Switch Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	2,166.80	2,166.80
	New World Fire Mobile Unit Standard Maintenance - In-Car Mapping / AVL Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	151.67	151.67
	New World Law Enforcement Mobile Unit Standard Maintenance- Mobile Message - State Photo Download Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	541.71	541.71
	New World Mobile Messaging Server Standard Maintenance Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	10,834.03	10,834.03
	Fire/EMS Mobile Site License - Maintenance Maintenance Start: 06/Mar/2024, End: 05/Mar/2025	1	950.53	950.53
Contract No.: Gillespie County, TX				
	New World Third Party Maintenance - Geo-File Maintenance Maintenance Start: 15/Mar/2024, End: 14/Mar/2025	1	1,625.11	1,625.11
	New World Third Party Maintenance - CAD Workstations using ArcGIS Engine Runtime Maintenance Start: 15/Mar/2024, End: 14/Mar/2025	1	1,354.26	1,354.26
	New World Third Party Maintenance - GIS Mobile In-Car Mapping Maintenance Start: 15/Mar/2024, End: 14/Mar/2025	1	2,112.64	2,112.64
	New World Third Party Maintenance - ew World Third Party Embedded Software Maintenance Start: 15/Mar/2024, End: 14/Mar/2025	1	3,385.64	3,385.64
Contract No.: Gillespie County, TX				
	CrewForce - Fire Dispatch Maintenance: Start: 06/Mar/2024, End: 05/Mar/2025	6	59.41	356.46

RECEIVED

JAN 08 2024

Gillespie County Auditor

tyler technologies

Remittance:
Tyler Technologies, Inc
(FEIN 75-2303920)
P.O. Box 203556
Dallas, TX 75320-3556

Invoice

Invoice No	Date	Page
130-143424	02/01/2024	3 of 3

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COUNTY AUDITOR'S OFFICE
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FREDERICKSBURG, TX 78624-3700

Ship To: GILLESPIE COUNTY AUDITOR'S OFFICE
101 W. MAIN, UNIT #4
FREDERICKSBURG, TX 78624-5405

Cust No.-BillTo-ShipTo	Ord No	PO Number	Currency	Terms	Due Date
45430 - MAIN - 104	24891		USD	NET30	03/02/2024

Date	Description	Units	Rate	Extended Price

RECEIVED
JAN 08 2024
Gillespie County Auditor

****ATTENTION****
Order your checks and forms from Tyler Business Forms at 877-749-2090 or tylerbusinessforms.com to guarantee 100% compliance with your software.

Subtotal	52,219.38
Sales Tax	$0.00
Invoice Total	52,219.38

77 Boot Ranch Circle, Fredericksburg, Texas 78624
(830) 990-7623 | BootRanch.com

January 15, 2024

Mr. Don Weinheimer
Gillespie County Commissioner, Pct 4
Gillespie County Courthouse
Fredericksburg, TX 78624

VIA HAND DELIVERY

RE: A request of extension for preliminary plat of Boot Ranch, Phase 2 Subdivision, Sections 13-16, 17B-17C, 18, 19A-19B, 20 and 22B.

Dear Commissioner Weinheimer,

This letter requests a 1 (one) year extension for preliminary plat of Boot Ranch, Phase 2 Subdivision Sections 13-16, 17B-17C, 18, 19A-19B, 20 and 22B of Boot Ranch Subdivision Document 20153665 on the January 22, 2024, Commissioner's Court Agenda.

Thank you for your consideration and time in this matter.

Sincerely Yours,

Cade Emerson
Director of Development
77 Boot Ranch Circle
Fredericksburg, TX 78624
Direct: 830.990.7623

CE/ae

Racial Profiling Report | Exempt

Agency Name: GILLESPIE CO. CONST. PCT. 4
Reporting Date: 01/18/2024
TCOLE Agency Number: 171104

Chief Administrator: ELVERT M. AKIN

Agency Contact Information:
Phone: (830) 997-7585
Email: makin@gillespiecounty.org

Mailing Address:
97 Frederick Road
Room 107
Fredericksburg, TX 78624

FULL EXEMPTION RACIAL PROFILING REPORT

Article 2.132 CCP Law Enforcement Policy on Racial Profiling a.) In this article:

1.) "Law enforcement agency" means an agency of the state, or of a county, municipality , or other political subdivision of the state, that employs peace officers who make traffic stops in the routine performance of the officers' official duties.

I certify it is not the policy of this agency to make traffic stops in the routine performance of the officers' official duties.

Executed by: ELVERT M. AKIN
Constable

Date: 01/18/2024

Submitted electronically to the

The Texas Commission on Law Enforcement

Racial Profiling Report | Full

Agency Name: GILLESPIE CO. CONST. PCT. 3
Reporting Date: 01/10/2024
TCOLE Agency Number: 171103

Chief Administrator: HILARIO A. VILLA SR

Agency Contact Information:
Phone: (830) 307-3448
Email: hvilla@gillespiecounty.org

Mailing Address:
97 Frederick Road
Room 106
Fredericksburg, TX 78624

This Agency filed a full report

GILLESPIE CO. CONST. PCT. 3 has adopted a detailed written policy on racial profiling. Our policy:

1) clearly defines acts constituting racial profiling;

2) strictly prohibits peace officers employed by the GILLESPIE CO. CONST. PCT. 3 from engaging in racial profiling;

3) implements a process by which an individual may file a complaint with the GILLESPIE CO. CONST. PCT. 3 if the individual believes that a peace officer employed by the GILLESPIE CO. CONST. PCT. 3 has engaged in racial profiling with respect to the individual;

4) provides public education relating to the agency's complaint process;

5) requires appropriate corrective action to be taken against a peace officer employed by the GILLESPIE CO. CONST. PCT. 3 who, after an investigation, is shown to have engaged in racial profiling in violation of the GILLESPIE CO. CONST. PCT. 3 policy;

6) requires collection of information relating to motor vehicle stops in which a warning or citation is issued and to arrests made as a result of those stops, including information relating to:
a. the race or ethnicity of the individual detained;
b. whether a search was conducted and, if so, whether the individual detained consented to the search;
c. whether the peace officer knew the race or ethnicity of the individual detained before detaining that individual;
d. whether the peace officer used physical force that resulted in bodily injury during the stop;
e. the location of the stop;
f. the reason for the stop.

7) requires the chief administrator of the agency, regardless of whether the administrator is elected, employed, or appointed, to submit an annual report of the information collected under Subdivision (6) to:
a. the Commission on Law Enforcement; and
b. the governing body of each county or municipality served by the agency, if the agency is an agency of a county, municipality, or other political subdivision of the state.

The GILLESPIE CO. CONST. PCT. 3 has satisfied the statutory data audit requirements as prescribed in Article 2.133 (c), Code of Criminal Procedure during the reporting period.

Executed by: HILARIO A. VILLA
Constable

Date: 01/10/2024

Total stops: 35

Street address or approximate location of the stop	
City street	8
US highway	22
County road	5
State highway	0
Private property or other	0
Was race or ethnicity known prior to stop?	
Yes	3
No	32
Race / Ethnicity	
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	24
Hispanic / Latino	11
Gender	
Female	**12**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	8
Hispanic / Latino	4
Male	**23**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	16
Hispanic / Latino	7
Reason for stop?	
Violation of law	**1**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	1

Hispanic / Latino	0
Preexisting knowledge	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Moving traffic violation	**33**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	23
Hispanic / Latino	10
Vehicle traffic violation	**1**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	1

Was a search conducted?

Yes	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
No	**35**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	24
Hispanic / Latino	11

Reason for Search?

Consent	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0

Hispanic / Latino	0
Contraband	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Probable	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Inventory	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Incident to arrest	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0

Was Contraband discovered?

		Did the finding result in arrest? (total should equal previous column)	
Yes	**0**		
Alaska Native / American Indian	0	Yes 0	No 0
Asian / Pacific Islander	0	Yes 0	No 0
Black	0	Yes 0	No 0
White	0	Yes 0	No 0
Hispanic / Latino	0	Yes 0	No 0
No	**0**		
Alaska Native / American Indian	0		
Asian / Pacific Islander	0		
Black	0		
White	0		
Hispanic / Latino	0		

Description of contraband	
Drugs	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Weapons	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Currency	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Alcohol	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Stolen property	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Other	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Result of the stop	
Verbal warning	**29**

Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	19
Hispanic / Latino	10
Written warning	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Citation	**6**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	5
Hispanic / Latino	1
Written warning and arrest	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Citation and arrest	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Arrest	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Arrest based on	
Violation of Penal Code	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0

Black	0
White	0
Hispanic / Latino	0
Violation of Traffic Law	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Violation of City Ordinance	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Outstanding Warrant	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0

Was physical force resulting in bodily injury used during stop?

Yes	**0**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	0
Hispanic / Latino	0
Resulting in Bodily Injury To:	
Suspect	0
Officer	0
Both	0
No	**35**
Alaska Native / American Indian	0
Asian / Pacific Islander	0
Black	0
White	24
Hispanic / Latino	11

Number of complaints of racial profiling

Total	0
Resulted in disciplinary action	0
Did not result in disciplinary action	0

Comparative Analysis

Use TCOLE's auto generated analysis	☒
Use Department's submitted analysis	☐

Optional Narrative

N/A

Submitted electronically to the

The Texas Commission on Law Enforcement