

**William A. 'Bert' Miller, III**  
Mayor  
**Bernie Gessner**  
Mayor Pro-Tem  
**Josh M. Fultz** Councilmember



**James Harris**  
Councilmember  
**Pattie Pederson**  
Councilmember

**NOTICE OF MEETING OF THE GOVERNING BODY OF THE  
CITY OF NAVASOTA, TEXAS  
MAY 28, 2024**

Notice is hereby given that a Regular Meeting of the governing body of the City of Navasota will be held on May 28, 2024 at 6:00 PM at the City Hall in the City Council Chambers, Room No. 161, located at 200 E. McAlpine Street, Navasota, Texas 77868, at which time the following subjects will be considered, to wit:

To watch the City Council meeting live please visit the City of Navasota's Youtube here:  
<https://www.youtube.com/channel/UCItnx7BQt0TCIYJRiZ14g5w>

1. Call to Order.
2. Invocation - Pastor Mac Vaughn  
Pledge of Allegiance
3. Remarks of visitors: Any citizen may address the City Council on any matter. Registration forms are available on the podium and/or table in the back of the city council chambers. This form should be completed and delivered to the City Secretary by 5:45 p.m. Please limit remarks to three minutes. The City Council will receive the information, ask staff to look into the matter, or place the issue on a future agenda. Topics of operational concerns shall be directed to the City Manager.
4. Presentation to Pattie Pederson for years of service as Councilmember for Place No. 2.  
[Mayor Miller & City Council]
5. **Staff Report:**
  - (a) Recognition of Navasota ISD High School Top Ten students. [Bert Miller, Mayor]
  - (b) Recognition of Natalie Nobles for placing 3rd in the UIL State Golf Tournament. [Bert Miller, Mayor]
  - (c) Update on all CIP Projects. [Jon MacKay, Graduate Engineer]
  - (d) Board and Commissions update. [City Council]; and
  - (e) Reports from City Staff or City Officials regarding issues of community interests, including expressions of thanks, congratulations or condolence; information regarding holiday schedules; honorary or salutary recognition of public officials, public employees, or other citizens; reminds about upcoming events organized or sponsored by the City; information attended by the City Officials or employees; and announcements involving imminent threats to the public health and safety of people in the City that has arisen after the posting of the agenda. [Jason Weeks, City Manager]
6. Consideration and possible action on quarterly Investment Reports for the 2<sup>nd</sup> Quarter of

Fiscal Year 2023-2024. [Maribel Frank, CFO]

7. Consideration and possible action on Resolution No. 769-24, adopting the Grimes County 2024 Hazard Mitigation Plan to take effect immediately upon final approval of the plan by FEMA. [Jason Katkoski, Fire Chief]
8. Conduct a public hearing to receive public comment and testimony regarding a specific use permit application submitted to the City of Navasota by Neil Martensen with Neilious, LLC, for the property located at 202 Holland Street, Navasota, Grimes County, TX 77868. The specific use permit application requests to allow for the operation of a vendor market. The property affected is legally described as H&TC, Block 108, Lot 1, 2. Consideration and possible action approving Ordinance No. 1048-24, granting a specific use permit application submitted to the City of Navasota by Neil Martensen with Neilious, LLC, for the property located at 202 Holland Street, Navasota, Grimes County, TX 77868. The specific use permit application requests to allow for the operation of a vendor market. The property affected is legally described as H&TC, Block 108, Lot 1, 2. [Lupe Diosdado, Development Services Director]
9. Conduct a public hearing to receive public comment and testimony regarding a zoning amendment application submitted to the City of Navasota by Crosstrails Development, LLC for the property located in the A0055-0 D Tyler Abstract adjacent to Pecan Lakes Estates Phase 2. The zoning amendment application requests to amend the existing regulations outlined within the Pecan Groves Estates PUD, a planned unit development, additional design guidelines related to home design standards, street design standards, and parkland requirements. The property affected is legally described as A0055-0 D Tyler, Tract 4, Acres 35.13, located in Navasota, Grimes County, Texas 77868; Consideration and possible action on the approval of Ordinance No. 1047-24, approving a zoning amendment application submitted to the City of Navasota by Crosstrails Development, LLC for the property located in the A0055-0 D Tyler Abstract adjacent to Pecan Lakes Estates Phase 2. The zoning amendment application requests to amend the existing regulations outlined within the Pecan Groves Estates PUD, a planned unit development, additional design guidelines related to home design standards, street design standards, and parkland requirements. The property affected is legally described as A0055-0 D Tyler, Tract 4, Acres 35.13, located in Navasota, Grimes County, Texas 77868. [Lupe Diosdado, Development Services Director]
10. Consideration and possible action on a Chapter 380 Development Agreement between the City of Navasota and Crosstrails Development, LLC, for the development of Pecan Groves Estates, a single-family residential subdivision, for the property described as A0055-0 D Tyler, Tract 4, Acres 35.13, located in Navasota, Grimes County, Texas. [Lupe Diosdado, Development Services Director]
11. Consideration and possible action approving a Cisco Collaboration Flex Plan Contract with DataVox, upgrading the City Hall Phone System, in the amount of \$55,406.13. [Lupe Diosdado, Development Services Director]
12. Consideration and possible action on Ordinance No. 1049-24, providing for the disannexation of 32.948 Acres from the A0046 J Moore, Tract 61-9, from the corporate boundaries of the City of Navasota. [Lupe Diosdado, Development Services Director]
13. Consideration and possible action on Ordinance No. 1050-24, annexing 32.948 acres located in the Extraterritorial Jurisdiction of the City of Navasota, Texas, into the Navasota Industrial District. [Lupe Diosdado, Development Services Director]

14. Consideration and possible action on Resolution No. 770-24, accepting the water, sewer, gas, street and underground storm water drainage improvements in Washington Park, Block J, Lots 1-12, except entrance signage, common areas, detention pond and open channel storm drainage improvements, in the City of Navasota, Texas. [Lupe Diosdado, Development Services Director]
15. Consideration and possible action to authorize the City Manager to execute a contract with Hawes Hill & Associates LLP to perform certain professional services with respect to annual reporting and other necessary functions for Tax Increment Reinvestment Zone 1 in Navasota, Texas. [Jason Weeks, City Manager]
16. NRA Grant Presentation. [Mike Mize, Chief of Police]
17. Consent agenda: The following items may be acted upon with one motion and a vote. No separate discussion or action is necessary unless requested by the Mayor or City Council members, in which event the item will be removed from the Consent Agenda for separate discussion and/or action by the City Council as part of the regular agenda. [City Council]  
  
Consent agenda items are:  
  
A. Approve the second reading of Ordinance No. 1045-24, relating to speed zones which specifically designates additional areas in the City of Navasota in which rates of speed of thirty (30) miles per hour or more are authorized.  
  
B. Approve the second reading of Ordinance No. 1046-24, relating to speed zones which specifically designates additional areas in the City of Navasota in which rates of speed of thirty (30) miles per hour or more are authorized.
18. Executive Session: The City Council will conduct an Executive Session in accordance with (a) Section 551.071, Texas Government Code -- Consultation with Attorney -- Consultation with legal counsel regarding City of Navasota water and sewer utility service area(s), including but not limited to Public Utility Commission of Texas Docket No. 54806 re: G & W Water Supply Corporation, and associated matters; and (b) Section 551.071 - Consultation with Attorney - Consultation with Legal Counsel regarding City of Grand Prairie et al v. The State of Texas, Defendant; and 2020 Long Tail Trail Investments, LLC, Intervenor; Cause No. D-1-GN-23-007785; 261st Judicial District Court, Travis County, Texas. [Jason Weeks, City Manager]
19. Reconvene in open session. [City Council]
20. Adjourn

**DATED THIS THE 22ND DAY OF MAY, 2024.**  
**/JW/**

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**BY: JASON WEEKS, CITY MANAGER**

I, the undersigned authority, do hereby certify that the above notice of meeting of the governing body of the CITY OF NAVASOTA, is a true and correct copy of said notice and that I posted a true

and correct copy of said notice in the glass bulletin board, in the foyer, on the south side of the Municipal Building as well as in the bulletin board on the north side of the Municipal Building of the City of Navasota, Texas, a place convenient and readily accessible to the general public at all times, and said notice was posted on the 22nd day of May, 2024 at 02:30 PM and will remain posted continuously for at least 72 hours preceding the scheduled time of said meeting. Agendas may be viewed at [www.navasotatx.gov](http://www.navasotatx.gov).

*The City Council reserves the right to convene in Executive Session at any time deemed necessary for the consideration of confidential matters under the Texas Government Code, Sections 551.071-551.089.*

**DATED THIS THE 22ND DAY OF MAY, 2024.**

**/SMH/**

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**BY: SUSIE M. HOMEYER, CITY SECRETARY**

**THIS FACILITY IS WHEELCHAIR ACCESSIBLE AND ACCESSIBLE PARKING SPACES ARE AVAILABLE. REQUESTS FOR ACCOMMODATIONS OR INTERPRETIVE SERVICES MUST BE MADE 48 HOURS PRIOR TO THIS MEETING. PLEASE CONTACT THE CITY SECRETARY'S OFFICE AT (936) 825 6475 OR (936) 825 6408 OR BY FAX AT (936) 825 2403.**





## REQUEST FOR CITY COUNCIL AGENDA ITEM # 4.

Agenda Date Requested	05/28/2024
Requested By	Susie Homeyer, City Secretary
Department	Administration
Type	Report

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### **Agenda Item**

Presentation to Pattie Pederson for years of service as Councilmember for Place No. 2. [Mayor Miller & City Council]

### **Summary & Recommendation**

The City Council will make a special presentation to Pattie Pederson who has served the City Council for the past four years.

### **Action Requested by Council**

**Mayor Bert Miller will recognize Pattie Pederson for her service to the City of Navasota.**

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## REQUEST FOR CITY COUNCIL AGENDA ITEM # 5.

Agenda Date Requested 05/28/2024  
Requested By Jason Weeks, City Manager  
Department Administration  
Type Report

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### **Agenda Item Staff Report:**

- (a) Recognition of Navasota ISD High School Top Ten students. [Bert Miller, Mayor]
- (b) Recognition of Natalie Nobles for placing 3rd in the UIL State Golf Tournament. [Bert Miller, Mayor]
- (c) Update on all CIP Projects. [Jon MacKay, Graduate Engineer]
- (d) Board and Commissions update. [City Council]; and
- (e) Reports from City Staff or City Officials regarding issues of community interests, including expressions of thanks, congratulations or condolence; information regarding holiday schedules; honorary or salutary recognition of public officials, public employees, or other citizens; reminds about upcoming events organized or sponsored by the City; information attended by the City Officials or employees; and announcements involving imminent threats to the public health and safety of people in the City that has arisen after the posting of the agenda. [Jason Weeks, City Manager]

### **Summary & Recommendation**

- a. Mayor Bert Miller and the City Council will recognize NISD High School top ten students.
- b. Mayor Bert Miller and the City Council will recognize Natalie Nobles for 3rd place finish in the UIL State Golf Tournament.
- c. Jon MacKay, Graduate Engineer, will give the City Council an update on all CIP Projects.
- d. If applicable, the City Council will provide Board and Commission updates.
- e. Staff and the City Council will provide updates on other upcoming events.

### **Action Requested by Council No action required.**

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### **Attachments**

Proclamation - Top Ten Students  
Natalie Nobles Recognition

Planning Calendar  
Strategic Plan



**PROCLAMATION  
RECOGNIZING  
NAVASOTA HIGH SCHOOL TOP TEN GRADUATES  
CLASS OF 2024**

**WHEREAS,** the Navasota High School Class of 2024 will graduate on Friday, May 24, 2024; and

**WHEREAS,** the Navasota High School has recognized the following as its Top Ten Graduating Seniors; and

**WHEREAS,** Jadyn Dacus, Valedictorian, plans to attend Texas A&M University and major in Kinesiology; and

**WHEREAS,** Ann Haug, Salutatorian, plans to attend the Mays Business School at Texas A&M University and major in Marketing; and

**WHEREAS,** Matthew Sosa plans to attend Washington & Lee University and pursue a degree in Political Science; and

**WHEREAS,** Bryanna Stokes plans to attend the University of Texas at Austin and major in Nursing; and

**WHEREAS,** LeYonce Williams plans to attend the University of Texas at Austin and major in Nursing; and

**WHEREAS,** Emily LaBlue plans to attend Texas A&M University to pursue a degree in Early Childhood Education; and

**WHEREAS,** Meghan Poindexter plans to attend Pacific University and study Development Psychology; and

**WHEREAS,** Isela Palacios plans to attend the University of Texas at Austin and pursue a degree in Business; and

**WHEREAS,** Francisco Herrera plans to attend University of Texas at Austin and major in Mechanical Engineering; and

**WHEREAS,** Livia Perez plans to attend the University of Texas at Austin to major in Biology/Biochemistry/Pre-Med; and

**NOW, THEREFORE, BE IT PROCLAIMED,** that I, Bert Miller, Mayor of the **City of Navasota** do hereby congratulate and recognize these students as the Top Ten Seniors of the graduating Class of 2024 for Navasota High School. The City of Navasota is proud of your accomplishment and wishes you the best in your future endeavors.

**SIGNED THIS THE 28<sup>TH</sup> DAY OF MAY, 2024**

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**BERT MILLER, MAYOR**



# **PROCLAMATION RECOGNIZING NATALIE NOBLES CLASS 4A UIL GIRLS GOLF STATE TOURNAMENT**

**WHEREAS,** Natalie Nobles is a native of Navasota, Texas and a freshman at Navasota High School; and

**WHEREAS,** Natalie Nobles, an ultimate competitor in the world of junior golf has battled her way to the top by competing in many tournaments throughout the year; and

**WHEREAS,** Natalie Nobles competed at her first ever Class 4A UIL Girls Golf State Tournament in Austin, Texas where she shot a 75 on her first day and a 72 on her second day for a total score of 147. Natalie finished 3<sup>rd</sup> place and received a Bronze Metal for her accomplishment; and

**WHEREAS,** we would like to commend Natalie Nobles for an exciting, hard-fought, and successful year, and we are proud of all her accomplishments. It is a great pleasure to express to Natalie Nobles, on behalf of the City Council and all the citizens of the City of Navasota, Texas, our sincere congratulations; and

**NOW, THEREFORE, BE IT PROCLAIMED,** that I, Bert Miller, Mayor of the **City of Navasota, Texas**, urge the citizens of this community to join with me in honoring Natalie Nobles for her accomplishment of winning the Bronze Medal at the 4A UIL State Girls Golf Tournament in Austin, Texas and continue to wish her good luck at any and all future golf endeavors.

**SIGNED THIS THE 28<sup>TH</sup> DAY OF MAY, 2024**

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**BERT MILLER, MAYOR**

## AGENDA PLANNING CALENDAR

### **MAY 28, 2024** – **HOLIDAY - DEADLINE FOR SUBMITTING ITEMS AND COVER SHEETS FOR THIS MEETING IS 05/13/2024**

1. Called to order
2. Invocation/Pledge of Allegiance – Pastor Mac Vaughn
3. Remarks of visitors
4. Presentation to Pattie Pederson
5. Staff Report: (a) Recognizing NISD Top Ten Students; (b) Recognizing Natalie Nobles for UIL State Golf Tournament – 3<sup>rd</sup> Place; (c) Update of all CIP projects; (d) Board and Commission update; and (e) Reports from staff and City Council
6. Public hearing for zoning change and approval of Ordinance No. 1047-24, zoning change
7. Development agreement for Pecan Grove
8. Phone proposal
9. Resolution No. 769-24, Hazard Mitigation Plan (Fire Dept.)
10. Quarterly Investment report for 1<sup>st</sup> quarter 2024
11. Specific Use Permit – Neil Martensen (202 Holland) and Ordinance No. 1048-24
12. Ordinance No. 1049-24, de-annexing 32.948 acres
13. Ordinance No. 1050-24, annexing 32.948 acres
14. Resolution No. 770-24, accepting infrastructure – Washington Park – Block J
15. Contract with Hawes Hill & Associates
16. Rifle Grant Report
17. Consent agenda: (a) 2<sup>nd</sup> reading of Ordinance No. 1045-24, speed limit study for Highway 90; and (b) 2<sup>nd</sup> reading of Ordinance No. 1046-24, speed limit study for Highway 105
18. Executive Session: CCN and Grand Prairie v. The State of Texas (Pecan Hill de-annexing)
19. Recovene
20. Adjourn

### **JUNE 10, 2024** – **DEADLINE FOR SUBMITTING ITEMS AND COVER SHEETS FOR THIS MEETING IS 05/24/2024**

1. Called to order
2. Invocation/Pledge of Allegiance
3. Remarks of visitors
4. Staff Report: (a) Update of all CIP projects; (b) Board and Commission update; and (c) Reports from staff and City Council
5. Appointment to the Arts Council Board
6. Workshop on cemetery ordinance
7. Consent agenda: (a) Minutes for the month of May 2024; (b) Expenditures for the month of May, 2024; and (c) Municipal Court report for the month of May 2024
8. Workshop: (a) Vape shops; and (b) Mobile Homes
9. Adjourn

### **JUNE 24, 2024** – **WORKSHOP @ 4:30 P.M. JOINT WORKSHOP WITH PLANNING AND ZONING**

1. Called to order
2. Workshop on Vape shops and mobile homes
3. Workshop with Library Board and Friends of the Library
4. Adjourn

**JUNE 24, 2024** – DEADLINE FOR SUBMITTING ITEMS AND COVER SHEETS FOR THIS MEETING IS 06/10/2024

1. Called to order
2. Invocation/Pledge of Allegiance
3. Contract with Project Manager for Fire Station
4. Remarks of visitors

**JULY 8, 2024** – DEADLINE FOR SUBMITTING ITEMS AND COVER SHEETS FOR THIS MEETING IS 06/28/2024

1. Called to order
2. Invocation/Pledge of Allegiance
3. Remarks of visitors
4. Staff Report: (a) Update of all CIP projects; (b) Board and Commission update; and  
(c) Reports from staff and City Council
5. Presentation to NCU candidates
6. Consent:
7. Adjourn



**So much, so close.**

# Core Values

<b>T</b>	<b>Teamwork &amp; Collaboration</b>	<ul style="list-style-type: none"><li>• We believe in the power of collective effort and cooperation.</li><li>• Foster a culture of collaboration among residents, businesses, and government.</li><li>• Together, we can achieve greater outcomes and overcome challenges.</li></ul>
<b>H</b>	<b>Honor &amp; Integrity</b>	<ul style="list-style-type: none"><li>• Uphold honesty, transparency, and ethical conduct in all endeavors.</li><li>• Demonstrate integrity in decision-making and actions for the greater good.</li><li>• Earn and maintain the trust of our community through principled leadership.</li></ul>
<b>R</b>	<b>Resilience &amp; Adaptability</b>	<ul style="list-style-type: none"><li>• Embrace change and remain agile in a constantly evolving world.</li><li>• Build resilience to face adversity and bounce back stronger.</li><li>• Learn from experiences to continuously improve and innovate.</li></ul>
<b>I</b>	<b>Inclusivity &amp; Diversity</b>	<ul style="list-style-type: none"><li>• Celebrate and embrace the richness of our diverse community.</li><li>• Promote inclusivity, ensuring that all voices are heard and valued.</li><li>• Create an environment where everyone feels welcome and respected.</li></ul>
<b>V</b>	<b>Vision &amp; Progress</b>	<ul style="list-style-type: none"><li>• Pursue a forward-thinking vision for the city's growth and development.</li><li>• Encourage innovation and progressive ideas that benefit our residents.</li><li>• Strive to be a model city that sets new standards and inspires others.</li></ul>
<b>E</b>	<b>Empowerment &amp; Engagement</b>	<ul style="list-style-type: none"><li>• Empower individuals to participate in shaping the city's future.</li><li>• Encourage active citizenship and engagement in local decision-making.</li><li>• Support initiatives that enhance community involvement and civic pride.</li></ul>





# 2023-2024 Strategic Plan

## Mission Statement

To guide Navasota's growth in a way that maintains our heritage, culture and uniqueness while maximizing our economic and social development.

## Vision Statement

Navasota 2027: What America wants to be — A beautiful, progressive, vibrant, service-oriented, close-knit community filled with historical charm and promise for people and business.

## Core Values: THRIVE

Teamwork &  
Collaboration

Honor &  
Integrity

Resilience &  
Adaptability

Inclusivity &  
Diversity

Vision &  
Progress

Empowerment &  
Engagement

## Goals

Planning &  
Economic  
Development

Marketing/  
Communications

Quality of Life

Staffing

Human  
Resources

Facilities/  
Buildings

Infrastructure



## REQUEST FOR CITY COUNCIL AGENDA ITEM # 6.

Agenda Date Requested 05/28/2024  
Requested By Maribel Frank, Chief Financial Officer  
Department Finance  
Type Report

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### Agenda Item

Consideration and possible action on quarterly Investment Reports for the 2<sup>nd</sup> Quarter of Fiscal Year 2023-2024. [Maribel Frank, CFO]

### Summary & Recommendation

Section V of the City's existing Investment Policy requires quarterly reports, as well as an annual report.

Over the course of the second quarter (Q2), the city earned \$156,517 from investment income. This is an increase of 15.58% from the previous quarter. Over half of the city's investments are in investment pools. A total of 20% is in Certificates of Deposit (CDs) and the remainder is in a money market account. Since the last report, one CD in the amount of \$248,000 has matured. Staff moved the funds to a new investment pool the city enrolled in. This process was completed in April 2024 and will be shown in the Q3 Investment Report.

Identifier	Maturity Date	Account Name	Amount
02589ABL5	3/4/2024	AMERICAN EXPRESS NATL BANK CD	\$ 248,000

### Action Requested by Council

**Approve or deny quarterly Investment Reports for the 2nd Quarter of Fiscal Year 2023-2024.**

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### Attachments

Investment Report for FY 2024 (Q2)

QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024

THIS REPORT HAS BEEN PREPARED IN COMPLIANCE WITH THE INVESTMENT POLICY OF THE CITY OF NAVASOTA AND THE PFIA

  
INVESTMENT OFFICER  
CHIEF FINANCIAL OFFICER  
INVESTMENT OFFICER  
CITY MANAGER

QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024

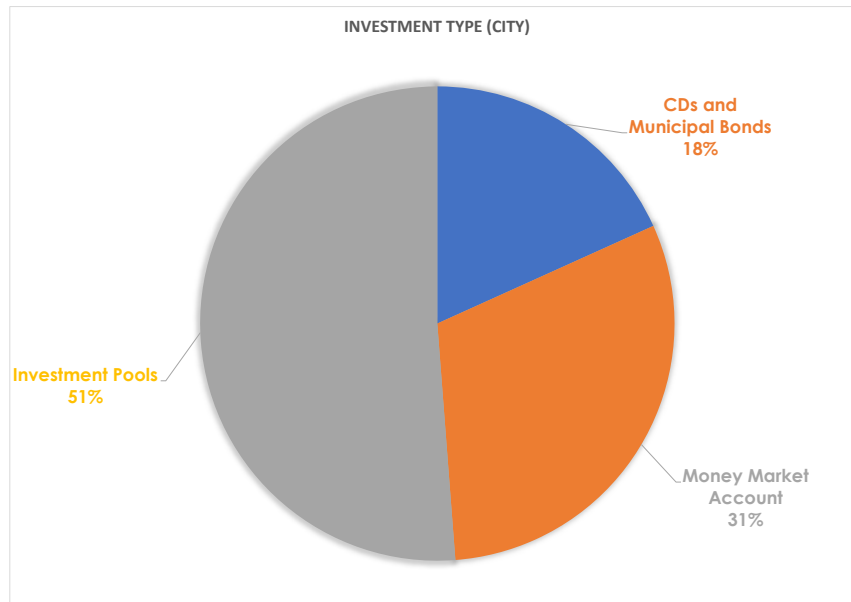
INVESTMENTS FOR CITY - ROLLFORWARD

<u>Custodian</u>	<u>Type</u>	<u>Identifier</u>	<u>Maturity Date</u>	<u>Account Name</u>	<u>12/31/2023 Beginning Amount</u>	<u>Matured</u>	<u>Interest Income</u>	<u>3/31/2024 Ending Balance</u>
TIB Capital Markets								
	Certificates of Deposit							
		02007GNN9	2/10/2025	ALLY BANK CD	248,000	-	-	248,000
		02589ABL5	3/4/2024	AMERICAN EXPR NATL BK CD	248,000	(248,000)	-	-
		05580AE26	9/24/2024	BMW BANK NA CD	245,000	-	-	245,000
		05600XCP3	4/13/2026	BMO HARRIS BANK NA CD	245,000	-	-	245,000
		066519QT9	3/31/2026	BANKUNITED NA CD	245,000	-	-	245,000
		254673B70	4/28/2025	DISCOVER BK CD	246,000	-	-	246,000
		38149MA94	9/29/2026	GOLDMAN SACHS BANK CD	245,000	-	-	245,000
		48128UZC6	2/17/2026	JPMORGAN CHASE BK NA CD	245,000	-	-	245,000
		61768U4A2	4/29/2027	MORGAN STANLEY PRIVATE BK CD	246,000	-	-	246,000
		07371AXP3	2/10/2027	BEAL BK PLANO TX	248,000	-	-	248,000
	Total Certificates of Deposit				2,461,000	(248,000)	-	2,213,000
	Municipal Bonds							
		752754PG0	8/1/2025	RANDOLPH TWP NJ SD GO	235,865	-	-	235,865
		229831JL7	8/15/2025	CUERO TX ISD REF GP BDQ	292,375	-	-	292,375
		882806HH8	2/15/2026	TEXAS TECH UNIV REV TAX REF	486,375	-	-	486,375
	Total Municipal Bonds				1,014,615	-	-	1,014,615
	Total CDs and Municipal Bonds				3,475,615	(248,000)	-	3,227,615
Citizens State Bank								
	Money Market Account							
		Account # 20035725	N/A		5,124,039	248,000	33,649	5,405,688
TexSTAR								
	Investment Pool							
		0930102200	N/A	AP Fund	140,685	-	1,870	142,555
TexasCLASS								
	Investment Pool							
		TX-01-0484-0001	N/A	Navasota 01	456,368	-	6,279	462,647
		TX-01-0484-0002	N/A	ARPA	1,063,414	-	14,631	1,078,045
		TX-01-0484-0006	N/A	Capital Projects 2022	7,137,800	-	98,206	7,236,005
TexPool								
	Investment Pool							
		449/7907600001	N/A	AP Fund II	141,035	-	1,882	142,917
	Total Investment Pools				8,939,302	-	122,868	9,062,170
TOTAL CITY INVESTMENTS					17,538,956	-	156,517	17,695,473

QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024

INVESTMENTS FOR CITY - REPORTED BY TYPE

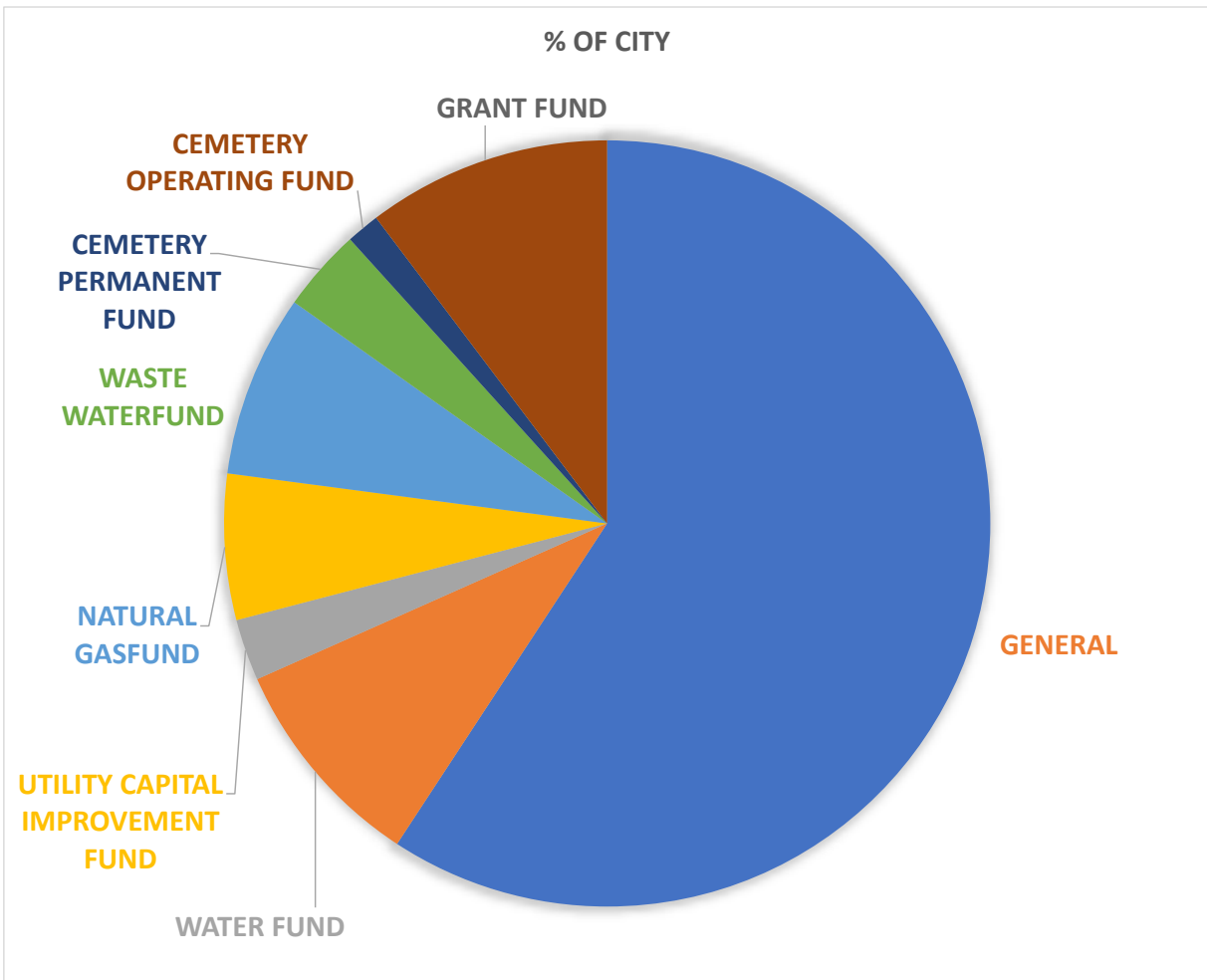
<u>Custodian</u>	<u>Type</u>	<u>Identifier</u>	<u>Maturity Date</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of City</u>
TIB Capital Markets						
	Certificates of Deposit					
		02007GNN9	2/10/2025	ALLY BANK CD	248,000	
		05580AE26	9/24/2024	BMW BANK NA CD	245,000	
		05600XCP3	4/13/2026	BMO HARRIS BANK NA CD	245,000	
		066519QT9	3/31/2026	BANKUNITED NA CD	245,000	
		254673B70	4/28/2025	DISCOVER BK CD	246,000	
		38149MA94	9/29/2026	GOLDMAN SACHS BANK CD	245,000	
		48128UZC6	2/17/2026	JPMORGAN CHASE BK NA CD	245,000	
		61768U4A2	4/29/2027	MORGAN STANLEY PRIVATE BK CD	246,000	
		07371AXP3	2/10/2027	BEAL BK PLANO TX	248,000	
	Total Certificates of Deposit				2,213,000	
	Municipal Bonds					
		752754PG0	8/1/2025	RANDOLPH TWP NJ SD GO	235,865	
		229831JL7	8/15/2025	CUERO TX ISD REF GP BDQ	292,375	
		882806HH8	2/15/2026	TEXAS TECH UNIV REV TAX REF	486,375	
	Total Municipal Bonds				1,014,615	
	Total CDs and Municipal Bonds				3,227,615	18%
Citizens State Bank						
	Money Market Account					
		Account # 20035725	N/A		5,405,688	31%
TexSTAR						
	Investment Pool					
		0930102200	N/A	AP Fund	142,555	
TexasCLASS						
	Investment Pool					
		TX-01-0484-0001	N/A	Navasota 01	462,647	
		TX-01-0484-0002	N/A	ARPA	1,078,045	
		TX-01-0484-0006	N/A	Capital Projects 2022	7,236,005	
TexPool						
	Investment Pool					
		449/7907600001	N/A	AP Fund II	142,917	
	Total Investment Pools				9,062,170	51%
TOTAL CITY INVESTMENTS					17,695,473	



**QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024**

**INVESTMENTS FOR CITY - REPORTED BY FUND**

<u>Fund #</u>	<u>Fund Name</u>	<u>Amount</u>	<u>% of City</u>
100	GENERAL	6,195,645.59	35%
200	WATER FUND	951,805.02	5%
210	UTILITY CAPITAL IMPROVEMENT FUND	272,057.02	2%
300	NATURAL GASFUND	643,354.60	4%
400	WASTE WATERFUND	805,916.90	5%
520	CEMETERY PERMANENT FUND	366,466.71	2%
525	CEMETERY OPERATING FUND	146,176.72	1%
540	GRANT FUND	1,078,045.25	6%
905	CAPITAL PROJECTS	7,236,005.36	41%
		<u>17,695,473.17</u>	<u>100%</u>

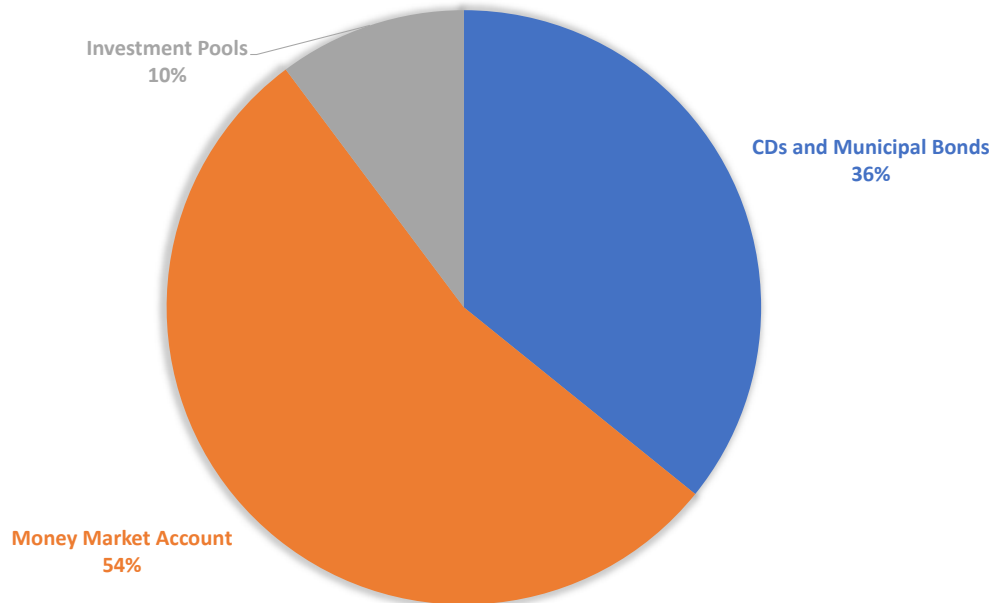


**QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024**

**INVESTMENTS FOR GENERAL FUND (Fund 100)**

<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
<b>CDs and Municipal Bonds</b>				
<b>TIB Capital Markets</b>	100-0-200.07	BECKER-BEST MUSEUM FUNDS	77,142.45	
	100-0-200.09	VOLUNTARY FIRE FUND	75,583.63	
	100-0-200.10	LIBRARY INV - MADELEY EST.	11,680.20	
	100-0-200.12	VOLUNTARY PARK FUND	99,786.54	
	100-0-200.18	ANIMAL SHELTER DONATIONS	24,020.78	
	100-0-200.19	GRACE PARK FUND	40,690.39	
	100-0-200.21	SIDEWALK FEE IN LIEU OF	99,976.91	
	100-0-200.22	EQUIPMENT ESCROW	1,789,420.52	
<b>Total CDs and Municipal Bonds</b>			<u>2,218,301.40</u>	36%
<b>Money Market Account</b>				
<b>Citizens State Bank</b>	100-0-200.06	O & M RESERVE INVESTMENTS	3,343,413.82	54%
<b>Investment Pools</b>				
<b>TexSTAR</b>	100-0-200.04	O & M RESERVE - TEXSTAR	85,532.90	
<b>TexasCLASS</b>	100-0-200.11	STREET & DRAINAGE INV.	462,646.96	
<b>TexPool</b>	100-0-200.05	O & M RESERVE - TEXPOOL	85,750.51	
<b>Total Investment Pools</b>			<u>633,930.37</u>	10%
<b>TOTAL GENERAL FUND INVESTMENTS</b>			<b>6,195,645.59</b>	

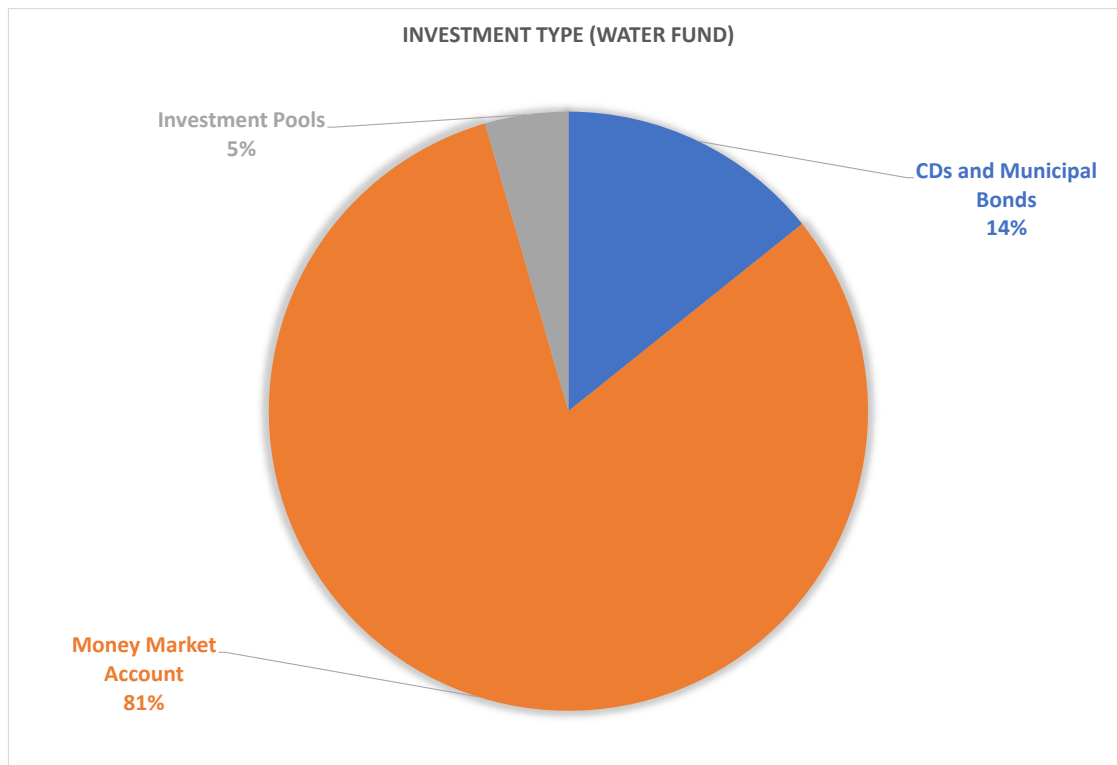
**INVESTMENT TYPE (GENERAL FUND)**



**QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024**

**INVESTMENTS FOR WATER FUND (Fund 200)**

<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
<b>CDs and Municipal Bonds</b>				
TIB Capital Markets	200-0-200.00	INVESTMENTS METER DEPOSITS	135,631.36	14%
<b>Money Market Account</b>				
Citizens State Bank	200-0-200.06	O & M RESERVE INVESTMENTS	773,352.86	81%
<b>Investment Pools</b>				
TexSTAR	200-0-200.04	O & M RESERVE - TEXSTAR	21,383.22	
TexPool	200-0-200.05	O & M RESERVE - TEXPOOL	21,437.58	
<b>Total Investment Pools</b>			<u>42,820.80</u>	4%
<b>TOTAL WATER FUND INVESTMENTS</b>			<b>951,805.02</b>	

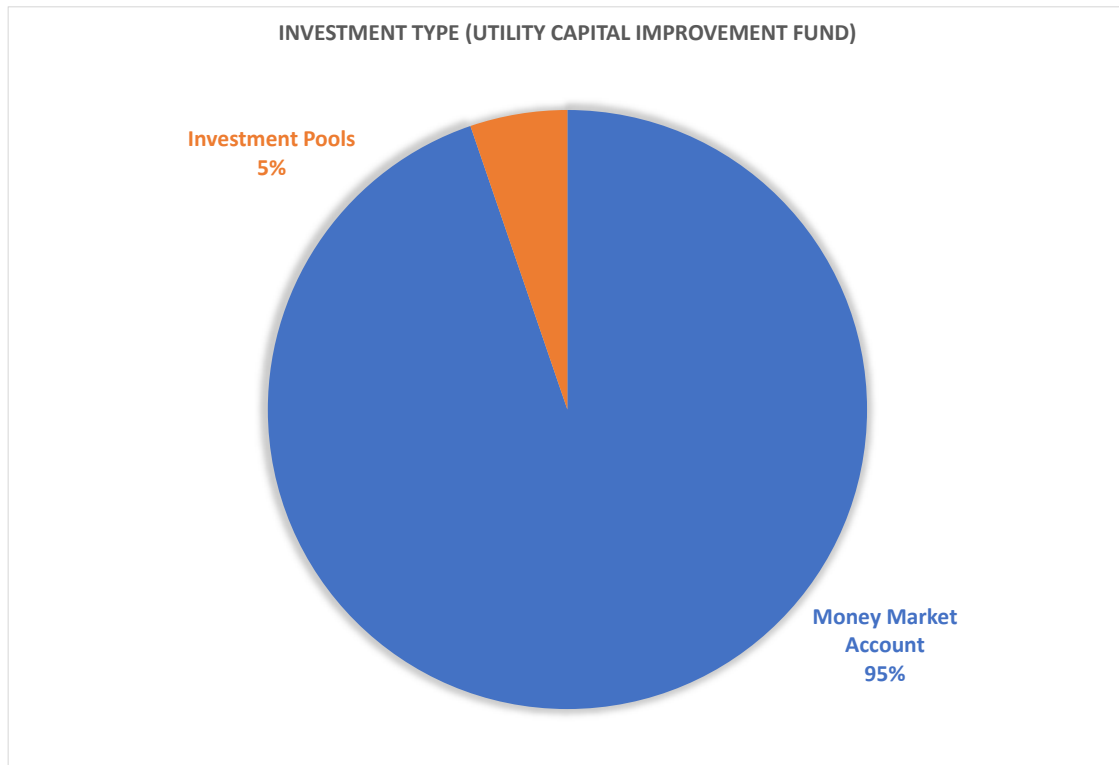




**QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024**

**INVESTMENTS FOR UTILITY CAPITAL IMPROVEMENT FUND (Fund 210)**

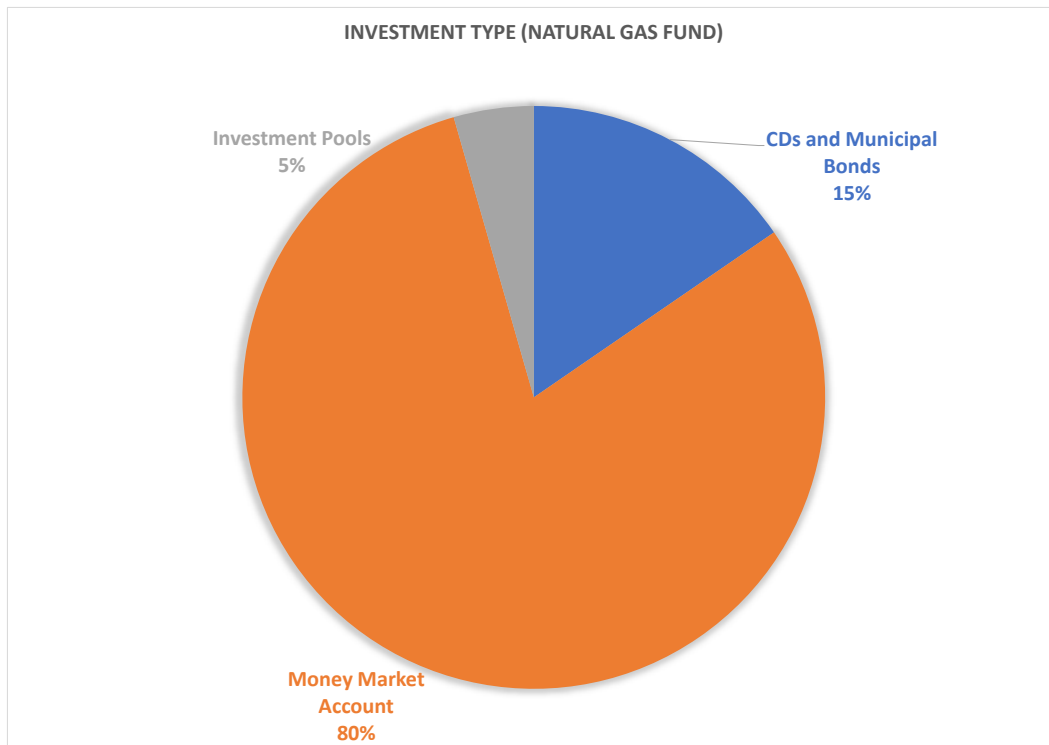
<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
<b>Money Market Account</b>				
Citizens State Bank	210-0-200.06	O & M RESERVE INVESTMENTS	257,783.41	95%
<b>Investment Pools</b>				
TexSTAR	210-0-200.04	O & M RESERVE - TEXSTAR	7,127.75	
TexPool	210-0-200.05	O & M RESERVE - TEXPOOL	7,145.86	
<b>Total Investment Pools</b>			<u>14,273.61</u>	5%
<b>TOTAL UTILITY CAPITAL IMPROVEMENT FUND INVESTMENTS</b>			<b>272,057.02</b>	



**QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024**

**INVESTMENTS FOR NATURAL GAS FUND (Fund 300)**

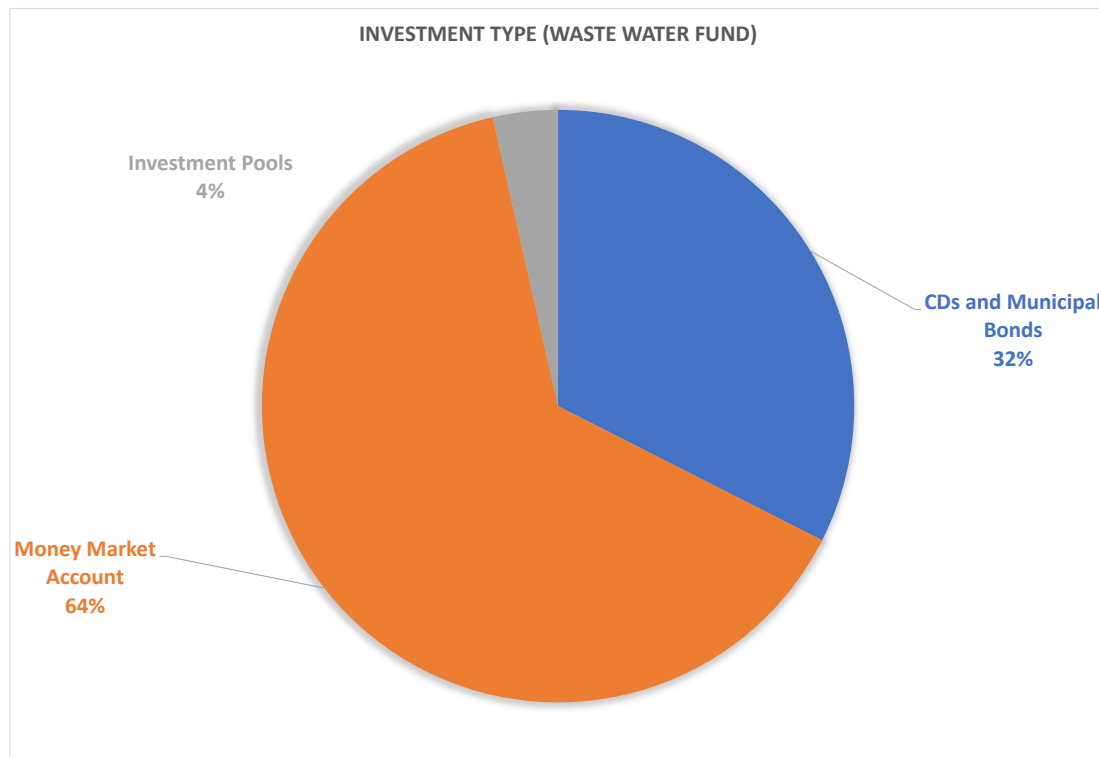
<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
<b>CDs and Municipal Bonds</b>				
TIB Capital Markets	300-0-200.00	INVESTMENTS METER DEPOSITS	85,115.39	
	300-0-200.04	JR.LIEN RESERVE INV-MTG ASSN	14,122.96	
<b>Total CDs and Municipal Bonds</b>			99,238.35	15%
<b>Money Market Account</b>				
Citizens State Bank	300-0-200.06	O & M RESERVE INVESTMENTS	515,569.00	80%
<b>Investment Pools</b>				
TexSTAR	300-0-201.04	O & M RESERVE - TEXSTAR	14,255.49	
TexPool	300-0-201.05	O & M RESERVE - TEXPOOL	14,291.76	
<b>Total Investment Pools</b>			28,547.25	4%
<b>TOTAL NATURAL GAS FUND INVESTMENTS</b>			<b>643,354.60</b>	



**QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024**

**INVESTMENTS FOR WASTE WATER FUND (Fund 400)**

<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
<b>CDs and Municipal Bonds</b>				
TIB Capital Markets	400-0-200.02	SW SYSTEM IMPROVEMENTS INV	261,800.65	32%
<b>Money Market Account</b>				
Citizens State Bank	400-0-200.06	O & M RESERVE INVESTMENTS	515,569.00	64%
<b>Investment Pools</b>				
TexSTAR	400-0-200.04	O & M RESERVE - TEXSTAR	14,255.49	
TexPool	400-0-200.05	O & M RESERVE - TEXPOOL	14,291.76	
<b>Total Investment Pools</b>			<u>28,547.25</u>	4%
<b>TOTAL WASTE WATER FUND INVESTMENTS</b>			<b>805,916.90</b>	



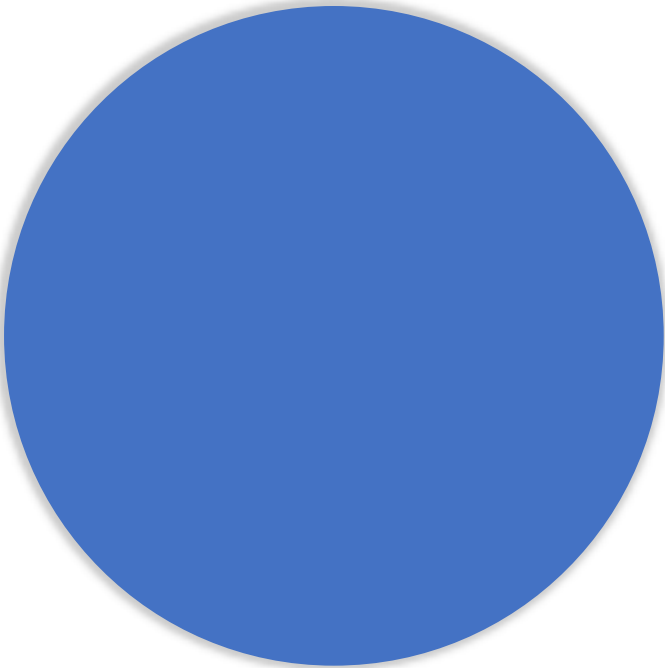
QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024

INVESTMENTS FOR CEMETERY PERMANENT FUND (Fund 520)

<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
<b>CDs and Municipal Bonds</b>				
TIB Capital Markets	520-0-201.00	OAKLAND CEM PERT TRUST	366,198.69	
	520-0-201.05	CEMETERY STREET FUND	268.03	
<b>Total CDs, Municipal Bonds, Agency Bonds</b>			<u>366,466.71</u>	100%

TOTAL CEMETERY PERMANENT FUND INVESTMENTS 366,466.71

INVESTMENT TYPE (CEMETERY PERMANENT FUND)



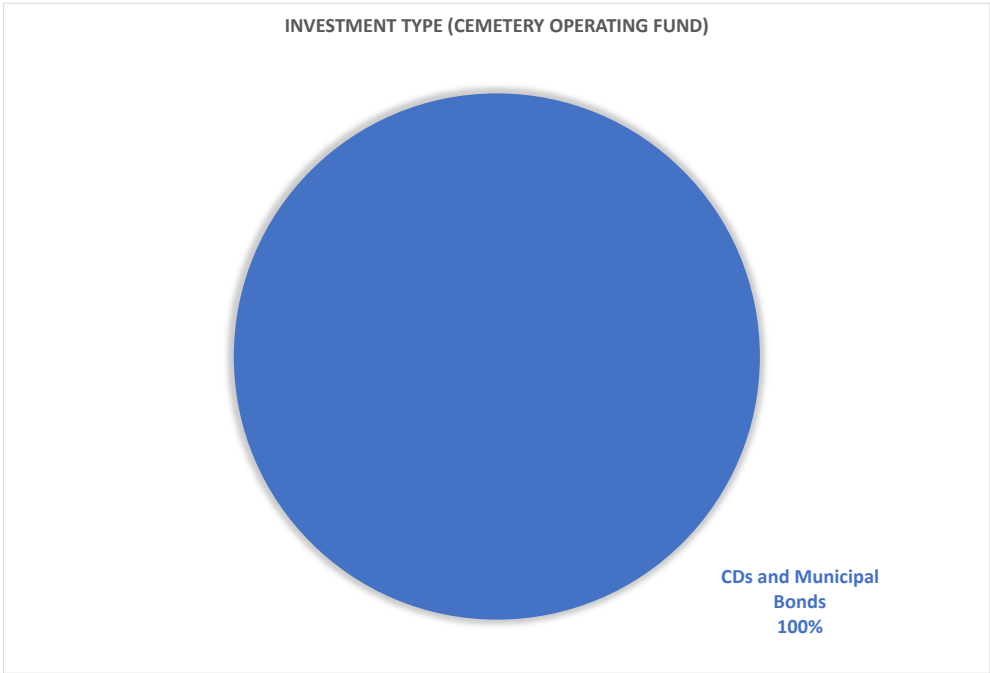
CDs and Municipal  
Bonds  
100%

QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024

INVESTMENTS FOR CEMETERY OPERATING FUND (Fund 525)

	<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
<i>CDs and Municipal Bonds</i>					
	TIB Capital Markets	525-0-201.05	CEMETERY STREET FUND-INV	126,449.07	
		525-0-201.06	CEM-JESSIE MAE BODE FUND	<u>19,727.65</u>	
<i>Total CDs and Municipal Bonds</i>				146,176.72	100%

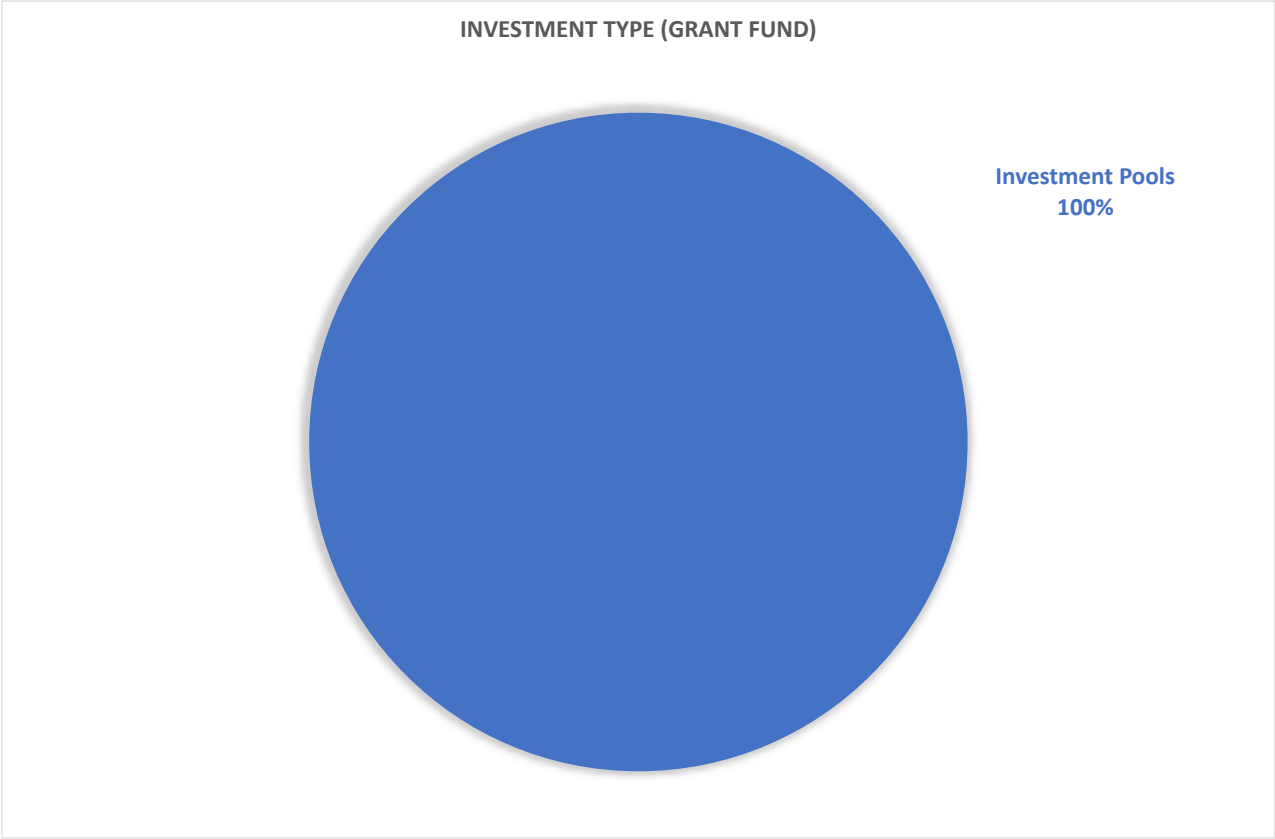
TOTAL CEMETERY OPERATING FUND INVESTMENTS 146,176.72



QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024

INVESTMENT FOR GRANT FUND (Fund 540)

	<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
<i>Investment Pools</i>					
	TexasCLASS	540-0-200.20	AMERICAN RESCUE	1,078,045.25	100%
TOTAL GRANT FUND INVESTMENTS				1,078,045.25	

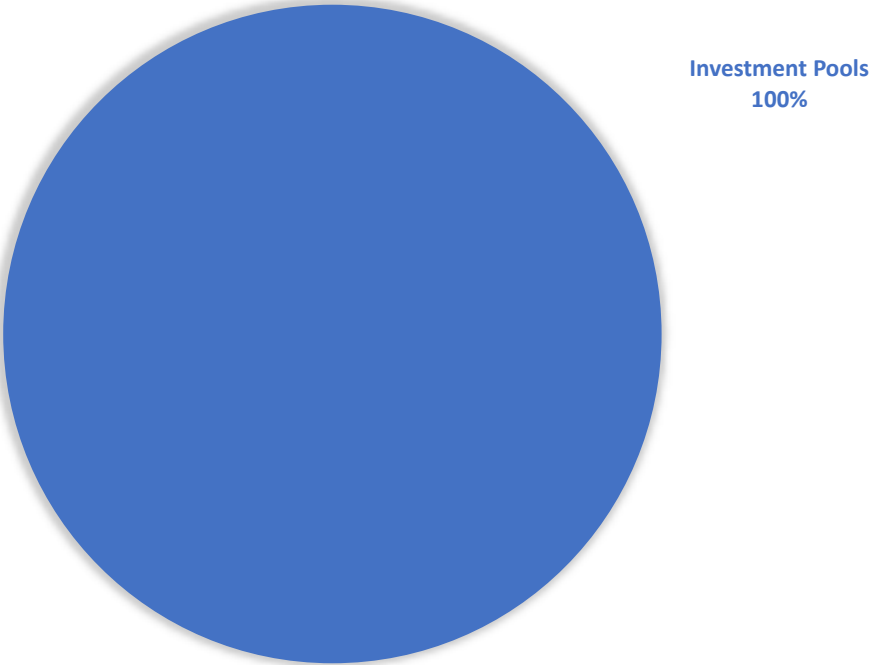


QUARTERLY INVESTMENTS SUMMARY  
FOR THE PERIOD ENDING 03/31/2024

INVESTMENT FOR CAPITAL PROJECTS FUND (Fund 905)

<i>Investment Pools</i>	<u>Custodian</u>	<u>General Ledger Acct #</u>	<u>Account Name</u>	<u>Amount</u>	<u>% of Fund</u>
	TexasCLASS	905-0-200.20	Capital Fund 2022	7,236,005.36	100%
TOTAL CAPITAL PROJECTS FUND INVESTMENTS				7,236,005.36	

INVESTMENT TYPE (CAPITAL PROJECTS FUND)



TIB  
P.O. BOX 560528  
DALLAS, TX 75356-0528

As of 03/31/2024  
Sales Representative: Michael W Boydston



## Verification Statement

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Account No: 599762

CITIZENS STATE BANK  
H/F CITY OF NAVASOTA  
P.O. BOX 518  
SOMERVILLE, TX 77879

\* The information included on this statement is based upon settlement date rather than entered date.



Security Receipt	Trade Date Settlement Date	Cost Basis	Par/Shares Original Face	Description Rate, Maturity	Principal Cost Market Value	Date Priced
02007GNN9 163016419	02/02/2022 02/10/2022	100.000000	248,000.00 .00	ALLY BANK CD 1.20, 02/10/2025	248,000.00 N/A	
05580AE26 245055098	09/21/2021 09/24/2021	100.000000	245,000.00 .00	BMW BANK NA CD .65, 09/24/2024	245,000.00 N/A	
05600XCP3 245045568	03/30/2021 04/13/2021	100.000000	245,000.00 .00	BMO HARRIS BANK NA CD 1.00, 04/13/2026	245,000.00 N/A	
066519QT9 245045565	03/30/2021 04/01/2021	100.000000	245,000.00 .00	BANKUNITED NA CD .95, 03/31/2026	245,000.00 N/A	
07371AXP3 163016417	02/03/2022 02/16/2022	100.000000	248,000.00 .00	BEAL BK PLANO TX 1.50, 02/10/2027	248,000.00 N/A	
229831JL7 163017374	02/04/2022 03/02/2022	112.452000	260,000.00 .00	CUERO TX ISD REF GP BDQ 5.00, 08/15/2025	292,375.20 N/A	
254673B70 257004989	04/22/2022 04/27/2022	100.000000	246,000.00 .00	DISCOVER BK CD 2.80, 04/28/2025	246,000.00 N/A	
38149MA94 245055099	09/21/2021 09/29/2021	100.000000	245,000.00 .00	GOLDMAN SACHS BANK CD 1.05, 09/29/2026	245,000.00 N/A	
48128UZC6 245043134	02/09/2021 02/17/2021	100.000000	245,000.00 .00	JPMORGAN CHASE BK NA CD .50, 02/17/2026	245,000.00 N/A	
61768U4A2 257004990	04/11/2022 04/29/2022	100.000000	246,000.00 .00	MORGAN STANLEY PRIVATE BK CD 3.00, 04/29/2027	246,000.00 N/A	
752754PG0 163019398	04/05/2022 04/07/2022	94.346000	250,000.00 .00	RANDOLPH TWP NJ SD GO 1.10, 08/01/2025	235,865.00 N/A	
882806HH8 163017375	02/17/2022 02/22/2022	97.275000	500,000.00 .00	TEXAS TECH UNIV REV TAX REF 1.186, 02/15/2026	486,375.00 N/A	
<b>Total USD Par</b>			<b>3,223,000.00</b>	<b>Total USD Cost</b>	<b>3,227,615.20</b>	
<b>Total USD Original Face</b>			<b>3,223,000.00</b>			





CITY OF NAVASOTA  
ATTN MARIBEL FRANK  
PO BOX 910  
NAVASOTA TX 77868-0910

## MONTHLY STATEMENT OF ACCOUNT

**ACCOUNT:** 0930102200

**ACCOUNT NAME:** AP FUND

**STATEMENT PERIOD:** 01/01/2024 - 01/31/2024

TEXSTAR MONTHLY SUMMARY: THE AVERAGE MONTHLY RATE WAS 5.3200%. THE AVERAGE WEIGHTED AVERAGE MATURITY WAS 42 DAYS AND THE NET ASSET VALUE FOR 1/31/24 WAS 1.000037.

### MONTHLY ACTIVITY DETAIL

TRANSACTION DATE	DESCRIPTION	CONFIRMATION NUMBER	TRANSACTION AMOUNT	BALANCE
	BEGINNING BALANCE			140,685.15
01/31/2024	MONTHLY POSTING	9999888	635.58	141,320.73
	ENDING BALANCE			141,320.73

### MONTHLY ACCOUNT SUMMARY

BEGINNING BALANCE	140,685.15
TOTAL DEPOSITS	0.00
TOTAL WITHDRAWALS	0.00
TOTAL INTEREST	635.58
ENDING BALANCE	141,320.73
AVERAGE BALANCE	140,685.15

### ACTIVITY SUMMARY (YEAR-TO-DATE)

ACCOUNT NAME	DEPOSITS	WITHDRAWALS	INTEREST
AP FUND	0.00	0.00	635.58



CITY OF NAVASOTA  
ATTN MARIBEL FRANK  
PO BOX 910  
NAVASOTA TX 77868-0910

## MONTHLY STATEMENT OF ACCOUNT

**ACCOUNT:** 0930102200

**ACCOUNT NAME:** AP FUND

**STATEMENT PERIOD:** 02/01/2024 - 02/29/2024

TEXSTAR MONTHLY SUMMARY: THE AVERAGE MONTHLY RATE WAS 5.3035%. THE AVERAGE WEIGHTED AVERAGE MATURITY WAS 36 DAYS AND THE NET ASSET VALUE FOR 2/29/24 WAS .999934.

### MONTHLY ACTIVITY DETAIL

TRANSACTION DATE	DESCRIPTION	CONFIRMATION NUMBER	TRANSACTION AMOUNT	BALANCE
	BEGINNING BALANCE			141,320.73
02/29/2024	MONTHLY POSTING	9999888	595.46	141,916.19
	ENDING BALANCE			141,916.19

### MONTHLY ACCOUNT SUMMARY

BEGINNING BALANCE	141,320.73
TOTAL DEPOSITS	0.00
TOTAL WITHDRAWALS	0.00
TOTAL INTEREST	595.46
ENDING BALANCE	141,916.19
AVERAGE BALANCE	141,320.73

### ACTIVITY SUMMARY (YEAR-TO-DATE)

ACCOUNT NAME	DEPOSITS	WITHDRAWALS	INTEREST
AP FUND	0.00	0.00	1,231.04



CITY OF NAVASOTA  
ATTN MARIBEL FRANK  
PO BOX 910  
NAVASOTA TX 77868-0910

## MONTHLY STATEMENT OF ACCOUNT

**ACCOUNT:** 0930102200

**ACCOUNT NAME:** AP FUND

**STATEMENT PERIOD:** 03/01/2024 - 03/31/2024

TEXSTAR MONTHLY SUMMARY: THE AVERAGE MONTHLY RATE WAS 5.2986%. THE AVERAGE WEIGHTED AVERAGE MATURITY WAS 36 DAYS AND THE NET ASSET VALUE FOR 3/28/24 WAS .999936.

### MONTHLY ACTIVITY DETAIL

TRANSACTION DATE	DESCRIPTION	CONFIRMATION NUMBER	TRANSACTION AMOUNT	BALANCE
	BEGINNING BALANCE			141,916.19
03/28/2024	MONTHLY POSTING	9999888	638.66	142,554.85
	ENDING BALANCE			142,554.85

### MONTHLY ACCOUNT SUMMARY

BEGINNING BALANCE	141,916.19
TOTAL DEPOSITS	0.00
TOTAL WITHDRAWALS	0.00
TOTAL INTEREST	638.66
ENDING BALANCE	142,554.85
AVERAGE BALANCE	141,916.19

### ACTIVITY SUMMARY (YEAR-TO-DATE)

ACCOUNT NAME	DEPOSITS	WITHDRAWALS	INTEREST
AP FUND	0.00	0.00	1,869.70



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City of Navasota  
PO Box 910 200 E McAlpine  
Navasota, TX 77868

Texas CLASS

Texas CLASS		Average Monthly Yield: 5.5403%						
		Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
TX-01-0484-0001	NAVASOTA 01	456,368.00	0.00	0.00	2,146.14	2,146.14	457,510.33	458,514.14
TX-01-0484-0002	ARPA	1,063,414.19	0.00	0.00	5,000.83	5,000.83	1,066,075.97	1,068,415.02
TX-01-0484-0006	Capital Fund 2022	7,137,799.65	0.00	0.00	33,566.29	33,566.29	7,155,665.93	7,171,365.94
TOTAL		8,657,581.84	0.00	0.00	40,713.26	40,713.26	8,679,252.23	8,698,295.10



NAVASOTA 01

Account Summary

Average Monthly Yield: 5.5403%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	456,368.00	0.00	0.00	2,146.14	2,146.14	457,510.33	458,514.14

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
01/01/2024	Beginning Balance			456,368.00	
01/31/2024	Income Dividend Reinvestment	2,146.14			
01/31/2024	Ending Balance			458,514.14	



ARPA

Account Summary

Average Monthly Yield: 5.5403%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	1,063,414.19	0.00	0.00	5,000.83	5,000.83	1,066,075.97	1,068,415.02

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
01/01/2024	Beginning Balance			1,063,414.19	
01/31/2024	Income Dividend Reinvestment	5,000.83			
01/31/2024	Ending Balance			1,068,415.02	



Capital Fund 2022

Account Summary

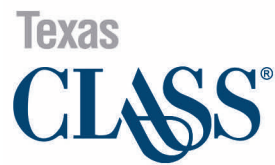
Average Monthly Yield: 5.5403%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	7,137,799.65	0.00	0.00	33,566.29	33,566.29	7,155,665.93	7,171,365.94

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
01/01/2024	Beginning Balance			7,137,799.65	
01/31/2024	Income Dividend Reinvestment	33,566.29			
01/31/2024	Ending Balance			7,171,365.94	





## Texas CLASS

## Texas CLASS

Date	Dividend Rate	Daily Yield
01/01/2024	0.000000000	5.5841%
01/02/2024	0.000152448	5.5796%
01/03/2024	0.000152281	5.5735%
01/04/2024	0.000152103	5.5666%
01/05/2024	0.000454941	5.5503%
01/06/2024	0.000000000	5.5503%
01/07/2024	0.000000000	5.5503%
01/08/2024	0.000151466	5.5436%
01/09/2024	0.000151296	5.5374%
01/10/2024	0.000151814	5.5564%
01/11/2024	0.000151747	5.5539%
01/12/2024	0.000605876	5.5438%
01/13/2024	0.000000000	5.5438%
01/14/2024	0.000000000	5.5438%
01/15/2024	0.000000000	5.5438%
01/16/2024	0.000151497	5.5441%
01/17/2024	0.000151473	5.5439%
01/18/2024	0.000151375	5.5403%
01/19/2024	0.000453714	5.5353%
01/20/2024	0.000000000	5.5353%
01/21/2024	0.000000000	5.5353%
01/22/2024	0.000151171	5.5340%
01/23/2024	0.000150897	5.5230%
01/24/2024	0.000150921	5.5237%
01/25/2024	0.000150861	5.5215%
01/26/2024	0.000451860	5.5155%
01/27/2024	0.000000000	5.5155%
01/28/2024	0.000000000	5.5155%
01/29/2024	0.000150907	5.5232%
01/30/2024	0.000150737	5.5170%
01/31/2024	0.000150400	5.5046%

Performance results are shown net of all fees and expenses and reflect the reinvestment of dividends and other earnings. Many factors affect performance including changes in market conditions and interest rates and in response to other economic, political, or financial developments. Investment involves risk including the possible loss of principal. No assurance can be given that the performance objectives of a given strategy will be achieved. **Past performance is no guarantee of future results. Any financial and/or investment decision may incur losses.**



0000358-0006721 PDFT 623464

City of Navasota  
PO Box 910 200 E McAlpine  
Navasota, TX 77868

Texas CLASS

Texas CLASS

Average Monthly Yield: 5.4842%

		Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
TX-01-0484-0001	NAVASOTA 01	458,514.14	0.00	0.00	1,996.55	4,142.69	459,582.85	460,510.69
TX-01-0484-0002	ARPA	1,068,415.02	0.00	0.00	4,652.30	9,653.13	1,070,905.30	1,073,067.32
TX-01-0484-0006	Capital Fund 2022	7,171,365.94	0.00	0.00	31,226.85	64,793.14	7,188,081.02	7,202,592.79
TOTAL		8,698,295.10	0.00	0.00	37,875.70	78,588.96	8,718,569.17	8,736,170.80



NAVASOTA 01

Account Summary

Average Monthly Yield: 5.4842%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	458,514.14	0.00	0.00	1,996.55	4,142.69	459,582.85	460,510.69

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
02/01/2024	Beginning Balance			458,514.14	
02/29/2024	Income Dividend Reinvestment	1,996.55			
02/29/2024	Ending Balance			460,510.69	



ARPA

Account Summary

Average Monthly Yield: 5.4842%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	1,068,415.02	0.00	0.00	4,652.30	9,653.13	1,070,905.30	1,073,067.32

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
02/01/2024	Beginning Balance			1,068,415.02	
02/29/2024	Income Dividend Reinvestment	4,652.30			
02/29/2024	Ending Balance			1,073,067.32	



Capital Fund 2022

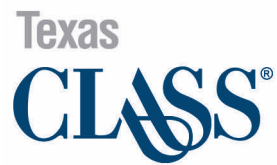
Account Summary

Average Monthly Yield: 5.4842%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	7,171,365.94	0.00	0.00	31,226.85	64,793.14	7,188,081.02	7,202,592.79

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
02/01/2024	Beginning Balance			7,171,365.94	
02/29/2024	Income Dividend Reinvestment	31,226.85			
02/29/2024	Ending Balance			7,202,592.79	



## Texas CLASS

## Texas CLASS

Date	Dividend Rate	Daily Yield
02/01/2024	0.000150453	5.5066%
02/02/2024	0.000451812	5.5121%
02/03/2024	0.000000000	5.5121%
02/04/2024	0.000000000	5.5121%
02/05/2024	0.000150502	5.5084%
02/06/2024	0.000150086	5.4932%
02/07/2024	0.000149889	5.4859%
02/08/2024	0.000149910	5.4865%
02/09/2024	0.000449784	5.4873%
02/10/2024	0.000000000	5.4874%
02/11/2024	0.000000000	5.4874%
02/12/2024	0.000149934	5.4876%
02/13/2024	0.000149764	5.4820%
02/14/2024	0.000149817	5.4833%
02/15/2024	0.000149707	5.4795%
02/16/2024	0.000598016	5.4718%
02/17/2024	0.000000000	5.4718%
02/18/2024	0.000000000	5.4718%
02/19/2024	0.000000000	5.4718%
02/20/2024	0.000149505	5.4719%
02/21/2024	0.000149535	5.4730%
02/22/2024	0.000149483	5.4711%
02/23/2024	0.000448581	5.4710%
02/24/2024	0.000000000	5.4727%
02/25/2024	0.000000000	5.4727%
02/26/2024	0.000149771	5.4765%
02/27/2024	0.000149606	5.4759%
02/28/2024	0.000149724	5.4801%
02/29/2024	0.000149710	5.4794%

Performance results are shown net of all fees and expenses and reflect the reinvestment of dividends and other earnings. Many factors affect performance including changes in market conditions and interest rates and in response to other economic, political, or financial developments. Investment involves risk including the possible loss of principal. No assurance can be given that the performance objectives of a given strategy will be achieved. **Past performance is no guarantee of future results. Any financial and/or investment decision may incur losses.**



0000358-0006743 PDFT 633402

City of Navasota  
PO Box 910 200 E McAlpine  
Navasota, TX 77868

Texas CLASS

Texas CLASS

Average Monthly Yield: 5.4652%

		Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
TX-01-0484-0001	NAVASOTA 01	460,510.69	0.00	0.00	2,136.27	6,278.96	461,653.45	462,646.96
TX-01-0484-0002	ARPA	1,073,067.32	0.00	0.00	4,977.93	14,631.06	1,075,730.17	1,078,045.25
TX-01-0484-0006	Capital Fund 2022	7,202,592.79	0.00	0.00	33,412.57	98,205.71	7,220,466.24	7,236,005.36
TOTAL		8,736,170.80	0.00	0.00	40,526.77	119,115.73	8,757,849.86	8,776,697.57



NAVASOTA 01

Account Summary

Average Monthly Yield: 5.4652%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	460,510.69	0.00	0.00	2,136.27	6,278.96	461,653.45	462,646.96

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
03/01/2024	Beginning Balance			460,510.69	
03/31/2024	Income Dividend Reinvestment	2,136.27			
03/31/2024	Ending Balance			462,646.96	





ARPA

Account Summary

Average Monthly Yield: 5.4652%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	1,073,067.32	0.00	0.00	4,977.93	14,631.06	1,075,730.17	1,078,045.25

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
03/01/2024	Beginning Balance			1,073,067.32	
03/31/2024	Income Dividend Reinvestment	4,977.93			
03/31/2024	Ending Balance			1,078,045.25	



Capital Fund 2022

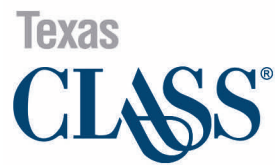
Account Summary

Average Monthly Yield: 5.4652%

	Beginning Balance	Contributions	Withdrawals	Income Earned	Income Earned YTD	Average Daily Balance	Month End Balance
Texas CLASS	7,202,592.79	0.00	0.00	33,412.57	98,205.71	7,220,466.24	7,236,005.36

Transaction Activity

Transaction Date	Transaction Description	Contributions	Withdrawals	Balance	Transaction Number
03/01/2024	Beginning Balance			7,202,592.79	
03/31/2024	Income Dividend Reinvestment	33,412.57			
03/31/2024	Ending Balance			7,236,005.36	



## Texas CLASS

## Texas CLASS

Date	Dividend Rate	Daily Yield
03/01/2024	0.000449268	5.4811%
03/02/2024	0.000000000	5.4811%
03/03/2024	0.000000000	5.4811%
03/04/2024	0.000149621	5.4761%
03/05/2024	0.000149723	5.4799%
03/06/2024	0.000149694	5.4788%
03/07/2024	0.000149572	5.4743%
03/08/2024	0.000448647	5.4735%
03/09/2024	0.000000000	5.4735%
03/10/2024	0.000000000	5.4735%
03/11/2024	0.000149467	5.4704%
03/12/2024	0.000149370	5.4669%
03/13/2024	0.000149351	5.4663%
03/14/2024	0.000149283	5.4637%
03/15/2024	0.000447414	5.4585%
03/16/2024	0.000000000	5.4585%
03/17/2024	0.000000000	5.4585%
03/18/2024	0.000149125	5.4580%
03/19/2024	0.000149135	5.4583%
03/20/2024	0.000149127	5.4581%
03/21/2024	0.000149141	5.4585%
03/22/2024	0.000447471	5.4592%
03/23/2024	0.000000000	5.4591%
03/24/2024	0.000000000	5.4591%
03/25/2024	0.000149191	5.4604%
03/26/2024	0.000149147	5.4588%
03/27/2024	0.000148935	5.4510%
03/28/2024	0.000596304	5.4562%
03/29/2024	0.000000000	5.4562%
03/30/2024	0.000000000	5.4562%
03/31/2024	0.000000000	5.4562%

Performance results are shown net of all fees and expenses and reflect the reinvestment of dividends and other earnings. Many factors affect performance including changes in market conditions and interest rates and in response to other economic, political, or financial developments. Investment involves risk including the possible loss of principal. No assurance can be given that the performance objectives of a given strategy will be achieved. **Past performance is no guarantee of future results. Any financial and/or investment decision may incur losses.**

TexPool Participant Services  
1001 Texas Avenue, Suite 1150  
Houston, TX 77002



CITY OF NAVASOTA  
AP FUND II  
ATTN MARIBEL FRANK  
PO BOX 910  
NAVASOTA TX 77868-0910

# Participant Statement

Statement Period 01/01/2024 - 01/31/2024

Customer Service 1-866-TEX-POOL  
Location ID 000079076  
Investor ID 000016023

## TexPool Update

Based on participant feedback, effective December 1, 2023, TexPool now offers direct check purchases into TexPool and TexPool Prime. Please contact TexPool Participant Services to learn more.

TexPool Summary						
Pool Name	Beginning Balance	Total Deposits	Total Withdrawals	Total Interest	Current Balance	Average Balance
Texas Local Government Investment Pool	\$141,035.38	\$0.00	\$0.00	\$640.32	\$141,675.70	\$141,056.04
Total Dollar Value	\$141,035.38	\$0.00	\$0.00	\$640.32	\$141,675.70	

## Portfolio Value

Pool Name	Pool/Account	Market Value (01/01/2024)	Share Price (01/31/2024)	Shares Owned (01/31/2024)	Market Value (01/31/2024)
Texas Local Government Investment Pool	449/7907600001	\$141,035.38	\$1.00	141,675.700	\$141,675.70
Total Dollar Value		\$141,035.38			\$141,675.70

## Interest Summary

Pool Name	Pool/Account	Month-to-Date Interest	Year-to-Date Interest
Texas Local Government Investment Pool	449/7907600001	\$640.32	\$640.32
Total		\$640.32	\$640.32

## Transaction Detail

Texas Local Government Investment Pool				Participant: CITY OF NAVASOTA		
Pool/Account:		449/7907600001				
Transaction Date	Settlement Date	Transaction Description	Transaction Dollar Amount	Share Price	Shares This Transaction	Shares Owned
01/01/2024	01/01/2024	BEGINNING BALANCE	\$141,035.38	\$1.00		141,035.380
01/31/2024	01/31/2024	MONTHLY POSTING	\$640.32	\$1.00	640.320	141,675.700
Account Value as of 01/31/2024			\$141,675.70	\$1.00		141,675.700

TexPool Participant Services  
1001 Texas Avenue, Suite 1150  
Houston, TX 77002



CITY OF NAVASOTA  
AP FUND II  
ATTN MARIBEL FRANK  
PO BOX 910  
NAVASOTA TX 77868-0910

# Participant Statement

Statement Period 02/01/2024 - 02/29/2024

Customer Service 1-866-TEX-POOL  
Location ID 000079076  
Investor ID 000016023

## TexPool Update

Based on participant feedback, effective December 1, 2023, TexPool now offers direct check purchases into TexPool and TexPool Prime. Please contact TexPool Participant Services to learn more.

TexPool Summary						
Pool Name	Beginning Balance	Total Deposits	Total Withdrawals	Total Interest	Current Balance	Average Balance
Texas Local Government Investment Pool	\$141,675.70	\$0.00	\$0.00	\$599.39	\$142,275.09	\$141,696.37
Total Dollar Value	\$141,675.70	\$0.00	\$0.00	\$599.39	\$142,275.09	

## Portfolio Value

Pool Name	Pool/Account	Market Value (02/01/2024)	Share Price (02/29/2024)	Shares Owned (02/29/2024)	Market Value (02/29/2024)
Texas Local Government Investment Pool	449/7907600001	\$141,675.70	\$1.00	142,275.090	\$142,275.09
Total Dollar Value		\$141,675.70			\$142,275.09

## Interest Summary

Pool Name	Pool/Account	Month-to-Date Interest	Year-to-Date Interest
Texas Local Government Investment Pool	449/7907600001	\$599.39	\$1,239.71
Total		\$599.39	\$1,239.71

## Transaction Detail

Texas Local Government Investment Pool			Participant: CITY OF NAVASOTA			
Pool/Account: 449/7907600001						
Transaction Date	Settlement Date	Transaction Description	Transaction Dollar Amount	Share Price	Shares This Transaction	Shares Owned
02/01/2024	02/01/2024	BEGINNING BALANCE	\$141,675.70	\$1.00		141,675.700
02/29/2024	02/29/2024	MONTHLY POSTING	\$599.39	\$1.00	599.390	142,275.090
Account Value as of 02/29/2024			\$142,275.09	\$1.00		142,275.090

TexPool Participant Services  
1001 Texas Avenue, Suite 1150  
Houston, TX 77002



CITY OF NAVASOTA  
AP FUND II  
ATTN MARIBEL FRANK  
PO BOX 910  
NAVASOTA TX 77868-0910

# Participant Statement

Statement Period 03/01/2024 - 03/31/2024

Customer Service 1-866-TEX-POOL  
Location ID 000079076  
Investor ID 000016023

## TexPool Update

Based on participant feedback, effective December 1, 2023, TexPool now offers direct check purchases into TexPool and TexPool Prime. Please contact TexPool Participant Services to learn more.

TexPool Summary						
Pool Name	Beginning Balance	Total Deposits	Total Withdrawals	Total Interest	Current Balance	Average Balance
Texas Local Government Investment Pool	\$142,275.09	\$0.00	\$0.00	\$642.38	\$142,917.47	\$142,357.98
Total Dollar Value	\$142,275.09	\$0.00	\$0.00	\$642.38	\$142,917.47	

## Portfolio Value

Pool Name	Pool/Account	Market Value (03/01/2024)	Share Price (03/31/2024)	Shares Owned (03/31/2024)	Market Value (03/31/2024)
Texas Local Government Investment Pool	449/7907600001	\$142,275.09	\$1.00	142,917.470	\$142,917.47
Total Dollar Value		\$142,275.09			\$142,917.47

## Interest Summary

Pool Name	Pool/Account	Month-to-Date Interest	Year-to-Date Interest
Texas Local Government Investment Pool	449/7907600001	\$642.38	\$1,882.09
Total		\$642.38	\$1,882.09

## Transaction Detail

Texas Local Government Investment Pool				Participant: CITY OF NAVASOTA		
Pool/Account: 449/7907600001						
Transaction Date	Settlement Date	Transaction Description	Transaction Dollar Amount	Share Price	Shares This Transaction	Shares Owned
03/01/2024	03/01/2024	BEGINNING BALANCE	\$142,275.09	\$1.00		142,275.090
03/28/2024	03/28/2024	MONTHLY POSTING	\$642.38	\$1.00	642.380	142,917.470
Account Value as of 03/31/2024			\$142,917.47	\$1.00		142,917.470



Date 1/31/24  
Primary Account

Page 1  
20035725

CITY OF NAVASOTA  
CITY MONEY MARKET  
PO BOX 910  
NAVASOTA TX 77868-0910

We now offer Zelle®! Find Zelle® in our mobile app today!  
Zelle® is a fast, safe and easy way to send and receive money with  
anyone who has a U.S.-based checking or savings account -  
typically, in minutes when both users are enrolled.  
Attached is your updated EFT disclosure to include this new service.

CITY OF NAVASOTA FUNDS		Number of Enclosures	3
Account Number	20035725	Statement Dates	1/01/24 thru 1/31/24
Previous Balance	5,134,976.54	Days in the statement period	31
3 Deposits/Credits	1,012.89	Average Ledger	5,135,473.02
Checks/Debits	.00		
Service Charge	.00	Interest Earned	872.33
Interest Paid	872.33	Annual Percentage Yield Earned	0.20%
Ending Balance	5,136,861.76	2024 Interest Paid	872.33

#### ACTIVITY IN DATE ORDER

Date	Description	Amount
1/02	DDA REGULAR DEPOSIT	197.68
1/17	DDA REGULAR DEPOSIT	617.53
1/31	DDA REGULAR DEPOSIT	197.68
1/31	Interest Deposit	872.33

#### DAILY BALANCE INFORMATION

Date	Balance	Date	Balance
1/01	5,134,976.54	1/17	5,135,791.75
1/02	5,135,174.22	1/31	5,136,861.76

#### INTEREST RATE SUMMARY

Date	Interest Rate
12/31	0.200000%

**Citizens State Bank**  
**CHECKING DEPOSIT**

☒ CASH  
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DATE 01/02/24

NAME City of Navasota Money Market

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 197.68

1111112995

DDA REGULAR DEPOSIT Date: 01/02 Amount: \$197.68

**Citizens State Bank**  
**CHECKING DEPOSIT**

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DATE 01/31/24

NAME City of Navasota Money Market

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 197.68

1111112995

DDA REGULAR DEPOSIT Date: 01/31 Amount: \$197.68

**Citizens State Bank**  
**CHECKING DEPOSIT**

☒ CASH  
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DATE 01/17/24

NAME City of Navasota Money Market

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 617.53

1111112995

DDA REGULAR DEPOSIT Date: 01/17 Amount: \$617.53







Date 2/29/24  
Primary Account

Page 1  
20035725

CITY OF NAVASOTA  
CITY MONEY MARKET  
PO BOX 910  
NAVASOTA TX 77868-0910

CITY OF NAVASOTA FUNDS		Number of Enclosures	6
Account Number	20035725	Statement Dates	2/01/24 thru 2/29/24
Previous Balance	5,136,861.76	Days in the statement period	29
6 Deposits/Credits	15,017.97	Average Ledger	5,145,188.25
Checks/Debits	.00		
Service Charge	.00	Interest Earned	817.59
Interest Paid	817.59	Annual Percentage Yield Earned	0.20%
Ending Balance	5,152,697.32	2024 Interest Paid	1,689.92

#### ACTIVITY IN DATE ORDER

Date	Description	Amount
2/01	DDA REGULAR DEPOSIT	1,375.00
2/12	DDA REGULAR DEPOSIT	1,500.23
2/15	DDA REGULAR DEPOSIT	9,465.00
2/16	DDA REGULAR DEPOSIT	1,875.29
2/20	DDA REGULAR DEPOSIT	617.53
2/29	DDA REGULAR DEPOSIT	184.92
2/29	Interest Deposit	817.59

#### DAILY BALANCE INFORMATION

Date	Balance	Date	Balance	Date	Balance
2/01	5,138,236.76	2/15	5,149,201.99	2/20	5,151,694.81
2/12	5,139,736.99	2/16	5,151,077.28	2/29	5,152,697.32

#### INTEREST RATE SUMMARY

Date	Interest Rate
1/31	0.200000%

**Citizens State Bank** CHECKING DEPOSIT

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DATE 02/01/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 1375.00

1375 00

1113112995

DDA REGULAR DEPOSIT Date: 02/01 Amount: \$1,375.00

**Citizens State Bank** CHECKING DEPOSIT

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DATE 02/15/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 9465.00

6500 00  
2965 00

1113112995

DDA REGULAR DEPOSIT Date: 02/15 Amount: \$9,465.00

**Citizens State Bank** CHECKING DEPOSIT

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DATE 02/20/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 617.53

617 53

1113112995

DDA REGULAR DEPOSIT Date: 02/20 Amount: \$617.53

**Citizens State Bank** CHECKING DEPOSIT

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DATE 02/12/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 1500.23

1500 23

1113112995

DDA REGULAR DEPOSIT Date: 02/12 Amount: \$1,500.23

**Citizens State Bank** CHECKING DEPOSIT

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DATE 02/16/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 1875.29

1875 29

1113112995

DDA REGULAR DEPOSIT Date: 02/16 Amount: \$1,875.29

**Citizens State Bank** CHECKING DEPOSIT

☒ CASH  
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DATE 02/29/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER 20035725

NET DEPOSIT \$ 184.92

184 92

1113112995

DDA REGULAR DEPOSIT Date: 02/29 Amount: \$184.92





Date 3/29/24  
Primary Account

Page 1  
20035725

CITY OF NAVASOTA  
CITY MONEY MARKET  
PO BOX 910  
NAVASOTA TX 77868-0910

CITY OF NAVASOTA FUNDS		Number of Enclosures	3
Account Number	20035725	Statement Dates	3/01/24 thru 3/31/24
Previous Balance	5,152,697.32	Days in the statement period	31
3 Deposits/Credits	252,077.10	Average Ledger	5,378,807.48
Checks/Debits	.00		
Service Charge	.00	Interest Earned	913.66
Interest Paid	913.66	Annual Percentage Yield Earned	0.20%
Ending Balance	5,405,688.08	2024 Interest Paid	2,603.58

#### ACTIVITY IN DATE ORDER

Date	Description	Amount
3/04	DDA REGULAR DEPOSIT	250,000.30
3/25	DDA REGULAR DEPOSIT	794.07
3/29	DDA REGULAR DEPOSIT	1,282.73
3/31	Interest Deposit	913.66

#### DAILY BALANCE INFORMATION

Date	Balance	Date	Balance	Date	Balance
3/01	5,152,697.32	3/25	5,403,491.69	3/31	5,405,688.08
3/04	5,402,697.62	3/29	5,404,774.42		

#### INTEREST RATE SUMMARY

Date	Interest Rate
2/29	0.200000%



## CHECKING DEPOSIT

☒ CASH

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American Expr Bank CD  
matured

250000 30

DATE 03/04/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER

20035725

LESS CASH  
RECEIVEDNET  
DEPOSIT \$

250000 30

⑆113112995⑆

44

DDA REGULAR DEPOSIT Date: 03/04 Amount: \$250,000.30



## CHECKING DEPOSIT

☒ CASH

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Goldman Sachs Bk CD

1282 73

DATE 03/29/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER

20035725

LESS CASH  
RECEIVEDNET  
DEPOSIT \$

1282 73

⑆113112995⑆

44

DDA REGULAR DEPOSIT Date: 03/29 Amount: \$1,282.73



## CHECKING DEPOSIT

☒ CASH

SIGN HERE FOR RECEIPT OF CASH

BMW Bank CD

794 07

DATE 03/25/24

NAME City of Navasota Money Market  
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CITY

ACCOUNT NUMBER

20035725

LESS CASH  
RECEIVEDNET  
DEPOSIT \$

794 07

⑆113112995⑆

44

DDA REGULAR DEPOSIT Date: 03/25 Amount: \$794.07





## REQUEST FOR CITY COUNCIL AGENDA ITEM # 7.

Agenda Date Requested	05/28/2024
Requested By	Jason Katkoski, Fire Chief
Department	Administration
Type	Resolution

---

### Agenda Item

Consideration and possible action on Resolution No. 769-24, adopting the Grimes County 2024 Hazard Mitigation Plan to take effect immediately upon final approval of the plan by FEMA.  
[Jason Katkoski, Fire Chief]

### Summary & Recommendation

The City of Navasota Emergency Management Office within the Navasota Fire Department has been working with Grimes County Emergency Management and Atkins Consulting to update the Grimes Co. Hazard Mitigation Plan for the past five years. This plan has been reviewed by the Texas Division of Emergency Management (TDEM) and is currently being reviewed by the Federal Emergency Management Agency (FEMA). TDEM has advised Grimes County and its cities to adopt the plan contingent on approval by FEMA. Once FEMA makes its final approval, the plan will immediately go into effect. Upon final approval and adoption, this plan will open up Hazard Mitigation grant opportunities for the city and county. Therefore, staff recommends City Council adopting Resolution No. 769-24 adopting the Grimes Co. 2024 Hazard Mitigation Action Plan.

### Action Requested by Council

**Approve or deny approving Resolution No. 769-24, adopting the Grimes County 2024 Hazard Mitigation Action Plan.**

---

### Attachments

Resolution No. 769-24  
Hazard Mitigation Plan  
Appendixes



## **RESOLUTION NO. 769-24**

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF NAVASOTA, TEXAS TO ADOPT THE GRIMES COUNTY 2024 HAZARD MITIGATION ACTION PLAN AS IT APPLIES TO THE CITY OF NAVASOTA WITH THE PLAN BEING TITLED "MITIGATING RISK: PROTECTING THE BRAZOS VALLEY FROM ALL HAZARDS, 2024 - 2029"; AND PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, certain areas of Navasota are subject to periodic flooding and other natural hazards with potential to cause damages to people and properties within the area; and

**WHEREAS**, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) requires that local jurisdictions have in place a FEMA-approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004; and

**WHEREAS**, this plan, a five-year blueprint for the future, aimed at making communities in Grimes County disaster resistant by reducing or eliminating the long-term risk of loss of life and property from the full range of natural disasters; and

**WHEREAS**, this plan meets the requirements of the Disaster Mitigation Act of 2000 (P.L. 106-390); Section 44 of the Code of Federal Regulations, Part 201.6 and Part 206; and the State of Texas Division of Emergency Management standards;

**NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NAVASOTA, TEXAS:**

**PART 1:** That the City Council hereby approves those portions of the Plan entitled, *Mitigating Risk: Protecting the Brazos Valley from All Hazards, 2024-2029*, that pertain to the City of Navasota.

**PART 2:** That the City Council hereby approves the Emergency Management Coordinator with the responsibility, authority, and the means to:

- a. Inform all concerned parties of this action; and
- b. Develop an addendum to this Hazard Mitigation Plan if Navasota's unique situation warrants such an addendum.

**PART 3:** That the City Council hereby directs the Emergency Management Coordinator to assure that the Hazard Mitigation Plan is reviewed at least annually and that any needed adjustment to the City of Navasota addendum to the Hazard Mitigation Plan be developed and presented to the City Council for consideration.

**PART 4:** That this Resolution shall take effect immediately from and after its passage by the City Council, and final approval by the United States Federal Emergency Management Agency.

**PASSED AND APPROVED THIS THE 28<sup>TH</sup> DAY OF MAY, 2024.**

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**BERT MILLER, MAYOR**

**ATTEST:**

---

**SUSIE M. HOMEYER, CITY SECRETARY**

# Hazard Mitigation Action Plan Update 2023 Grimes County, Texas

May 2023

Draft

Prepared by:

Atkins North America, Inc.  
200 Westlake Park Boulevard, Suite 1100  
Houston, Texas 77079

gr

A decorative graphic in the bottom right corner consisting of several overlapping triangles in various shades of blue and a light gray triangle, creating a modern, abstract design.

## Notice

This document and its contents have been prepared and are intended solely as information for Grimes County, Texas, and use in relation to the Grimes County Hazard Mitigation Action Plan Update 2023.

## Document History

Document title: Grimes County Hazard Mitigation Action Plan Update 2023

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# Table of Contents

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	Page
Notice .....	ii
List of Tables .....	viii
List of Figures .....	xi
Acronyms and Abbreviations.....	xiii
<b>1.0 INTRODUCTION.....</b>	<b>1-1</b>
1.1 BACKGROUND .....	1-1
1.2 SCOPE .....	1-2
1.3 PURPOSE .....	1-2
1.4 AUTHORITY.....	1-3
1.5 SUMMARY OF SECTIONS.....	1-3
<b>2.0 PLANNING PROCESS.....</b>	<b>2-1</b>
2.1 PLAN PREPARATION AND DEVELOPMENT .....	2-1
2.1.1 OVERVIEW OF THE PLAN .....	2-1
2.1.2 PLANNING TEAM .....	2-1
2.1.3 PLANNING PROCESS .....	2-3
2.1.4 KICK-OFF WORKSHOP .....	2-4
2.1.5 HAZARD IDENTIFICATION .....	2-4
2.2 REVIEW AND INCORPORATION OF EXISTING PLANS INTO THE HMP PROCESS.....	2-6
2.2.1 REVIEW .....	2-6
2.2.2 INCORPORATION OF EXISTING PLANS INTO THE HMP PROCESS.....	2-6
2.2.3 INCORPORATION OF THE HMP INTO OTHER PLANNING MECHANISMS .....	2-6
2.2.4 PLAN REVIEW AND PLAN UPDATE.....	2-8
2.3 TIMELINE FOR IMPLEMENTING MITIGATION ACTIONS.....	2-9
2.4 PUBLIC AND STAKEHOLDER INVOLVEMENT .....	2-9
2.4.1 STAKEHOLDER INVOLVEMENT .....	2-10
2.4.2 PUBLIC MEETINGS .....	2-10
2.4.3 PUBLIC PARTICIPATION SURVEY.....	2-10
<b>3.0 COUNTY PROFILE .....</b>	<b>3-1</b>
3.1 OVERVIEW.....	3-1
3.2 POPULATION AND DEMOGRAPHICS .....	3-3
3.2.1 AGE AND RACE .....	3-3
3.3 FUTURE DEVELOPMENT AND POPULATION GROWTH .....	3-4
3.4 ECONOMIC IMPACT .....	3-4
3.5 EXISTING AND FUTURE LAND USE AND DEVELOPMENT TRENDS.....	3-5
3.5.1 AGRICULTURE.....	3-5
3.5.2 HOUSING .....	3-6
3.6 CRITICAL FACILITIES.....	3-7
<b>4.0 RISK OVERVIEW .....</b>	<b>4-1</b>
4.1 HAZARD DESCRIPTION .....	4-1

	Page
4.2 NATURAL HAZARDS AND CLIMATE CHANGE .....	4-3
4.3 OVERVIEW OF HAZARD ANALYSIS.....	4-3
4.4 PRIORITY RISK INDEX.....	4-4
<b>5.0 FLOOD .....</b>	<b>5-1</b>
5.1 HAZARD DESCRIPTION .....	5-1
5.2 LOCATION.....	5-1
5.3 EXTENT .....	5-3
5.4 HISTORICAL OCCURRENCES .....	5-6
5.5 SIGNIFICANT EVENTS .....	5-8
5.6 PROBABILITY OF FUTURE EVENTS.....	5-9
5.7 VULNERABILITY AND IMPACT .....	5-9
5.8 ASSESSMENT OF IMPACTS .....	5-13
5.9 NATIONAL FLOOD INSURANCE PROGRAM (NFIP) PARTICIPATION .....	5-15
5.10 NFIP COMPLIANCE AND MAINTENANCE .....	5-16
5.11 REPETITIVE LOSS .....	5-16
<b>6.0 HURRICANES .....</b>	<b>6-1</b>
6.1 HAZARD DESCRIPTION .....	6-1
6.2 LOCATION.....	6-1
6.3 EXTENT .....	6-3
6.4 HISTORICAL OCCURRENCES .....	6-4
6.5 SIGNIFICANT EVENTS .....	6-6
6.6 PROBABILITY OF FUTURE EVENTS.....	6-8
6.7 VULNERABILITY AND IMPACT .....	6-8
6.8 ASSESSMENT OF IMPACTS .....	6-14
<b>7.0 EXTREME HEAT .....</b>	<b>7-1</b>
7.1 HAZARD DESCRIPTION .....	7-1
7.2 LOCATION.....	7-1
7.3 EXTENT .....	7-1
7.4 HISTORICAL OCCURRENCES .....	7-4
7.5 SIGNIFICANT EVENTS .....	7-6
7.6 PROBABILITY OF FUTURE EVENTS.....	7-6
7.7 VULNERABILITY AND IMPACT .....	7-7
7.8 ASSESSMENT OF IMPACTS .....	7-8
<b>8.0 THUNDERSTORMS, WIND, AND LIGHTNING .....</b>	<b>8-1</b>
8.1 HAZARD DESCRIPTION .....	8-1
8.2 LOCATION.....	8-1
8.3 EXTENT .....	8-1
8.4 HISTORICAL OCCURRENCES .....	8-3
8.5 SIGNIFICANT EVENTS .....	8-8
8.6 PROBABILITY OF FUTURE EVENTS.....	8-8
8.7 VULNERABILITY AND IMPACT .....	8-9
8.8 ASSESSMENT OF IMPACTS .....	8-12

	Page
8.9 LIGHTNING .....	8-13
8.10 LOCATION.....	8-13
8.11 EXTENT .....	8-14
8.12 HISTORICAL OCCURRENCES .....	8-14
8.13 SIGNIFICANT EVENTS .....	8-15
8.14 PROBABILITY OF FUTURE EVENTS.....	8-15
8.15 VULNERABILITY AND IMPACT .....	8-15
8.16 ASSESSMENT OF IMPACTS .....	8-16
<b>9.0 EARTHQUAKE.....</b>	<b>9-1</b>
9.1 HAZARD DESCRIPTION .....	9-1
9.2 LOCATION.....	9-3
9.3 EXTENT .....	9-4
9.4 HISTORICAL OCCURRENCES .....	9-5
9.5 PROBABILITY OF FUTURE EVENTS.....	9-5
9.6 VULNERABILITY AND IMPACT .....	9-6
9.7 ASSESSMENT OF IMPACT .....	9-6
<b>10.0 DROUGHT .....</b>	<b>10-1</b>
10.1 HAZARD DESCRIPTION .....	10-1
10.2 LOCATION.....	10-1
10.3 EXTENT .....	10-2
10.4 HISTORICAL OCCURRENCES .....	10-4
10.5 SIGNIFICANT EVENTS .....	10-6
10.6 PROBABILITY OF FUTURE EVENTS.....	10-6
10.7 VULNERABILITY AND IMPACT .....	10-6
10.8 ASSESSMENT OF IMPACTS .....	10-7
<b>11.0 TORNADO .....</b>	<b>11-1</b>
11.1 HAZARD DESCRIPTION .....	11-1
11.2 LOCATION.....	11-1
11.3 EXTENT .....	11-2
11.4 HISTORICAL OCCURRENCES .....	11-5
11.5 SIGNIFICANT EVENTS .....	11-7
11.6 PROBABILITY OF FUTURE EVENTS.....	11-8
11.7 VULNERABILITY AND IMPACT .....	11-8
11.8 ASSESSMENT OF IMPACTS .....	11-11
<b>12.0 HAIL.....</b>	<b>12-1</b>
12.1 HAZARD DESCRIPTION .....	12-1
12.2 LOCATION.....	12-1
12.3 EXTENT .....	12-1
12.4 HISTORICAL OCCURRENCES .....	12-2
12.5 SIGNIFICANT EVENTS .....	12-5
12.6 PROBABILITY OF FUTURE EVENTS.....	12-6
12.7 VULNERABILITY AND IMPACT .....	12-6

	Page
12.8 ASSESSMENT OF IMPACTS .....	12-9
<b>13.0 WINTER STORM .....</b>	<b>13-1</b>
13.1 HAZARD DESCRIPTION .....	13-1
13.2 LOCATION.....	13-2
13.3 EXTENT .....	13-2
13.4 HISTORICAL OCCURRENCES .....	13-4
13.5 PROBABILITY OF FUTURE EVENTS.....	13-5
13.6 VULNERABILITY AND IMPACT .....	13-5
13.7 ASSESSMENT OF IMPACTS .....	13-7
<b>14.0 WILDFIRE.....</b>	<b>14-1</b>
14.1 HAZARD DESCRIPTION .....	14-1
14.2 LOCATION.....	14-1
14.3 EXTENT .....	14-3
14.4 HISTORICAL OCCURRENCES .....	14-4
14.5 SIGNIFICANT EVENTS .....	14-7
14.6 PROBABILITY OF FUTURE EVENTS.....	14-7
14.7 VULNERABILITY AND IMPACT .....	14-8
14.8 ASSESSMENT OF IMPACTS .....	14-14
<b>15.0 DAM AND LEVEE FAILURE .....</b>	<b>15-1</b>
15.1 HAZARD DESCRIPTION .....	15-1
15.1.1 DAMS.....	15-1
15.1.2 LEVEE .....	15-2
15.2 LOCATION.....	15-2
15.3 HISTORICAL OCCURRENCES .....	15-5
15.4 PROBABILITY OF FUTURE EVENTS.....	15-6
15.5 VULNERABILITY AND IMPACT .....	15-6
15.6 ASSESSMENT OF IMPACTS .....	15-7
<b>16.0 VULNERABILITY ASSESSMENT.....</b>	<b>16-1</b>
16.1 HAZARD EXTENT.....	16-1
16.2 CRITICAL FACILITIES VULNERABILITY.....	16-2
16.3 PRIORITY RISK INDEX EVALUATION.....	16-2
16.4 PRIORITY RISK INDEX EVALUATION.....	16-3
<b>17.0 CAPABILITY ASSESSMENT.....</b>	<b>17-1</b>
17.1 WHAT IS A CAPABILITY ASSESSMENT?.....	17-1
17.2 CONDUCTING THE CAPABILITY ASSESSMENT .....	17-1
17.3 CAPABILITY ASSESSMENT FINDINGS .....	17-2
17.3.1 Planning and Regulatory Capability.....	17-2
17.3.2 Emergency Management .....	17-4
17.3.3 General Planning .....	17-5
17.3.4 Floodplain Management .....	17-7
17.3.5 Administrative and Technical Capability .....	17-10
17.3.6 Fiscal Capability .....	17-11



	Page
17.3.7 Political Capability .....	17-12
17.4 CONCLUSION AND LOCAL CAPABILITY .....	17-12
<b>18.0 MITIGATION STRATEGY.....</b>	<b>18-1</b>
18.1 INTRODUCTION .....	18-1
18.1.1 Mitigation Action Prioritization .....	18-2
18.2 MITIGATION GOALS .....	18-3
18.3 IDENTIFICATION AND ANALYSIS OF MITIGATION TECHNIQUES .....	18-4
18.3.1 Prevention .....	18-5
18.3.2 Property Protection .....	18-5
18.3.3 Natural Resource Protection .....	18-5
18.3.4 Structural Projects .....	18-6
18.3.5 Emergency Services .....	18-6
18.3.6 Public Education and Awareness.....	18-6
18.4 SELECTION OF MITIGATION TECHNIQUES FOR GRIMES COUNTY .....	18-7
18.5 PLAN UPDATE REQUIREMENT.....	18-7
<b>19.0 MITIGATION ACTIONS.....</b>	<b>19-1</b>
19.1 OVERVIEW .....	19-1
19.2 MITIGATION ACTION PLAN .....	19-1
<b>20.0 PLAN MAINTENANCE .....</b>	<b>20-1</b>
20.1 PLAN MAINTENANCE PROCEDURES.....	20-1
20.2 INCORPORATION.....	20-1
20.2.1 Process of Incorporation .....	20-1
20.3 MONITORING AND EVALUATION.....	20-3
20.3.1 Monitoring.....	20-4
20.3.2 Evaluation .....	20-4
20.4 UPDATING .....	20-5
20.4.1 Plan Amendments .....	20-5
20.4.2 Five-Year Year Review .....	20-5
20.4.3 Disaster Declaration .....	20-6
20.5 CONTINUED PUBLIC INVOLVEMENT .....	20-6

#### Appendices:

- A Plan Adoption
- B Planning Tools
- C Local Mitigation Plan Review Tool
- D Planning Process Documentation

## LIST OF TABLES

	Page
Table 1-1. Participating Jurisdictions in the Grimes County Hazard Mitigation Plan .....	1-2
Table 2-1. Executive Planning Team .....	2-2
Table 2-2. Stakeholder Group .....	2-2
Table 2-3. Examples of Methods of Incorporation .....	2-8
Table 3-1. Total Land Areas of Participating Jurisdictions .....	3-1
Table 3-2. Population Counts for Participating Jurisdictions, 2000-2020.....	3-3
Table 3-3. 2020 Demographics by Percent of Population of Participating Jurisdictions .....	3-3
Table 3-4. Grimes County Population Projections .....	3-4
Table 3-5. Grimes County Property Data .....	3-5
Table 3-6. Agricultural Census Data .....	3-5
Table 3-7. Main Crops of Grimes County .....	3-6
Table 3-8. Main Livestock of Grimes County .....	3-6
Table 3-9. Housing Characteristics of Participating Jurisdictions .....	3-7
Table 3-10. Critical Facilities by Jurisdiction .....	3-8
Table 4-1. Hazard Descriptions .....	4-2
Table 4-2. Priority Risk Index Description .....	4-5
Table 5-1. Flood Zones .....	5-3
Table 5-2. Extent for Grimes County.....	5-4
Table 5-3. Historical Flood Events, 1997-2021 .....	5-7
Table 5-4. Summary of Historical Flood Events, 1997-2021 .....	5-8
Table 5-5. Critical Facilities in the 100-Year Floodplain by Jurisdiction .....	5-10
Table 5-6. Potential Annualized Losses by Jurisdiction.....	5-10
Table 5-7. FEMA Allowable Cost, 2015-2018.....	5-12
Table 5-8. Potential Property Damage for 100-Year flood in Grimes County .....	5-12
Table 5-9. Populations at Greatest Risk by Jurisdiction .....	5-13
Table 5-10. Repetitive Loss Properties .....	5-17
Table 5-11. Repetitive Loss and Severe Repetitive Loss Properties .....	5-17
Table 6-1. Extent Scale for Hurricanes .....	6-3
Table 6-2. Description of Potential Hurricane Damage .....	6-3
Table 6-3. Historical Hurricane Occurrences .....	6-4
Table 6-4. Structures at Greater Risk by Jurisdiction .....	6-9
Table 6-5. Populations at Greater Risk by Jurisdiction .....	6-10
Table 6-6. Probable Peak Hurricane/Tropical Storm Wind Speeds (mph) from Hazus 5.1 .....	6-10
Table 6-7. Critical Facilities by Jurisdiction .....	6-10
Table 6-8. Annualized Loss Estimation from Hazard – Hazus 5.1 .....	6-11
Table 7-1. Heat Index and Warnings.....	7-2
Table 7-2. Days Warmer than 90°F.....	7-3
Table 7-3. Extreme Heat Related Deaths in Texas .....	7-5
Table 7-4. Historical Extreme Heat Events, 1999-2020 .....	7-6
Table 7-5. Populations at Greater Risk by Jurisdiction .....	7-7

	Page
Table 8-1. Beaufort Wind Scale.....	8-2
Table 8-2. Historical Thunderstorm Wind Events with Reported Damages, 1957-2020.....	8-4
Table 8-3. Historical Thunderstorm Wind Events, 1957-2020.....	8-4
Table 8-4. Summary of Historical Thunderstorm Wind Events, 1957-2020 .....	8-6
Table 8-5. Structures at Greater Risk by Jurisdiction .....	8-10
Table 8-6. Populations at Greater Risk by Jurisdiction .....	8-10
Table 8-7. Critical Facilities at Risk to Thunderstorm Wind .....	8-11
Table 8-8. Potential Annualized Losses for Grimes County .....	8-11
Table 8-9. Historical Lightning Events, 2006-2021.....	8-14
Table 8-10. Potential Annualized Losses for Grimes County .....	8-16
Table 9-1. Richter Scale.....	9-3
Table 9-2. Modified Mercalli Intensity Scale for Earthquakes.....	9-3
Table 9-3. Historical Earthquake in Grimes County .....	9-5
Table 9-4. Annualized Loss Estimations for Earthquake Hazard – Hazus 5.1 .....	9-6
Table 10-1. Drought Classification Definitions.....	10-1
Table 10-2. Palmer Drought Index .....	10-3
Table 10-3. Palmer Drought Category Descriptions .....	10-3
Table 10-4. Historical Drought Years, 2000-2021 .....	10-4
Table 10-5. Historical Drought Events, 1996-2000 .....	10-5
Table 10-6. Historical Drought Events Summary, 1996-2000.....	10-5
Table 10-7. Potential Annualized Losses for Grimes County, 1996-2000.....	10-6
Table 10-8. Populations at Greater Risk by Jurisdiction .....	10-7
Table 10-9. Drought Impact Statistics of Grimes County.....	10-8
Table 11-1. Tornado Variations.....	11-1
Table 11-2. The Fujita Tornado Scale.....	11-3
Table 11-3. Enhanced Fujita Scale for Tornadoes.....	11-4
Table 11-4. Historical Tornado Events, 1954–2021 .....	11-7
Table 11-5. Summary of Historical Events, 1954-2021 .....	11-7
Table 11-6. Structures at Greater Risk by Jurisdiction .....	11-9
Table 11-7. Populations at Greatest Risk by Jurisdiction .....	11-10
Table 11-8. Critical Facilities at Risk by Jurisdiction .....	11-10
Table 11-9. Potential Annualized Losses for Grimes County .....	11-11
Table 12-1. Hail Intensity and Magnitude.....	12-1
Table 12-2. Historical Hail Events, 1958-2021 .....	12-4
Table 12-3. Historical Hail Events Summary, 1958-2021 .....	12-5
Table 12-4. Structures at Greater Risk by Jurisdiction .....	12-7
Table 12-5. Populations at Greatest Risk by Jurisdiction .....	12-7
Table 12-6. Critical Facilities at Risk by Jurisdiction .....	12-8
Table 12-7. Potential Annualized Losses for Grimes County .....	12-8
Table 13-1. Types of Winter Storms .....	13-2
Table 13-2. Magnitude of Severe Winter Storms .....	13-3
Table 13-3. Days Colder than 32°F.....	13-4

	Page
Table 13-4. Historical Winter Storm Events, 1997–2021 .....	13-4
Table 13-5. Critical Facilities by Jurisdiction .....	13-6
Table 13-6. Populations at Greater Risk by Jurisdiction .....	13-6
Table 13-7. Potential Annualized Losses for Grimes County .....	13-7
Table 14-1. Historical Wildfire Events Summary .....	14-7
Table 14-2. Grimes County Acreage of Suppressed Wildfire by Year .....	14-7
Table 14-3. Critical Facilities Located in WUI by Jurisdiction .....	14-8
Table 14-4. Potential Annualized Losses, Grimes County .....	14-9
Table 14-5. Estimated Property Exposure Inside WUI by Jurisdiction .....	14-9
Table 15-1. Definition of Dams based on Hazard Potential .....	15-3
Table 15-2. Grimes County High-Risk Dams .....	15-3
Table 16-1. Extent of Grimes County Hazards .....	16-1
Table 16-2. Conclusions on Hazard Risks for Grimes County .....	16-3
Table 16-3. At-Risk Critical Facilities .....	16-4
Table 17-1. Relevant plans, Ordinances, and Programs for Grimes County .....	17-3
Table 17-2. NFIP Policy and Claim Information for Grimes County .....	17-8
Table 17-3. CRS Premium Discounts, by Class .....	17-9
Table 17-4. Relevant Staff/Personnel Resources .....	17-10
Table 17-5. Relevant Fiscal Resources .....	17-11
Table 17-6. Capability Assessment Results .....	17-13
Table 18-1. Conclusions on Hazard Risks for Grimes County .....	18-3
Table 19-1. Individual MAP Locations .....	19-2
Table 19-2. Grimes County Mitigation Action Plan .....	19-3
Table 19-3. Town of Anderson Mitigation Action Plan .....	19-6
Table 19-4. City of Bédias Mitigation Action Plan .....	19-9
Table 19-5. City of Iola Mitigation Action Plan .....	19-13
Table 19-6. City of Navasota Mitigation Action Plan .....	19-16
Table 19-7. City of Plantersville Mitigation Action Plan .....	19-24
Table 19-8. City of Todd Mission Mitigation Action Plan .....	19-27
Table 20-1. Methods of Incorporation of the Plan .....	20-2
Table 20-2. Team Members Responsible for Plan Monitoring, Evaluating, Updating, and Review of the Plan .....	20-4

## LIST OF FIGURES

	Page
Figure 2-1. Mitigation Planning Process .....	2-1
Figure 3-1. Location of Grimes County .....	3-2
Figure 3-2. Critical Facilities in Grimes County .....	3-9
Figure 3-3. Critical Facilities in Anderson.....	3-10
Figure 3-4. Critical Facilities in Bédias.....	3-11
Figure 3-5. Critical Facilities in Iola .....	3-12
Figure 3-6. Critical Facilities in Navasota .....	3-13
Figure 3-7. Critical Facilities in Plantersville.....	3-14
Figure 3-8. Critical Facilities in Todd Mission.....	3-15
Figure 5-1. Estimated Flood Zones in Grimes County.....	5-2
Figure 5-2. City of Navasota Flood Zones .....	5-6
Figure 5-3. Critical Facilities Affected by 100-Year Flood in Grimes County.....	5-11
Figure 6-1. Location of Historic Storm Tracks .....	6-2
Figure 6-2. Potential Number of Damaged Buildings from 500-Year Hurricane .....	6-12
Figure 6-3. Potential Total Loss from 500-year Hurricane Event.....	6-13
Figure 7-1. Extent Scale for Extreme Summer Heat .....	7-2
Figure 7-2. Summer Maximum Temperature Normal .....	7-4
Figure 8-1. Wind Zones in the United States .....	8-3
Figure 8-2. Historical Thunderstorm Events .....	8-7
Figure 8-3. Lightning Flash Density, 2009-2018.....	8-14
Figure 9-1. United States Earthquake Hazard Map .....	9-2
Figure 9-2. Earthquake Occurrences in Texas between 1973 and 2017.....	9-4
Figure 9-3. Peak Acceleration with 2 Percent Probability of Exceedance in 50 Years.....	9-5
Figure 9-4. Estimated Total Annualized Dollar Losses from Earthquake .....	9-7
Figure 10-1. U.S. Drought Monitor for Texas, August 2, 2022.....	10-2
Figure 10-2. Yearly Percentage of Drought Affected Area .....	10-5
Figure 11-1. FEMA Wind Zones in the United States.....	11-2
Figure 11-2. Tornado Activities in the United States .....	11-5
Figure 11-3. Spatial Historical Tornado Events, 1954–2021 .....	11-6
Figure 12-1. Spatial Historical Hail Events, 1958-2021 .....	12-3
Figure 13-1. Average Coldest Monthly Temperature, December–February.....	13-1
Figure 13-2. Wind Chill Chart .....	13-3
Figure 14-1. Wildland Urban Interface Map – Grimes County .....	14-2
Figure 14-2. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2022 .....	14-3
Figure 14-3. Fire Intensity Scale Map – Grimes County.....	14-5
Figure 14-4. Location and Historic Wildfire Events for Grimes County Planning Area.....	14-6
Figure 14-5. Wildfire Ignition Density – Grimes County .....	14-11
Figure 15-1. Grimes County Critical Dam Locations .....	15-4
Figure 17-1. Five Missions Areas of Emergency Management .....	17-4

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## Acronyms and Abbreviations

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<b>ACS</b>	American Community Survey (5-year Date, U.S. Census Bureau)
<b>ASDSO</b>	Association of State Dam Safety Officials
<b>BCEGS</b>	Building Code Effectiveness Grading Schedule
<b>BFE</b>	Base Flood Elevation
<b>BNSF</b>	Burlington Northern Santa Fe Railroad
<b>BVCOG</b>	Brazos Valley Council of Governments
<b>CDC</b>	Centers for Disease Control and Prevention
<b>CFR</b>	<i>U.S. Code of Federal Regulations</i>
<b>cfs</b>	Cubic feet per second
<b>CIP</b>	Capital Improvement Plan
<b>CISESS</b>	Cooperative Institute for Satellite Earth System Studies (NOAA)
<b>CR</b>	County Road
<b>CRS</b>	Community Rating System (NFIP)
<b>CWA</b>	County Warning Area (FEMA)
<b>DFIRM</b>	Digital Flood Insurance Rate Map
<b>DMA</b>	Disaster Mitigation Act of 2000
<b>EF (1–5)</b>	Enhanced Fujita storm category scale
<b>°F</b>	Degrees Fahrenheit
<b>F (1–5)</b>	Fujita storm category scale (replaced with Enhanced Fujita scale in 2007)
<b>FEMA</b>	Federal Emergency Management Agency
<b>FIRM</b>	Flood Insurance Rate Map
<b>FM</b>	Farm to Market Road
<b>FMA</b>	Flood Mitigation Assistance
<b>FMP</b>	Floodplain Management Plan
<b>FOIA</b>	Freedom of Information Act of 1966
<b>GIS</b>	Geographic Information System
<b>H (1–10)</b>	Torro Hailstorm Intensity Scale
<b>HMA</b>	Hazard Mitigation Assistance
<b>HMP</b>	Hazard Mitigation Plan
<b>HMGP</b>	Hazard Mitigation Grant Program
<b>ISD</b>	Independent School District
<b>KBDI</b>	Keetch-Byram Drought Index
<b>MAP</b>	Mitigation Action Plan
<b>MMI</b>	Modified Mercalli Intensity (Earthquake Intensity)
<b>mph</b>	Miles per hour
<b>N/A</b>	Not applicable
<b>NCEI</b>	National Centers for Environmental Information

<b>NDMC</b>	National Drought Mitigation Center
<b>NFIA</b>	National Flood Insurance Act of 1968
<b>NFIP</b>	National Flood Insurance Program
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NWS</b>	National Weather Service
<b>PA</b>	Public Assistance
<b>PDM</b>	Pre-Disaster Mitigation Program
<b>PRI</b>	Priority Risk Index
<b>RL</b>	Repetitive loss
<b>RV</b>	Recreational Vehicle
<b>SBA</b>	Small Business Administration
<b>SFHA</b>	Special Flood Hazard Area
<b>SFR</b>	Single-Family Residential
<b>SRL</b>	FEMA's Severe Repetitive Loss Grant Program
<b>STAPLE(E)</b>	Social, Technical, Administrative, Political, Legal, and Economic/Environmental
<b>TCEQ</b>	Texas Commission on Environmental Quality
<b>TDEM</b>	Texas Division of Emergency Management
<b>TMPA</b>	Texas Municipal Power Agency
<b>TWDB</b>	Texas Water Development Board
<b>UPRR</b>	Union Pacific Railroad
<b>USACE</b>	U.S. Army Corps of Engineers
<b>USDA</b>	U.S. Department of Agriculture
<b>USGS</b>	U.S. Geological Survey
<b>USD</b>	U.S. Dollars
<b>VFD</b>	Volunteer Fire Department
<b>WUI</b>	Wildland Urban Interface



## 1.0 INTRODUCTION

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This section provides a general introduction to the Grimes County Hazard Mitigation Plan (HMP). It consists of the following five subsections:

- Background
- Purpose
- Scope
- Authority
- Summary of Plan Contents

### 1.1 BACKGROUND

Texas is prone to extremely heavy rains and flooding. While flooding is a well-known risk, Grimes County is susceptible to a wider range of natural hazards, including but not limited to drought, wildfire, extreme heat, hail, and winter storm. These life-threatening hazards can destroy property, disrupt the economy, and lower the overall quality of life for individuals.

While it is impossible to prevent an event from occurring, the effect of many hazards to people and property can be lessened. This concept is known as hazard mitigation, which is defined by the Federal Emergency Management Agency (FEMA) as *“sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects”*<sup>1</sup>. Communities participate in hazard mitigation by developing an HMP. The Texas Division of Emergency Management (TDEM) is required to review these plans, and FEMA has the authority to review and approve HMPs through the Disaster Mitigation Act of 2000 (DMA). The DMA requires that HMPs be reviewed and revised every 5 years to maintain eligibility for Hazard Mitigation Assistance (HMA) grant funding.

Hazard mitigation activities are an investment in a community’s safety and sustainability. It is widely accepted that the most effective hazard mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made. A comprehensive review of an HMP addresses hazard vulnerability that exists today and in the foreseeable future. Therefore, a plan must identify how projected patterns of future development will increase or decrease a community’s overall hazard vulnerability.

Grimes County is in the Brazos Valley region of east-central Texas towards the eastern edge of the Texas Triangle. The County, named for Jesse Grimes, a signer of the Texas Declaration of Independence, is situated in the middle of six other counties, Madison Walker Counties to the north, Brazos County to the west, and Waller, Montgomery, and Washington Counties to the south. The county’s largest city is Navasota with a population of 7,643. The Town of Anderson is the county seat with a is significantly smaller with a population of 193 people.

In 2005, Grimes County participated in a multi-county HMP prepared by the Brazos Valley Council of Governments (BVCOG) on behalf of the region. Then in 2010, Grimes County developed an HMP over the course of 3 years entitled “Mitigating Risk: Protecting Grimes County from All Hazards 2013-2018,” which was considered a county-specific, stand-alone plan.

Since FEMA originally approved the Grimes County Hazard Mitigation Plan in 2013, the County began the process of developing a Hazard Mitigation Plan Update to maintain eligibility for grant funding within the 5-year window.

This Plan Update, hereinafter titled: *Grimes County Hazard Mitigation Action Plan Update 2023* was developed specifically for Grimes County and is a multi-jurisdictional. The participating jurisdictions include Grimes County, the Town of Anderson and the cities of Bedias, Iola, Navasota, Plantersville, and Todd Mission.

## 1.2 SCOPE

The focus of the Plan Update is to identify activities to mitigate hazards classified posing a “*high*” or “*moderate*” risk, as determined through a detailed hazard risk assessment conducted for Grimes County and the participating jurisdictions. This hazard classification enables the participating jurisdictions to prioritize mitigation actions based on hazards that can present the greatest risk to lives and property in the geographic area.

The geographic area for the Plan includes all of Grimes County along with the unincorporated areas. Table 1-1 indicates the participating jurisdictions.

**Table 1-1. Participating Jurisdictions in the  
Grimes County Hazard Mitigation Plan**

Grimes County	
Town of Anderson	City of Navasota
City of Bedias	City of Plantersville
City of Iola	City of Todd Mission

## 1.3 PURPOSE

This Plan Update was prepared by Grimes County, participating jurisdictions, and Atkins North America, Inc. The purpose of the Plan Update is to document ways to protect people and structures, and to minimize the costs of disaster response and recovery. The goal of the Plan Update is to minimize or eliminate long-term risks to human life and property from known hazards by identifying and implementing cost-effective hazard mitigation actions. The specific goals of the Plan Update are to:

- Minimize disruption to participating jurisdictions within Grimes County following a disaster;
- Streamline disaster recovery by articulating actions to be taken before a disaster strikes to reduce or eliminate future damage;
- Demonstrate a firm local commitment to hazard mitigation principles;
- Serve as a basis for future funding that may become available through grant and technical assistance programs offered by the state or federal government. The Plan will enable participating jurisdictions within Grimes County to take advantage of rapidly developing mitigation grant opportunities as they arise; and

- Ensure that participating jurisdictions within Grimes County maintain eligibility for the full range of future federal disaster relief funds.

The planning process is an opportunity for participating jurisdictions within Grimes County, stakeholders, and the general public to evaluate and develop successful hazard mitigation actions to reduce future risk of loss of life and damage to property resulting from a disaster in Grimes County.

Planning participants from the jurisdictions within Grimes County and other stakeholders identified eleven natural hazards to be addressed by the Plan Update.

## **1.4 AUTHORITY**

The Plan is tailored specifically for participating jurisdictions within Grimes County and plan participants including Planning Team members, stakeholders, and the general public who participated in the Plan Update development process. This Plan complies with all requirements promulgated by 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.). Additionally, the Plan complies with the Interim Final Rules for the Hazard Mitigation Planning and Hazard Mitigation Grant Program (44 *Code of Federal Regulations* [CFR], Part 201), which specify 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/April 2023), and the *Local Mitigation Planning Handbook* (March 2013).

## **1.5 SUMMARY OF SECTIONS**

Sections 1 and 2 of the Plan Update outline the Plan's purpose and development, including how Planning Team members, stakeholders, and members of the general public were involved in the planning process. Section 3 profiles Grimes County's population and economy.

Sections 4 through 16 present a hazard overview and information on individual natural hazards in the planning area. The hazards generally appear in order of priority based on potential losses of life and property, and other community concerns. For each hazard, the Plan Update presents a description of the hazard, a list of historical hazard events, and the results of the vulnerability and risk assessment process.

Section 17 presents the capability assessment and the status of what the communities are currently doing in terms of mitigation. Section 18 outlines the mitigation strategy with the mitigation techniques and overarching mitigation goals. Section 19 provides an update on the existing mitigation actions and as well as the addition of new actions for all of the participating jurisdictions. Section 20 identifies the Plan maintenance mechanisms.

Appendix A contains the adoption resolution for the plan adoption by the jurisdictions. Appendix B contains the planning tools that were utilized for plan development. The local mitigation plan review tool is located in Appendix C. All of the planning process documentation to include the meeting notifications, sign-in sheets, agendas, and minutes as well as the public survey results are included within Appendix D.

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## 2.0 PLANNING PROCESS

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### 2.1 PLAN PREPARATION AND DEVELOPMENT

Hazard mitigation planning involves coordination with various constituents and stakeholders to develop a more disaster-resistant community. Section 2 provides an overview of the planning process including the identification of key steps and a detailed description of how stakeholders and the public were involved.

#### 2.1.1 OVERVIEW OF THE PLAN

Grimes County selected Atkins North America, Inc., as their consultant to provide technical support and oversee the development of the Grimes County Hazard Mitigation Action Plan Update 2023. Atkins used the FEMA *Local Mitigation Plan Review Guide* (October 2011 and the forthcoming April 2023 guide), and the *Local Mitigation Planning Handbook* (March 2013) to develop the Plan Update. The overall planning process is shown in Figure 2-1 below.

Grimes County, participating jurisdictions, and Atkins met in January 2022 to begin organizing resources, identify planning team members, and conduct a capability assessment.



**Figure 2-1. Mitigation Planning Process**

#### 2.1.2 PLANNING TEAM

The Atkins team developed the Plan Update in conjunction with the Planning Team. The Planning Team was established using a direct representation model. Some of the responsibilities of the Planning Team included: completing capability assessment surveys, providing input regarding the identification of hazards, identifying mitigation goals, and developing mitigation actions. An Executive Planning Team consisting of key personnel from each of the participating jurisdictions within Grimes County, shown in Table 2-1, was formed to coordinate planning efforts and request input and participation in the planning process. Table 2-2 reflects the Stakeholder Group, consisting of

additional representatives from area organizations and departments from the participating jurisdictions within Grimes County that participated throughout the planning process.

**Table 2-1. Executive Planning Team**

<b>Name</b>	<b>Position</b>	<b>Organization/Department</b>
Joe Fauth	County Judge	Grimes County
David Lilly	Emergency Manager	Grimes County
Kat Lee	911/GIS	Grimes County
Sinda Phelps	Assistant Auditor	Grimes County
Karen McDuffie	Mayor	Town of Anderson
Gwen Boullion	Mayor	City of Bédias
Christina Stover	Mayor	City of Iola
Jason Katkoski	Fire Chief/Emergency Manager	City of Navasota
Karen Hale	Mayor	City of Plantersville
Neal Wendele	City Manager	City of Todd Mission

**Table 2-2. Stakeholder Group**

<b>Name</b>	<b>Position</b>	<b>Organization/Department</b>
Dr. Musick	Superintendent	Navasota ISD
Ronnie Gonzales	Assistant Superintendent of Operations	Navasota ISD
William Boyce	Superintendent	Richards ISD
Freeman Vickers	Fire Chief	Whitehall VFD
Cort Norwood	Fire Chief	Richards VFD
David Sharron	Fire Chief	Shiro VFD
J.D. Gwynn	Fire Chief	Iola VFD
Savannah Cordell	Member	Richards VFD
Kenny Tamplin	Fire Chief	Bédias VFD
Cassandra Malone	Fire Chief	Todd Mission VFD
Samantha Kimich	Member	Anderson VFD
Davis Use	Deputy	Grimes Co. Sheriff's Office
Ryan Rutledge	Deputy	Grimes Co. Sheriff's Office
Harry Walker	Road and Bridge Engineer	Grimes County

The Consultant Team, Planning Team, and Stakeholder Group coordinated to identify mitigation goals, and develop mitigation strategies and actions for the Plan.

Based on completed Capability Assessment results, participating jurisdictions within Grimes County described methods for achieving future hazard mitigation measures by expanding existing capabilities. Other options for improving capabilities include the following:

- Authorizing Planning Team members 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 TDEM by monitoring classes and availability through [preparingtexas.org](http://preparingtexas.org).
- Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.
- Developing ordinances that will require all new developments to conform to the highest mitigation standards.

Sample hazard mitigation actions developed with similar hazard risk were shared at the meetings. These important discussions resulted in the development of multiple mitigation actions that are included in the Plan Update to further mitigate risk from natural hazards in the future. The Planning Team developed hazard mitigation actions for mitigating risk from all of the hazards including potential flooding, hail, and extreme heat. Actions include, but are not limited to drainage improvement projects, installing generators at critical facilities, and educating citizens to exercise individual mitigation actions.

### **2.1.3 PLANNING PROCESS**

The process used to prepare the Plan Update followed the four major steps included in Figure 2-1. After the Planning Team was organized, a Capability Assessment was developed and distributed at the Kick-Off Workshop. Hazards were identified and assessed, and results associated with each of the hazards were provided at the Risk Assessment Workshop. Based on Grimes County's identified vulnerabilities, specific mitigation strategies with corresponding mitigation actions were discussed and developed at the Mitigation Strategy Workshop. Finally, plan maintenance and implementation procedures were developed and are included in Section 20. Participation of Planning Team members, stakeholders, and the public at each of the workshops is documented in Appendix D. At the Plan Development Workshops held throughout the planning process described herein, the following factors were taken into consideration:

- The nature and magnitude of risks currently affecting the community;
- Hazard mitigation goals to address current and expected conditions;
- Whether current resources will be sufficient for implementing the Plan Update;
- Implementation problems, such as technical, political, legal, and coordination issues that may hinder development;
- Anticipated outcomes; and
- How participating jurisdictions within Grimes County, agencies, and partners will participate in implementing the Plan Update.

## **2.1.4 KICK-OFF WORKSHOP**

The Kick-Off Workshop was held on January 20, 2022. The initial meeting informed participating officials and key department personnel about how the planning process pertained to their distinct roles and responsibilities and engaged stakeholder groups for Grimes County and participating cities. In addition to the Kick-Off presentation, participants received the following information:

- Project overview regarding the planning process;
- Public survey access information;
- Hazard ranking form; and
- Capability assessment survey for completion.

An icebreaker exercise was conducted in the meeting where participants helped to prioritize the six hazard mitigation techniques for their community. Participants decided to rank emergency services, prevention, and property protection with the highest importance, followed by natural resources protection and structural projects as moderately important, and public education and awareness with the lowest importance.

## **2.1.5 HAZARD IDENTIFICATION**

At the Kick-Off Workshop, and through email and phone correspondence, the Planning Team conducted preliminary hazard identification. The Planning Team in coordination with the Atkins team reviewed and considered a full range of natural hazards. Once identified, the Planning Team narrowed the list to significant hazards by reviewing hazards affecting the area as a whole, the “2018 State of Texas Hazard Mitigation Plan,” and initial study results from reputable sources such as federal and state agencies. Based on this initial analysis, the teams identified a total of eleven natural hazards that pose a significant threat to the planning area.

### **2.1.5.1 RISK ASSESSMENT**

An initial risk assessment for participating jurisdictions within Grimes County was completed in May 2022 and results were presented to Planning Team members at the Risk Assessment Workshop held on May 25, 2022, in-person and via online. At the workshop, the characteristics and consequences of each hazard were evaluated to determine the extent to which the planning area would be affected in terms of potential danger to property and citizens.

Property and crop damages were estimated by gathering data from the National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA). The assessment also examined the impact of various hazards on the built environment, including general building stock, critical facilities, lifelines, and infrastructure. The resulting risk assessment profiled hazard events, provided information on previous occurrences, estimated the probability of future events, and detailed the spatial extent and magnitude of impact on people and property. Each participant at the Risk Assessment Workshop was asked to provide feedback regarding the identified hazard rating. The results of the feedback identified unique perspectives on varied risks throughout the planning area.



The assessments were also used to set priorities for hazard mitigation actions based on the potential loss of lives and dollars. A hazard profile and vulnerability analysis for each of the hazards can be found in Sections 5 through 15.

#### **2.1.5.2 MITIGATION REVIEW AND DEVELOPMENT**

Developing the Mitigation Strategy for the Plan involved updating mitigation goals and actions and developing new mitigation actions. A Mitigation Workshop was held on August 11, 2022, both in-person and online. In addition to the Planning Team, the Stakeholder Groups were invited to attend the workshop. Additionally, the participating jurisdictions were proactive in identifying mitigation actions to lessen the risk of all the identified hazards included in the Plan Update.

An inclusive and structured process was used to develop and prioritize new hazard mitigation actions for the Plan Update. The prioritization method was based on FEMA's STAPLE(E) criteria and included social, technical, administrative, political, legal, economic, and environmental considerations. As a result, each Planning Team Member assigned an overall priority to each hazard mitigation action. The overall priority of each action is reflected in the hazard mitigation actions found in Section 19.

Planning Team members then developed action plans identifying proposed actions, costs and benefits, the responsible organization(s), effects on new and existing buildings, implementation schedules, priorities, and potential funding sources.

Specifically, the process involved:

- Listing optional hazard mitigation actions based on information collected from previous plan reviews, studies, and interviews with federal, state, and local officials. Workshop participants reviewed the optional mitigation actions and selected actions that were most applicable to their area of responsibility, cost-effective in reducing risk, easily implemented, and likely to receive institutional and community support.
- Workshop participants inventoried federal and state funding sources that could assist in implementing the proposed hazard mitigation actions. Information was collected, including the program name, authority, purpose of the program, types of assistance and eligible projects, conditions on funding, types of hazards covered, matching requirements, application deadlines, and a point of contact.
- Planning Team members considered the benefits that would result from implementing the hazard mitigation actions compared to the cost of those projects. Although detailed cost-benefit analyses were beyond the scope of the Plan Update, Planning Team members utilized economic evaluation as a determining factor between hazard mitigation actions.
- Planning Team members then selected and prioritized mitigation actions.

Hazard mitigation actions identified in the process were made available to the Planning Team for review. The draft Plan Update will be made available to the general public for review on the County's website, along with the participating jurisdictions' websites, with the chance to comment via sending an email.

## **2.2 REVIEW AND INCORPORATION OF EXISTING PLANS INTO THE HMP PROCESS**

### **2.2.1 REVIEW**

Background information utilized during the planning process included various studies, plans, reports, and technical information from sources such as FEMA, the U.S. Army Corps of Engineers (USACE), the U.S. Fire Administration, NOAA, the Texas Water Development Board (TWDB), the Texas Commission on Environmental Quality (TCEQ), the Texas State Data Center, Texas Forest Service, the TDEM, and local hazard assessments and plans. Section 4 and the hazard-specific sections of the Plan (Sections 5–15) summarize the relevant background information.

Specific background documents, including those from FEMA, provided information on hazard risk, hazard mitigation actions currently being implemented, and potential mitigation actions. Previous hazard events, occurrences, and descriptions were identified through NOAA's NCEI. Results of past hazard events were found by searching the NCEI. The USACE studies were reviewed for their assessment of risk and potential projects in the region. State Data Center documents were used to obtain population projections. The State Demographer webpages were reviewed for population and other projections and included in Section 3 of the Plan. Information from the Texas Forest Service was used to appropriately rank the wildfire hazard, and to help identify potential grant opportunities. Materials from FEMA and TDEM were reviewed for guidance on plan update development requirements.

### **2.2.2 INCORPORATION OF EXISTING PLANS INTO THE HMP PROCESS**

A capability assessment was completed by key departments from the participating jurisdictions within Grimes County which provided information on existing plans, policies, ordinances, and regulations to be integrated into the goals and objectives of the Plan Update. The relevant information is included in Section 17.

Existing projects and studies were utilized as a starting point for discussing hazard mitigation actions among Planning Team members and Atkins.

Additionally, policies and ordinances were reviewed by several of the participating jurisdictions. Other plans were reviewed, such as Emergency Operations Plan, to identify any additional mitigation actions. Finally, the "2018 State of Texas Hazard Mitigation Plan," developed by TDEM, was discussed in the initial planning meeting to develop a specific group of hazards to address in the planning effort. The 2018 State Plan was also used as a guidance document, along with FEMA materials, in the development of the Grimes County Hazard Mitigation Action Plan Update 2023.

### **2.2.3 INCORPORATION OF THE HMP INTO OTHER PLANNING MECHANISMS**

Planning Team members will integrate the implementation of the Plan Update with other planning mechanisms for Grimes County, such as the Emergency Operations Plan. Existing plans for the participating jurisdictions will be reviewed and incorporated into the Plan Update, as appropriate. This section discusses how the Plan will be implemented by the participating jurisdictions within

Grimes County. It also addresses how the Plan will be evaluated and improved over time, and how the public will continue to be involved in the hazard mitigation planning process.

Participating jurisdictions within Grimes County will be responsible for implementing hazard mitigation actions contained in Section 19. Each hazard mitigation action has been assigned to a specific county and/or city department that is responsible for tracking and implementing the action.

A funding source has been listed for each identified hazard mitigation action and may be utilized to implement the action. An implementation time period has also been assigned to each hazard mitigation action as an incentive and to determine whether actions are implemented on a timely basis.

Participating jurisdictions within Grimes County will integrate hazard mitigation actions contained in the Plan Update with existing planning mechanisms such as ordinances, Emergency Operations or Management Plans, and other local and area planning efforts. Grimes County will work closely with area organizations to coordinate the implementation of hazard mitigation actions that benefit the planning area in terms of financial and economic impact.

Upon formal adoption of the Plan Update by the county and jurisdictions, Planning Team members from the participating jurisdictions will review existing plans along with building codes to guide development and ensure that hazard mitigation actions are implemented. Each of the jurisdictions will be responsible for coordinating periodic reviews of the Plan Update with members of the Stakeholder Group to ensure the integration of hazard mitigation strategies into these planning mechanisms and codes.

The Planning Team will also conduct periodic reviews of various existing planning mechanisms and analyze the need for any amendments or updates to the approved Plan Update. Participating jurisdictions within Grimes County will ensure that future long-term planning objectives will contribute to the goals of the Plan to reduce the long-term risk to life and property from moderate and high-risk hazards. Within 1 year of formal adoption of the Plan, existing planning mechanisms will be reviewed and analyzed as they pertain to the Plan Update.

Planning Team members will review and revise, as necessary, the long-range goals and objectives in its strategic plan and budgets to ensure that they are consistent with the Plan Update.

Furthermore, Grimes County will work with neighboring jurisdictions to advance the goals of the Plan Update as it applies to ongoing, long-range planning goals and actions for mitigating the risk of natural hazards throughout the planning area.

Table 2-3 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts.

**Table 2-3. Examples of Methods of Incorporation**

<b>Planning Mechanism</b>	<b>Incorporation of Plan</b>
Annual Budget Review	Various departments and key personnel that participated in the planning process for participating jurisdictions within Grimes County will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made per grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.
Capital Improvement Plans	Participating jurisdictions within Grimes County have a Capital Improvement Plan (CIP) in place. Before any revisions to the CIP, County and City departments will review the risk assessment and mitigation strategy sections of the HMP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Comprehensive Plans	Grimes County and participating jurisdictions have Long-term Comprehensive Development Plans in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.
Floodplain Management Plans	Floodplain management plans (FMPs) include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 5 of this Plan Update discussing the people and property at risk of flooding will be reviewed and revised when participating jurisdictions within Grimes County update their management plans or develop new plans.
Grant Applications	The Plan will be evaluated by participating jurisdictions within Grimes County when grant funding is sought for mitigation projects. If a project is not in the Plan Update, an amendment may be necessary to include the action in the Plan.
Regulatory Plans	Currently, participating jurisdictions within Grimes County have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County and City departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.

The capability assessment Section 17 provides an overview of Planning Team members' existing planning and regulatory capabilities to support the implementation of mitigation strategy objectives.

It should be noted for the purposes of the Plan Update that the existing HMP has been used as a reference when reviewing and updating all plans and ordinances for the entire planning area, including all participating jurisdiction. The Emergency Management Plans developed independently by Grimes County are updated every 5 years and incorporate goals, objectives, and actions identified in the mitigation plan.

#### **2.2.4 PLAN REVIEW AND PLAN UPDATE**

With the development of the Plan Update, participating jurisdictions within Grimes County will oversee the review and update process for relevance and if necessary, make adjustments. At the beginning of each fiscal year, Planning Team members will meet to evaluate the Plan and review

other planning mechanisms to ensure consistency with long-range planning efforts. In addition, planning participants will also meet twice a year, by conference call or presentation, to re-evaluate the prioritization of the hazard mitigation actions.

## **2.3 TIMELINE FOR IMPLEMENTING MITIGATION ACTIONS**

Both the Executive Planning Team (Table 2-1) and the Stakeholder Group (Table 2-2) will engage in discussions regarding a timeframe for how and when to implement each hazard mitigation action. Considerations include when the action will be started, how existing planning mechanisms' timelines affect implementation, and when the action should be fully implemented. Timeframes may be general, and there will be short-, medium-, and long-term goals for implementation based on prioritization of each action, as identified on individual Hazard Mitigation Action worksheets included in Appending E of the Plan Update for participating jurisdictions within Grimes County.

Both the Executive Planning Team and Stakeholder Group will evaluate and prioritize the most suitable hazard mitigation actions for the community to implement. The timeline for implementation of actions will partially be directed by participating jurisdictions' comprehensive planning process, budgetary constraints, and community needs. Participating jurisdictions within Grimes County are committed to addressing and implementing hazard mitigation actions that may be aligned with and integrated into the Plan Update.

Overall, the Planning Team agrees that the goals and actions of the Plan Update shall be aligned with the timeframe for implementation of hazard mitigation actions with respect to annual review and updates of existing plans and policies.

## **2.4 PUBLIC AND STAKEHOLDER INVOLVEMENT**

An important component of hazard mitigation planning is public participation and stakeholder involvement. Input from individual citizens and the community, as a whole, provides the Planning Team with a greater understanding of local concerns and increases the likelihood of successfully implementing hazard mitigation actions. If citizens and stakeholders, such as local businesses, non-profits, hospitals, and schools are involved, they are more likely to gain a greater appreciation of the risks that hazards may present in their community and take steps to reduce or mitigate their impact.

The public was involved in the development of the Grimes County Hazard Mitigation Action Plan Update 2023 at different stages before the official Plan's approval and adoption. Public input was sought using three methods: (1) open public meetings; (2) survey instruments; and (3) making the draft Plan Update available for public review on the participating jurisdictions' websites.

The draft Plan Update will be made available to the general public for review and comment on the participating jurisdictions' websites. The public was notified at the public meetings that the draft Plan Update would be available for review. No feedback was received on the draft Plan Update, although it was given on the public survey, and all relevant information was incorporated into the Plan Update. Public input was utilized to assist in identifying hazards that were of most concern to the citizens of the County and what actions they felt should be included and prioritized.

The Plan Update will be advertised and posted on Grimes County and participating jurisdictions' websites upon approval from FEMA, and a copy will be kept at the Grimes County courthouse.

### 2.4.1 STAKEHOLDER INVOLVEMENT

Stakeholder involvement is essential to hazard mitigation planning since a wide range of stakeholders can provide input on specific topics from various points of view. Throughout the planning process, members of community groups, nonprofit organizations, local businesses, neighboring jurisdictions, schools, and hospitals were invited to participate in the development of the Plan Update. The Stakeholder Group (Table 2-2, above) included a broad range of representatives from the public sectors and served as a key component in Grimes County's outreach efforts for the development of the Plan Update. Documentation of stakeholder meetings is found in Appendix D.

Stakeholders and participants that attended the Planning Team and public meetings played a key role in the planning process. For example, flooding was one of the concerns to stakeholders, so participating jurisdictions included actions to improve drainage systems by increasing the capacity of the existing drainage pipes and ditches.

### 2.4.2 PUBLIC MEETINGS

A series of public meetings were held throughout the Grimes County planning area to collect public and stakeholder input and provide an opportunity for these groups to be part of the planning process. The general public were invited to every meeting for the Grimes County plan update, and the County held public meetings after every workshop. Topics of discussion included the purpose of hazard mitigation, discussion of the planning process, and types of natural hazards. Each participating jurisdiction within Grimes County released information regarding the public meetings to increase public participation in the Plan Update development process, through posting on their website, on social media sources including Facebook and Twitter, through the local media, and/or posting the information on bulletin boards in public facilities. In addition, public meetings were advertised via the *Navasota Examiner*, which is a county-wide newspaper with a website containing news and events within Grimes County. A sampling of these notices can be found in Appendix D, along with the documentation of the public meetings and a listing of area stakeholders. Representatives from area neighborhood associations and area residents were invited to participate.

Public meetings were held on the following dates and locations:

- May 25, 2022, Navasota Community Center, Navasota, Texas
- June 16, 2022, Grimes County Justice Center, Anderson, Texas
- August 11, 2022, Navasota Community Center, Navasota, Texas

### 2.4.3 PUBLIC PARTICIPATION SURVEY

In addition to public meetings, the Planning Team and Atkins developed a public survey designed to solicit public input during the planning process from citizens and stakeholders and to obtain data regarding the identification of any potential hazard mitigation actions or problem areas. This effort was a special consideration to reach underserved communities and vulnerable populations so that they have an opportunity to be involved in the current planning process. The survey was promoted by local officials and a link to the survey was posted on participating jurisdictions' websites. A total of 83 surveys were completed online and on paper. The survey results are analyzed in Appendix D.

Participating jurisdictions within Grimes County reviewed the input from the surveys and decided which information to incorporate into the Plan as hazard mitigation actions. For example, many citizens mentioned concerns about power outage due to hurricane winds and winter storms. In response, several actions were added to the Plan to provide auxiliary/backup power for critical facilities.

## 3.0 COUNTY PROFILE

### 3.1 OVERVIEW

Grimes County is located in southeastern Texas and lies within the Brazos, Navasota, and San Jacinto River watersheds. The county includes the Blackland Prairie, Post Oak Savannah, and Piney Woods ecoregions of Texas. Grimes County covers 802 square miles, of which 787 square miles are land and 14 square miles are water. The total land area of each of the participating jurisdictions is presented in Table 3-1. The County's largest city, Navasota, is crossed by Texas Highways 105 and 6, and Highway 90 passes through the county seat Anderson. Both Union Pacific (UPRR) and Burlington Northern Santa Fe (BNSF) railroads have tracks that run through the county. State Highway 90 is the major north-south thoroughfare, and State Highways 30 and 105 run east and west.

The county remains mostly rural with agricultural production accounting for over 90 percent of revenues generated in the county, led by cattle production, and diversified crops. With some new manufacturing, the population has increased steadily since the late 1970s.

**Table 3-1. Total Land Areas of Participating Jurisdictions**

Jurisdiction	Total Land Area (square miles)
Grimes County	802
Town of Anderson	0.49
City of Bédias	1.14
City of Iola	1.02
City of Navasota	7.82
City of Plantersville	2.01
City of Todd Mission	1.96

Note: Portions of land that make up the City of Navasota are in neighboring Brazos County. The City of Navasota in total is 8.01 square miles, but the portion that is within Brazos County is excluded from the above data.

Source: Grimes County.

Figure 3-1 shows the general location of Grimes County along with the municipalities that are located within the county that are covered in the risk assessment analysis of the Plan Update.



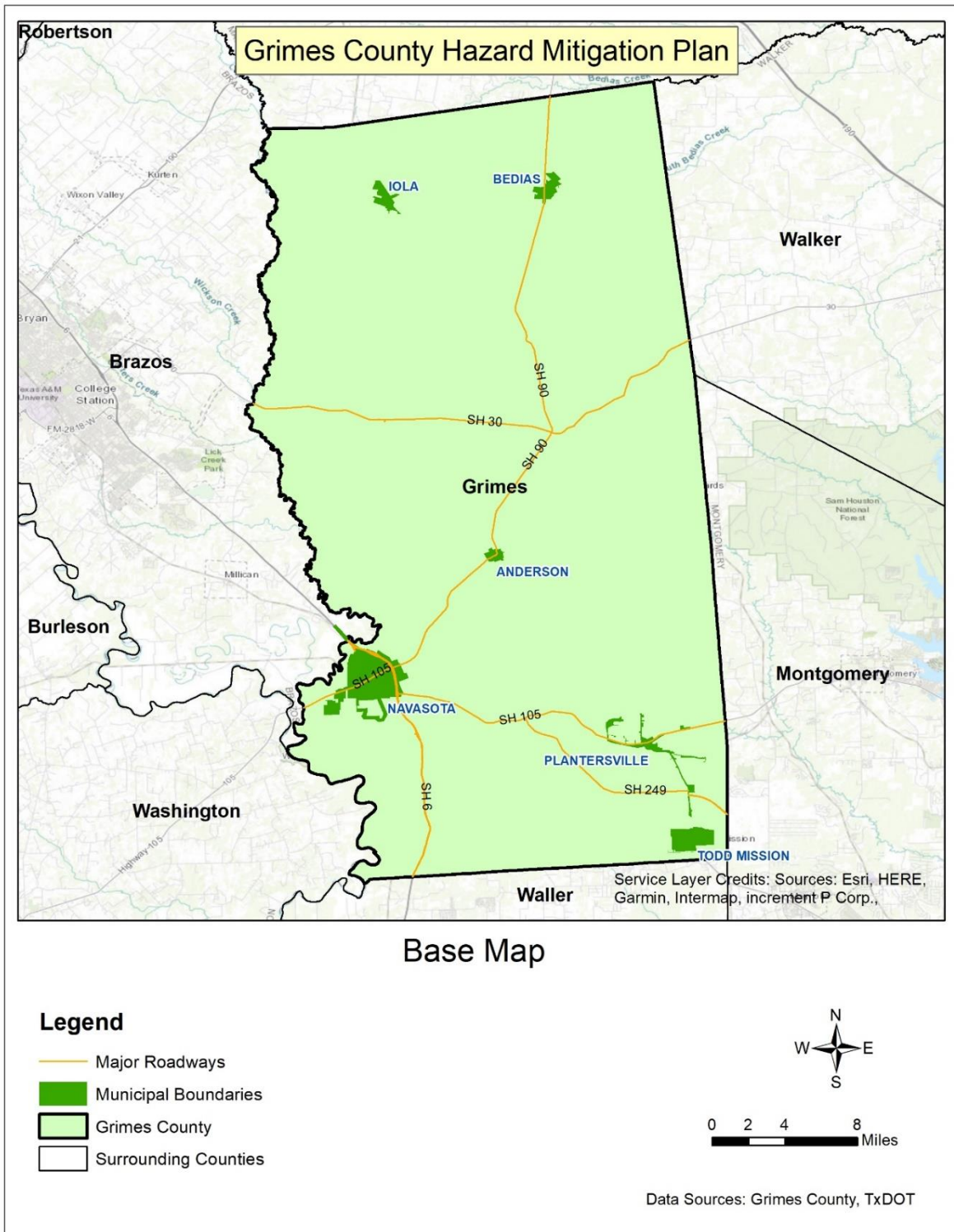


Figure 3-1. Location of Grimes County

## 3.2 POPULATION AND DEMOGRAPHICS

In the official Census population count, as of April 1, 2020, Grimes County has a population of 29,268 residents. By 2022, the number was estimated at 30,647. Navasota is the largest participating municipal jurisdiction by area, and it also has the largest population. Table 3-3 provides the population distribution by jurisdiction within Grimes County based on the 2020 Census information (U.S. Census Bureau).

**Table 3-2. Population Counts for Participating Jurisdictions, 2000-2020**

Jurisdiction	2000 Census Population, Total	2010 Census Population, Total	2020 Census Population, Total	Percent Change from 2000 to 2010	Percent Change from 2010 to 2020
Grimes County	23,552	26,604	29,268	12.96%	10.01%
Town of Anderson	257	222	193	-13.62%	-13.06%
City of Bédias	N/A	443	361	N/A	-18.51%
City of Iola	N/A	401	311	N/A	-22.44%
City of Navasota <sup>a</sup>	6,789	7,049	7,643	3.83%	8.43%
City of Plantersville	N/A	N/A	464	N/A	N/A
City of Todd Mission	146	107	121	-26.71%	13.08%

Source: U.S. Census Bureau.

<sup>a</sup> The population counts for the City of Navasota include the population residing in neighboring Brazos County, which is not included in the Grimes County total.

### 3.2.1 AGE AND RACE

Based on the 2017 American Community Survey (ACS), the median age of residents in Grimes County was 40.4 years. The racial characteristics of the participating jurisdictions are presented in Table 3-4. Generally, white people make up most of the population in the county accounting for more than 63 percent of the population overall. However, Navasota has a much higher minority population.

**Table 3-3. 2020 Demographics by Percent of Population of Participating Jurisdictions**

Jurisdiction	White	Persons of Hispanic Origin <sup>a</sup>	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Other Race	Two or More Races
Grimes County	63.52%	25.15%	13.38%	0.83%	0.36%	0.05%	11.01%	10.86%
Town of Anderson	65.28%	10.36%	27.46%	0.00%	0.00%	0.00%	2.59%	4.66%
City of Bédias	64.27%	17.17%	15.24%	0.83%	0.28%	0.28%	7.48%	11.63%
City of Iola	82.32%	16.08%	2.25%	0.32%	0.64%	0.32%	4.82%	9.32%
City of Navasota	39.75%	41.03%	26.97%	0.94%	0.34%	0.08%	16.16%	15.77%
City of Plantersville	72.20%	17.67%	7.97%	0.43%	0.22%	0.00%	7.76%	11.42%
City of Todd Mission	70.25%	30.58%	0.00%	0.83%	0.00%	0.00%	12.40%	16.53%

Source: U.S. Census Bureau.

<sup>a</sup> Hispanics may be of any race, so also are included in applicable race categories.

### 3.3 FUTURE DEVELOPMENT AND POPULATION GROWTH

To better understand how future growth and development in the County might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. The remaining sections include an analysis of the projected population change, at-risk communities, economic impacts, and future land use.

The official 2020 Grimes County population is 29,268. Population projections from 2020 to 2050 are listed in Table 3-5, as provided by the Office of the State Demographer, Texas Demographic Center. Population projections are based on a 0.5 scenario growth rate, which is 50 percent of the population growth rate that occurred during 2000–2010. This information is only available at the county level; however, the population projection shows an increase in population density for the County, which would mean overall growth for the County.

Between official U.S. Census population counts, the estimate uses a formula based on new residential building permits and household size. It is simply an estimate and there are many variables involved in achieving an accurate estimation of people living in each area at a given time.

**Table 3-4. Grimes County Population Projections**

Projection, Total (2020)	Census Data, Total (2020)	Error, Percent (2020)	Projection, Total (2030)	Projection, Total (2040)	Projection, Total (2050)
28,930	29,268	1.15%	30,793	31,734	32,428

Source: Texas State Demographer.

### 3.4 ECONOMIC IMPACT

Building and maintaining infrastructure depends on the economy, and therefore, protecting infrastructure from risk due to natural hazards in the planning area is important to the participating jurisdictions within Grimes County. Whether it is expanding culverts under a road that washes out during flash flooding, shuttering a fire station, or flood-proofing a wastewater facility, infrastructure must be mitigated from natural hazards to continue providing essential utility and emergency response services in a fast-growing planning area.

Major employers and effective transportation connectivity in the area are critical to the health of the economy. Grimes County is strategically positioned between Dallas and Houston, and near Texas A&M University's main campus in College Station. The County is served by the state highway system, UPRR and BNSF rail lines, and one municipal, general aviation airport.

The Navasota Grimes County Chamber of Commerce is the main regional economic organization that promotes economic development in the County. "The mission of the Navasota Grimes County Chamber of Commerce is to be an association of businesses and individuals organized to encourage a strong, local economy and quality of life by promoting economic, civic, cultural, and social development through an informed membership and community. They promote the interest of trade and increase facilities of commercial transactions to develop and extend agricultural, industrial, commercial, and civic resources of the city of Navasota, Grimes County, and the state of Texas.

The total number of parcels and buildings along with their total values is given in Table 3-8 below. As is expected from the largest city in the County, the largest total of property value among the incorporated communities is found in Navasota, which hosts 22.6 percent of the county's total building value and 10.2 percent of the County's total land value. However, the area with the largest proportion of the County's property value is the unincorporated area, which represents 14.0 percent of the land value in Grimes County. This low-density value distribution across the County presents an interesting challenge for the Planning Team in how they can reach the biggest benefit for the largest number of citizens.

**Table 3-5. Grimes County Property Data**

Jurisdiction	Number of Parcels, Total	Total Parcel Value (USD)	Number of Buildings, Total	Total Improved Value of Buildings (USD)
Grimes County	26,322	\$5,942,633,689	21,026	\$1,860,777,463
Town of Anderson	266	\$29,598,244	232	\$17,394,613
City of Bedias	354	\$26,913,711	265	\$16,081,861
City of Iola	299	\$20,930,844	293	\$12,781,804
City of Navasota	4,273	\$607,773,298	3,573	\$420,124,333
City of Plantersville	423	\$139,052,681	395	\$36,368,539
City of Todd Mission	395	\$39,000,196	203	\$15,709,926
<b>TOTAL</b>	<b>32,332</b>	<b>\$6,805,902,663</b>	<b>25,987</b>	<b>\$2,363,528,613</b>

Source: Grimes County Appraisal District.

### 3.5 EXISTING AND FUTURE LAND USE AND DEVELOPMENT TRENDS

#### 3.5.1 AGRICULTURE

The U.S. Department of Agriculture (USDA) publishes data of agricultural use of land for Grimes County. According to USDA census of 2017, Grimes County had 1,771 farms as shown in Table 3-9 below. The average farm size was 192 acres, and the total farmland was 340,833 acres. Total farmland represents over 66 percent of the total area of Grimes County.

**Table 3-6. Agricultural Census Data**

Census of Agriculture (2017)	
Number of Farms	1,771
Total Land in Farm (acre)	340,833
Average Farm Size (acres)	192

Hay and wheat are the main crops harvested in Grimes County. Cattle and poultry are the main livestock produced in Grimes County. Table 3-10 and 3-11 shows the main crops and livestock that are produced in Grimes County.

**Table 3-7. Main Crops of Grimes County**

Crops	Acres Harvested	Farms
Hay	38,831	761
Wheat	900	3
Corn	Information Withheld	Information Withheld
Cotton	Information Withheld	Information Withheld
Sorghum	Information Withheld	Information Withheld

**Table 3-8. Main Livestock of Grimes County**

Livestock	Number	Farms
Broilers and other meat-type Chickens	Information Withheld	Information Withheld
Cattle and Calves	57,350	1,244
Goats	1,771	96
Hogs and Pigs	858	44
Horses and Ponies	2,637	N/A
Poultry – Laying hens	6,408	200
Poultry – Pullets	1,054	36
Sheep and Lambs <sup>a</sup>	726	7
Turkeys	234	19

<sup>a</sup> Data not available after 2007.

According to the *Texas Almanac*, the main fossil fuels and mineral found in Grimes County are natural gas, petroleum, and lignite coal.

### 3.5.2 HOUSING

According to the 2020 U.S. Census data and the 2019 ACS, there were 12,029 housing units in Grimes County, the majority of which are single family homes. Housing information for the seven participating jurisdictions is presented in Table 3-9. As shown in the table, Grimes County has an extremely low percentage of seasonal housing across the jurisdictions.

**Table 3-9. Housing Characteristics of Participating Jurisdictions**

Jurisdiction	Housing Units, Total (2010)	Housing Units, Total (2020)	Mobile Home, Percent (2019)	Boat, RV, & Van; Percent (2019)	Median Home Value, (2019 USD)
Grimes County	10,917	12,029	22.4%	0.7%	148,500
Town of Anderson	124	104	N/A	N/A	N/A
City of Bedias	228	188	N/A	N/A	N/A
City of Iola	175	167	N/A	N/A	N/A
City of Navasota <sup>a</sup>	2,805	3,112	14%	0.0%	126,200
City of Plantersville	N/A	228	N/A	N/A	N/A
City of Todd Mission	42	53	N/A	N/A	N/A

Note: 2020 Census data is not available; 2019 ACS 5-year estimate is used instead.

<sup>a</sup> The counts for the City of Navasota include the population residing in neighboring Brazos County, although these homes are not included in the Grimes County total.

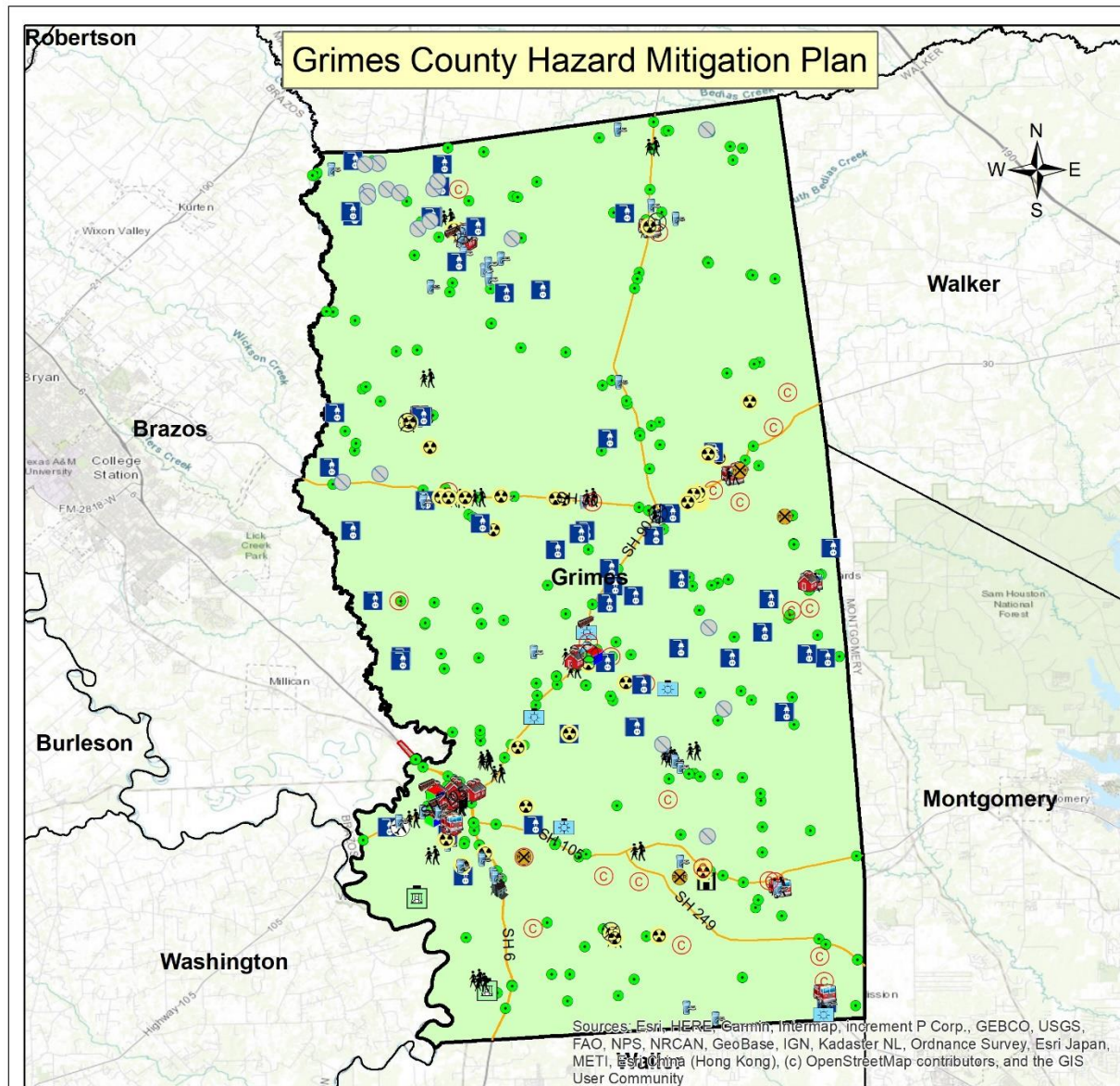
### 3.6 CRITICAL FACILITIES

Critical facilities are those structures that, because of their function, size, service area or uniqueness, can cause serious bodily harm, extensive property damage or disruption of vital socioeconomic activities if they are destroyed, damaged or functionally impaired. Grimes County has a large variety of critical facilities. Table 3-10 summarizes the primary critical facilities located in Grimes County by type and jurisdiction. These facilities were identified as primary critical facilities in that they are necessary to maintain government functions and protect the life, health, safety, and welfare of citizens. These facilities were geospatially mapped (Figures 3-3 to Figure 3-9) and used as the basis for further geographic analysis of the hazards that could potentially affect critical facilities. All critical facility information was provided by local governments and the Grimes County GIS Department.

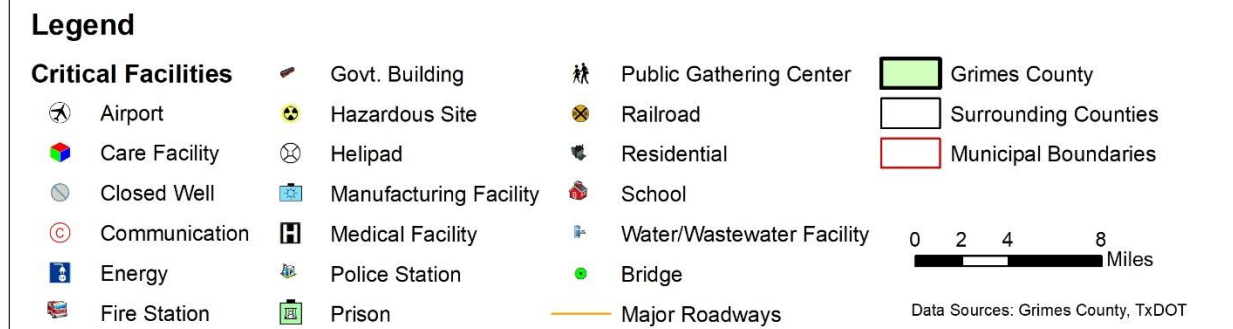
**Table 3-10. Critical Facilities by Jurisdiction**

<b>Jurisdiction</b>	<b>Critical Facility</b>
Grimes County	1 Airport, 18 Closed Wells, 4 Commercial Facilities, 33 Communication Facilities, 66 Dams, 54 Energy Facilities, 9 Fire Stations, 20 Government Buildings, 38 Hazardous Sites, 7 Helipads, 5 Manufacturing Facilities, 5 Medical Facilities, 3 Police Stations, 2 Prisons, 39 Public Gathering Centers, 5 Railroads, 12 Schools, 48 Water/Wastewater Facilities
Town of Anderson	4 Closed Wells, 1 Commercial Facility, 11 Communication Facilities, 29 Dams, 29 Energy Facilities, 1 Fire Station, 10 Government Buildings, 11 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 1 Police Station, 7 Public Gathering Centers, 2 Schools, 8 Water/Wastewater Facilities
City of Bédias	1 Closed Well, 4 Communication Facilities, 10 Dams, 4 Energy Facilities, 1 Fire Station, 3 Hazardous Sites, 1 Helipad, 4 Public Gathering Centers, 9 Water/Wastewater Facilities
City of Iola	10 Closed Wells, 2 Communication Facilities, 5 Dams, 13 Energy Facilities, 2 Fire Stations, 4 Government Buildings, 5 Hazardous Sites, 2 Helipads, 5 Public Gathering Centers, 2 Schools, 10 Water/Wastewater Facilities
City of Navasota	1 Airport, 2 Care Facilities, 2 Closed Wells, 2 Commercial Facilities, 8 Communication Facilities, 18 Dams, 6 Energy Facilities, 1 Fire Station, 6 Government Buildings, 12 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 5 Medical Facilities, 1 Police Station, 2 Prisons, 17 Public Gathering Centers, 3 Railroads, 7 Schools, 15 Water/Wastewater Facilities
City of Plantersville	1 Commercial Facility, 4 Communication Facilities, 2 Dams, 2 Fire Stations, 1 Hazardous Site, 1 Manufacturing Facility, 1 Police Station, 4 Public Gathering Centers, 4 Water/Wastewater Facilities
City of Todd Mission	1 Communication Facility, 1 Energy Facility, 1 Fire Station, 1 Police Station, 2 Public Gathering Centers



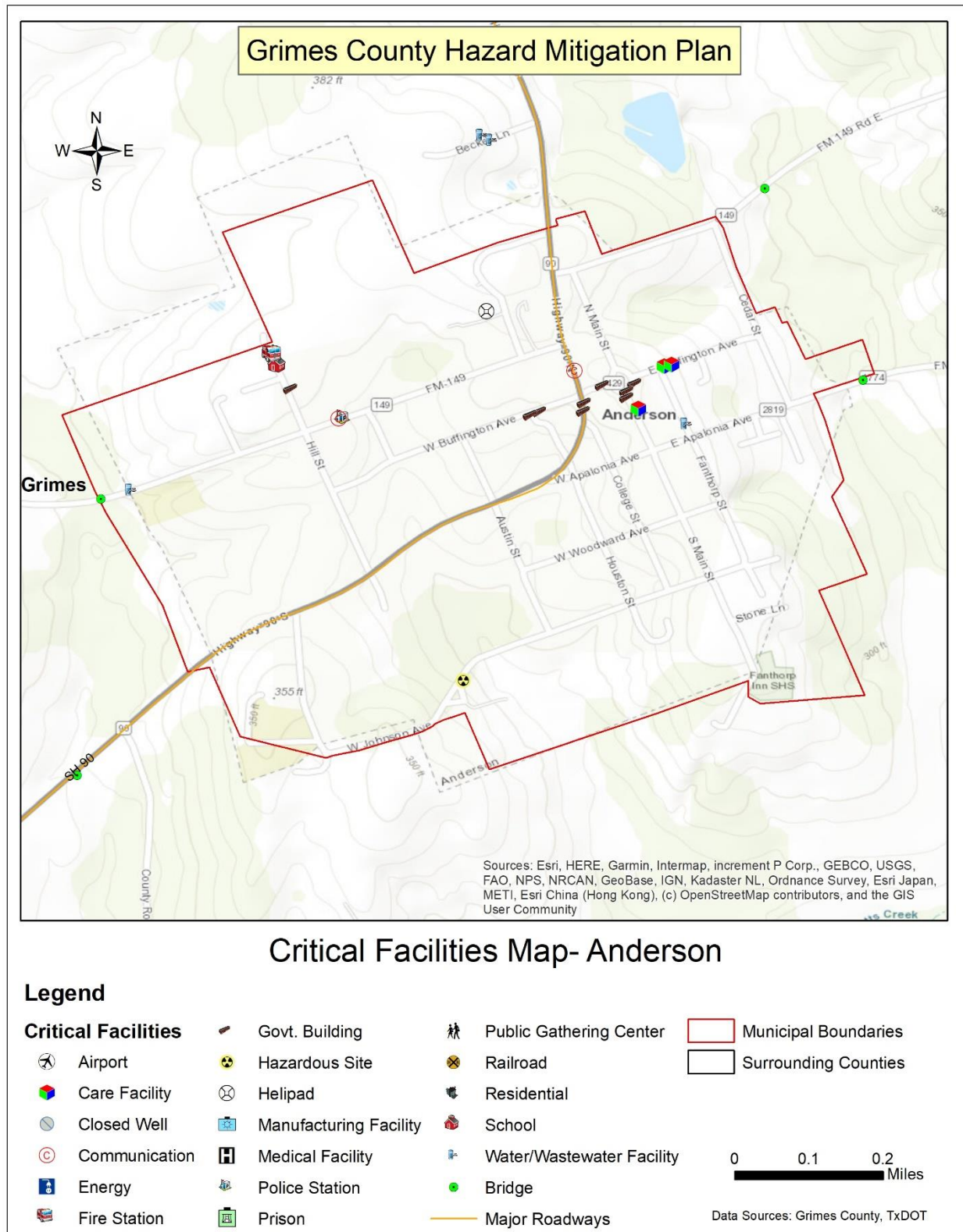


## Critical Facilities Map- Grimes County

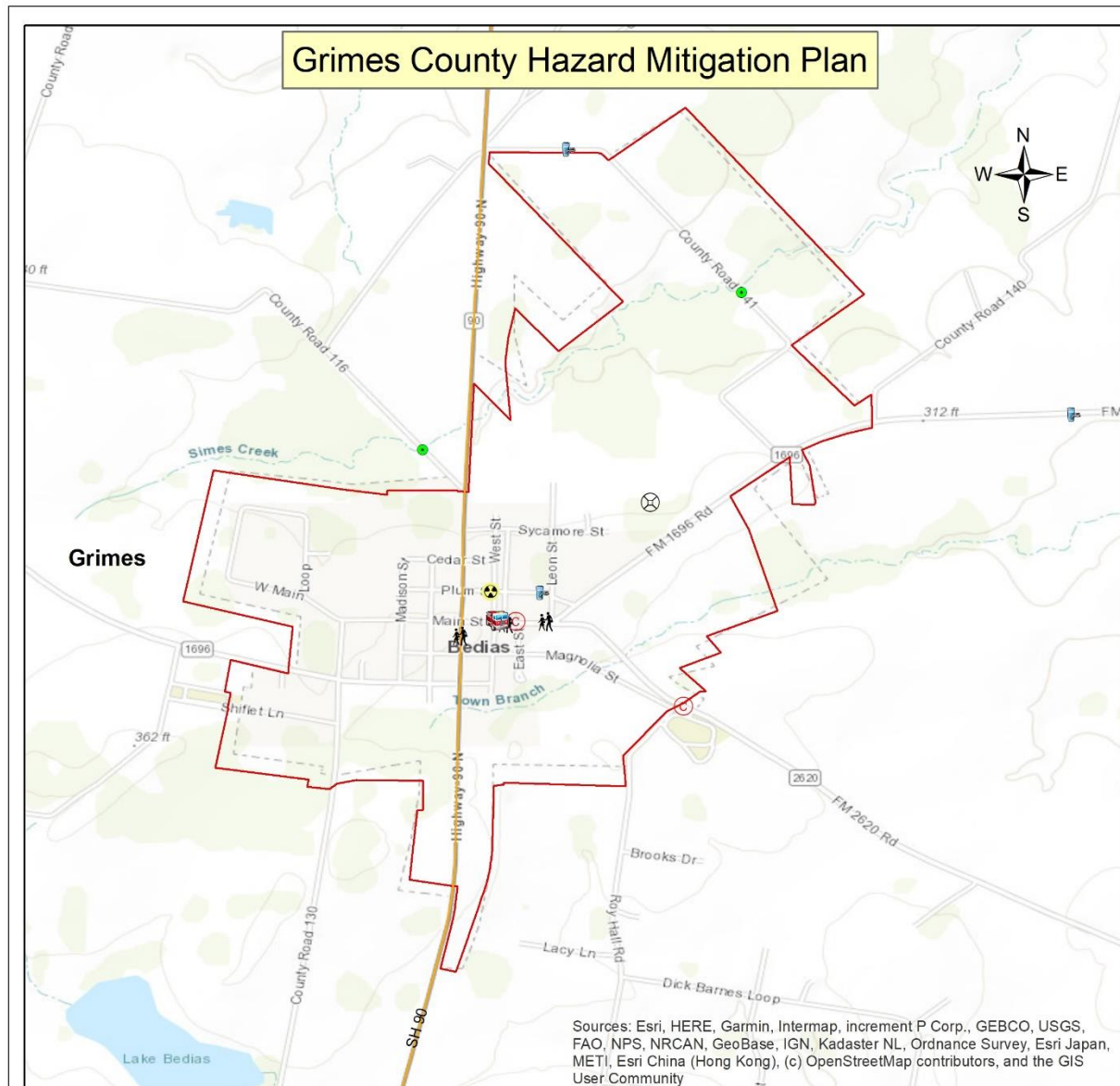


**Figure 3-2. Critical Facilities in Grimes County**





**Figure 3-3. Critical Facilities in Anderson**



## Critical Facilities Map- Bédias

### Legend

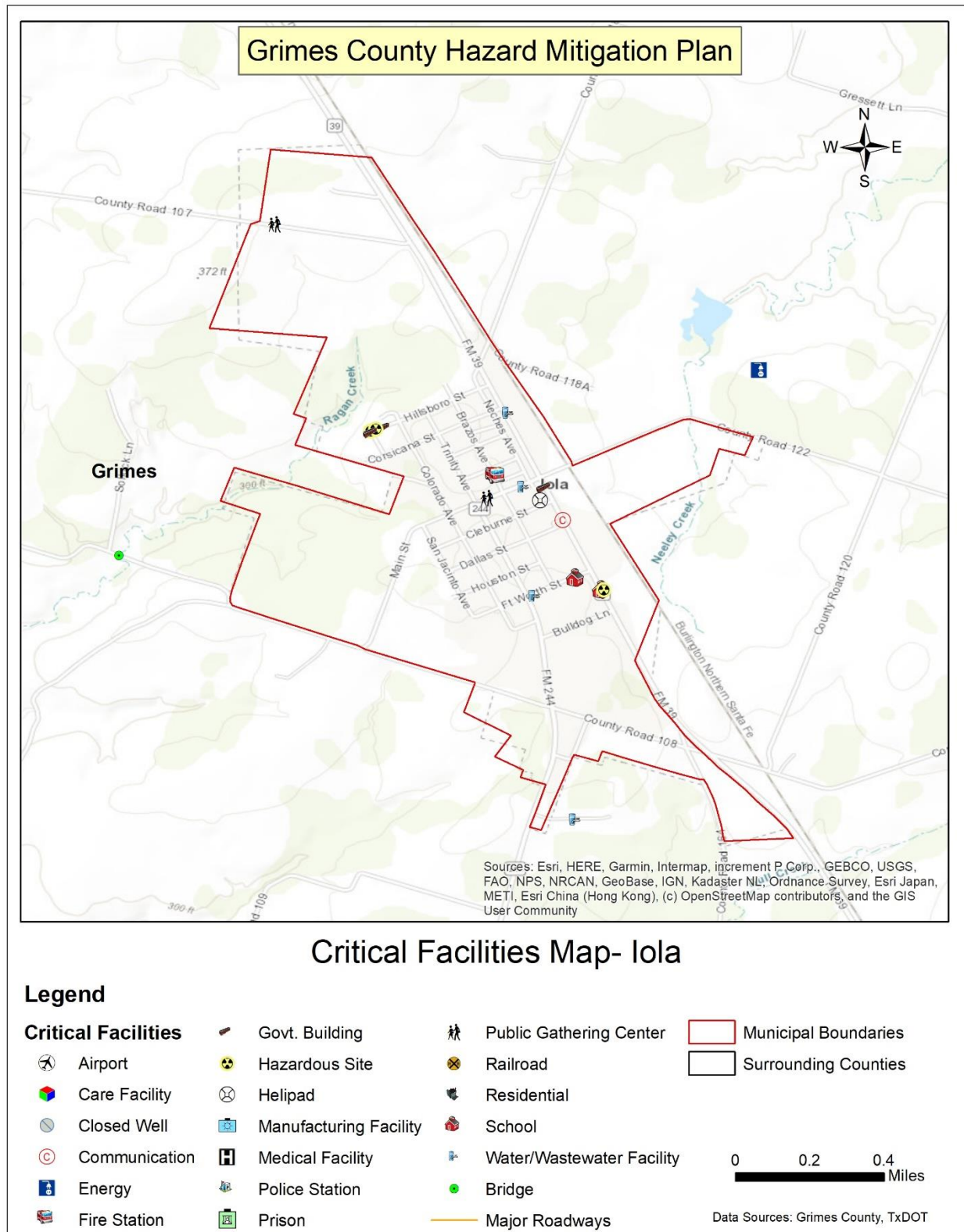
#### Critical Facilities

Airport	Govt. Building	Public Gathering Center	Municipal Boundaries
Care Facility	Hazardous Site	Railroad	Surrounding Counties
Closed Well	Helipad	Residential	
Communication	Manufacturing Facility	School	
Energy	Medical Facility	Water/Wastewater Facility	
Fire Station	Police Station	Bridge	
	Prison	Major Roadways	

0 0.2 0.4 Miles

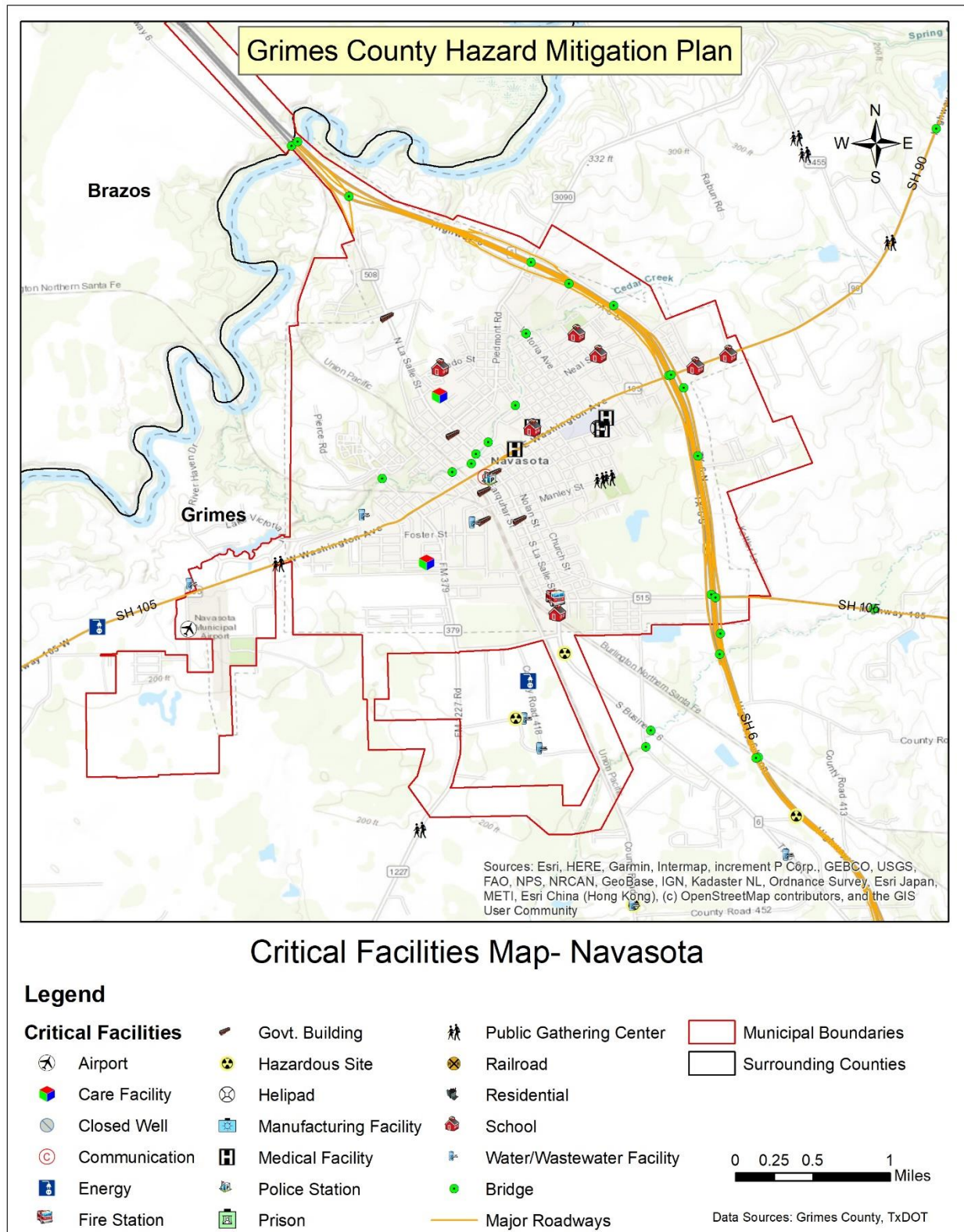
Data Sources: Grimes County, TxDOT

**Figure 3-4. Critical Facilities in Bédias**

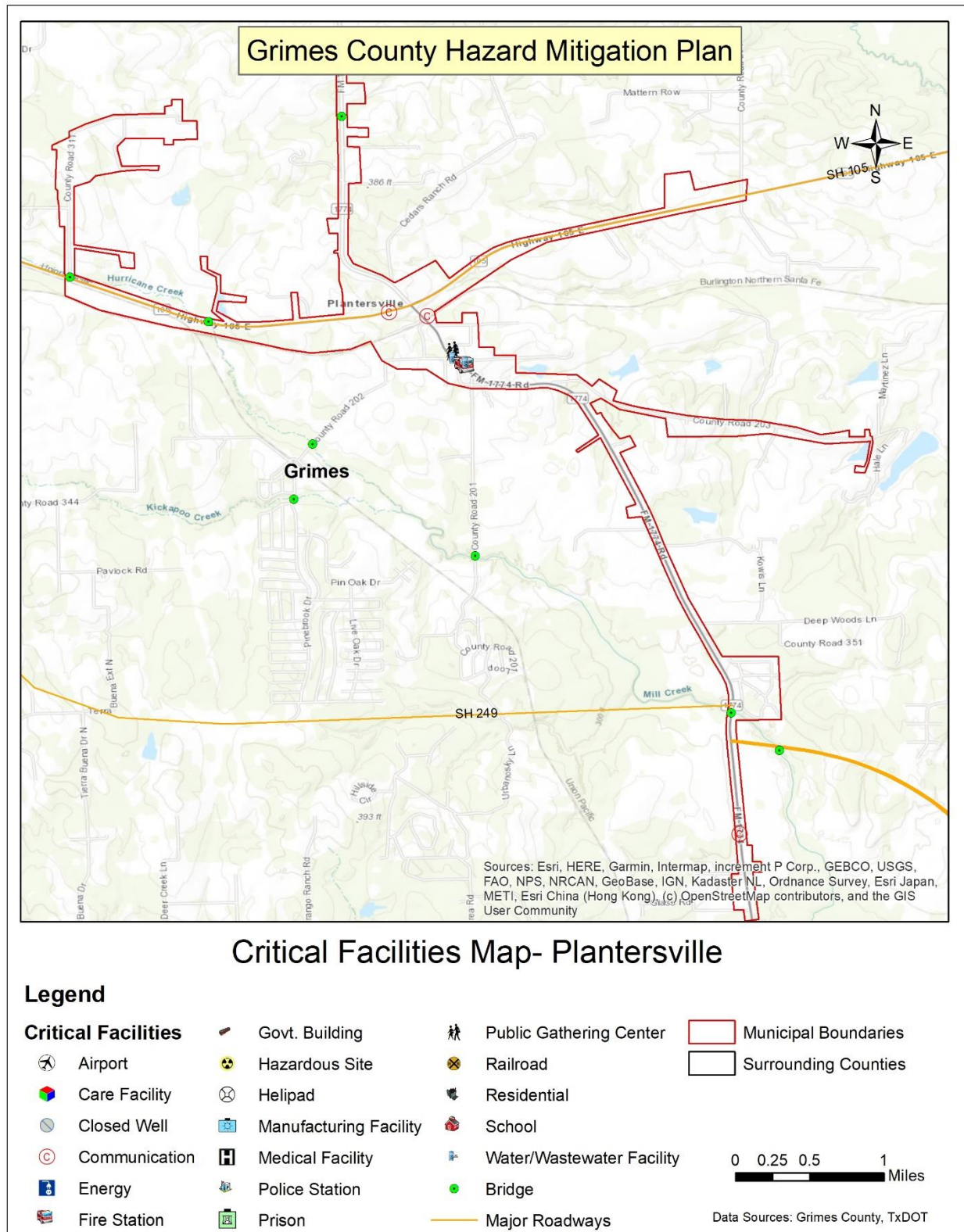


**Figure 3-5. Critical Facilities in Iola**





**Figure 3-6. Critical Facilities in Navasota**

**Figure 3-7. Critical Facilities in Plantersville**





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## 4.0 RISK OVERVIEW

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### 4.1 HAZARD DESCRIPTION

Section 4 is the first phase of the Risk Assessment, providing background information for the hazard identification process and descriptions for the hazards identified. The Risk Assessment continues with Sections 5 through 16, which include hazard descriptions and vulnerability assessments.

Upon a review of the full range of natural hazards suggested under FEMA planning guidance, participating jurisdictions within Grimes County identified eleven natural hazards that are addressed in the Hazard Mitigation Plan Update. Of the hazards identified, 10 natural hazards and one quasi-technological hazard<sup>1</sup> (dam failure) were identified as significant, as shown in Table 4-1. The hazards were identified through input from Planning Team members and a review of the current 2018 State of Texas Hazard Mitigation Plan (State Plan). Readily available online information from reputable sources such as federal and state agencies were also evaluated and utilized to supplement information as needed.

In general, there are three main categories of hazards: 1) atmospheric, 2) hydrologic, and 3) technological. Atmospheric hazards are events or incidents associated with weather generated phenomenon. Atmospheric hazards that have been identified as significant for the County include extreme heat, hail, hurricane wind, lightning, thunderstorm wind, tornado, and winter storm (Table 4-1).

Hydrologic hazards are events or incidents associated with water-related damage and account for more than 75 percent of Federal disaster declarations in the United States. Hydrologic hazards identified as significant for the County include flood and drought.

Technological hazards refer to the origins of incidents that can arise from human activities, such as the construction and maintenance of dams. They are distinct from natural hazards primarily because they originate from human activity. The risks presented by natural hazards may be increased or decreased as a result of human activity, however they are not inherently human induced. Therefore, dam failure is classified as a quasi-technological hazard and referred to as “technological” in Table 4-1 for description purposes.

For the Risk Assessment, wildfire and earthquake hazards are considered as “other,” since this hazard is not considered atmospheric, hydrologic, technological.

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<sup>1</sup> While dam failure is generally considered a quasi-technological hazard, it is profiled in the Plan Update as a natural hazard (i.e., a breach caused by extensive rainfall or flooding).



**Table 4-1. Hazard Descriptions**

<b>Hazard</b>	<b>Descriptions</b>
<b>Atmospheric</b>	
Extreme Heat	Extreme heat is the condition whereby temperatures hover 10 degrees or more above the average high temperature in a region for an extended period of time.
Hail	Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and subsequent cooling of the air mass.
Hurricane Wind	A hurricane is an intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 miles per hour (mph) or higher.
Thunderstorm Wind & Lightning	A thunderstorm occurs when an observer hears thunder. Radar observers use the intensity of the radar echo to distinguish between rain showers and thunderstorms. Lightning detection networks routinely track cloud-to-ground flashes, and therefore thunderstorms.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. The destruction caused by tornadoes ranges from light to catastrophic, depending on the location, intensity, size, and duration of the storm.
Winter Storm	Severe winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 mph, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads, and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.
<b>Hydrologic</b>	
Drought	A prolonged period of less-than-normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality.
Flood	The accumulation of water within a body of water, which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, and shallow flooding.
<b>Other</b>	
Wildfire	A wildfire is an uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase the risk for people and property located within wildfire hazard areas or along the wildland urban interface (WUI). Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors.
Earthquake	Earthquake is a term used to describe both sudden slip on a fault, and the resulting ground shaking and radiated seismic energy caused by the slip, or by volcanic or magmatic activity, or other sudden stress changes in the earth.

Hazard	Descriptions
<b>Quasi-Technological</b>	
Dam Failure	Dam failure is the collapse, breach, or other failure of a dam structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam.

## 4.2 NATURAL HAZARDS AND CLIMATE CHANGE

Climate change is defined as a long-term hazard which can increase or decrease the risk of other weather hazards. It directly endangers property due to sea-level rise and threatens biological organisms due to habitat destruction.

Global climate change is expected to exacerbate the risks of certain types of natural hazards impacted through rising sea levels, warmer ocean temperatures, higher humidity, the possibility of stronger storms, and an increase in wind and flood damage due to storm surges. While sea level rise is a natural phenomenon and has been occurring for several thousand years, the general scientific consensus is that the rate has increased in the past 200 years, from 0.5 millimeter per year to 2 millimeters per year. Grimes County is away from the Gulf Coast, so sea level rise will most likely will not affect the county directly. However, it is more probable for the county to be affected by frequent stronger hurricanes and storms due to climate change.

Texas is considered one of the more vulnerable states in the United States to both abrupt climate changes and to the impact of gradual climate changes to the natural and built environments. Megadroughts can trigger abrupt changes to regional ecosystems and the water cycle, drastically increase extreme summer temperature and fire risk, and reduce availability of water resources, as Texas experienced during 2011–2012. Wildfires are affected by climate change as well. Once a fire starts, warmer and drier conditions help spread the fire much faster and make the fire harder to contain.

Paleoclimate records also show that the climate over Texas had large changes between periods of frequent mega-droughts and the periods of mild droughts that Texas is currently experiencing. While the cause of these fluctuations is unclear, it would be wise to anticipate that such changes could occur again and may even be occurring now.

## 4.3 OVERVIEW OF HAZARD ANALYSIS

The methodologies utilized to develop the Risk Assessment are a historical analysis and a statistical approach. Both methodologies provide an estimate of potential impact by using a common, systematic framework for evaluation.

Records retrieved from NCEI, and NOAA were reported for participating jurisdictions within Grimes County. Remaining records identifying the occurrence of hazard events in the planning area and the maximum recorded magnitude of each event were also evaluated.

Geographic Information System (GIS) technology was used to identify and assess risks for Grimes County and evaluate community assets and their vulnerability to hazards. Hazus 5.1 tool, which is developed by FEMA, was used to assess the impact and probability of hurricane and earthquake.

The four general parameters that are described for each hazard in the Risk Assessment include frequency of return, approximate annualized losses, a description of general vulnerability, and a statement of the hazard's impact.

#### 4.4 PRIORITY RISK INDEX

To draw some meaningful planning conclusions on hazard risk for Grimes County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a Priority Risk Index (PRI). The purpose of the PRI is to categorize and prioritize all potential hazards for Grimes County as high, moderate, or low risk. Combined with the asset inventory and quantitative vulnerability assessment provided in the next sections, the summary hazard classifications generated using the PRI allows for the prioritization of the hazard risks for mitigation planning purposes. Additionally, the PRI supports the identification of hazard mitigation opportunities for the jurisdictions in Grimes County to consider as part of their proposed mitigation strategy.

The application of the PRI results in numerical values that allow identified hazards to be ranked against one another (the higher the PRI value, the greater the relative hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time, and duration). Each degree of risk has been assigned a value (1 to 4) and an agreed upon weighting factor<sup>2</sup>, as summarized in Table 4-2. To calculate the PRI value for a given hazard, the assigned risk value for each category is multiplied by the weighting factor. The sum of all five categories equals the final PRI value, as demonstrated in the example equation below:

$$PRI\ VALUE = [(PROBABILITY \times .30) + (IMPACT \times .30) + (SPATIAL\ EXTENT \times .20) + (WARNING\ TIME \times .10) + (DURATION \times .10)]$$

According to the weighting scheme and point system applied, the highest possible value for any hazard is 4.0.

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<sup>2</sup> The Hazard Mitigation Planning Team, based upon any unique concerns or factors for the planning area, may adjust the PRI weighting scheme during future plan updates.

**Table 4-2. Priority Risk Index Description**

PRI Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability	Unlikely	Less than 1% annual probability	1	30%
	Possible	Between 1 and 10% annual probability	2	
	Likely	Between 10 and 100% annual probability	3	
	Highly Likely	100% annual probability	4	
Impact	Minor	Very few injuries, if any. Only minor property damage and minimal disruption to quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than 1 week.	3	
	Catastrophic	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than 1 week.	4	
Spatial Extent	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1 and 10% of area affected	2	
	Moderate	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area affected	4	
Warning Time	More than 24 hours	Self-explanatory	1	10%
	12 to 24 hours	Self-explanatory	2	
	6 to 12 hours	Self-explanatory	3	
	Less than 6 hours	Self-explanatory	4	
Duration	Less than 6 hours	Self-explanatory	1	10%
	Less than 24 hours	Self-explanatory	2	
	Less than 1 week	Self-explanatory	3	
	More than 1 week	Self-explanatory	4	

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## **5.0 FLOOD**

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### **5.1 HAZARD DESCRIPTION**

Floods generally result from excessive precipitation. The severity of a flood event is determined by a combination of several major factors: stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and the degree of vegetative clearing and impervious surface. Typically, floods are long-term events that may last for several days.

The primary types of general flooding are inland and coastal flooding. Inland or riverine flooding is a result of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Inland or riverine flooding is overbank flooding of rivers and streams, typically resulting from large-scale weather systems that generate prolonged rainfall over a wide geographic area, thus it is a naturally occurring and inevitable event. Some river floods occur seasonally when winter or spring rainfalls fill river basins with too much water, too quickly. Torrential rains from decaying hurricanes or tropical systems can also produce riverine flooding.

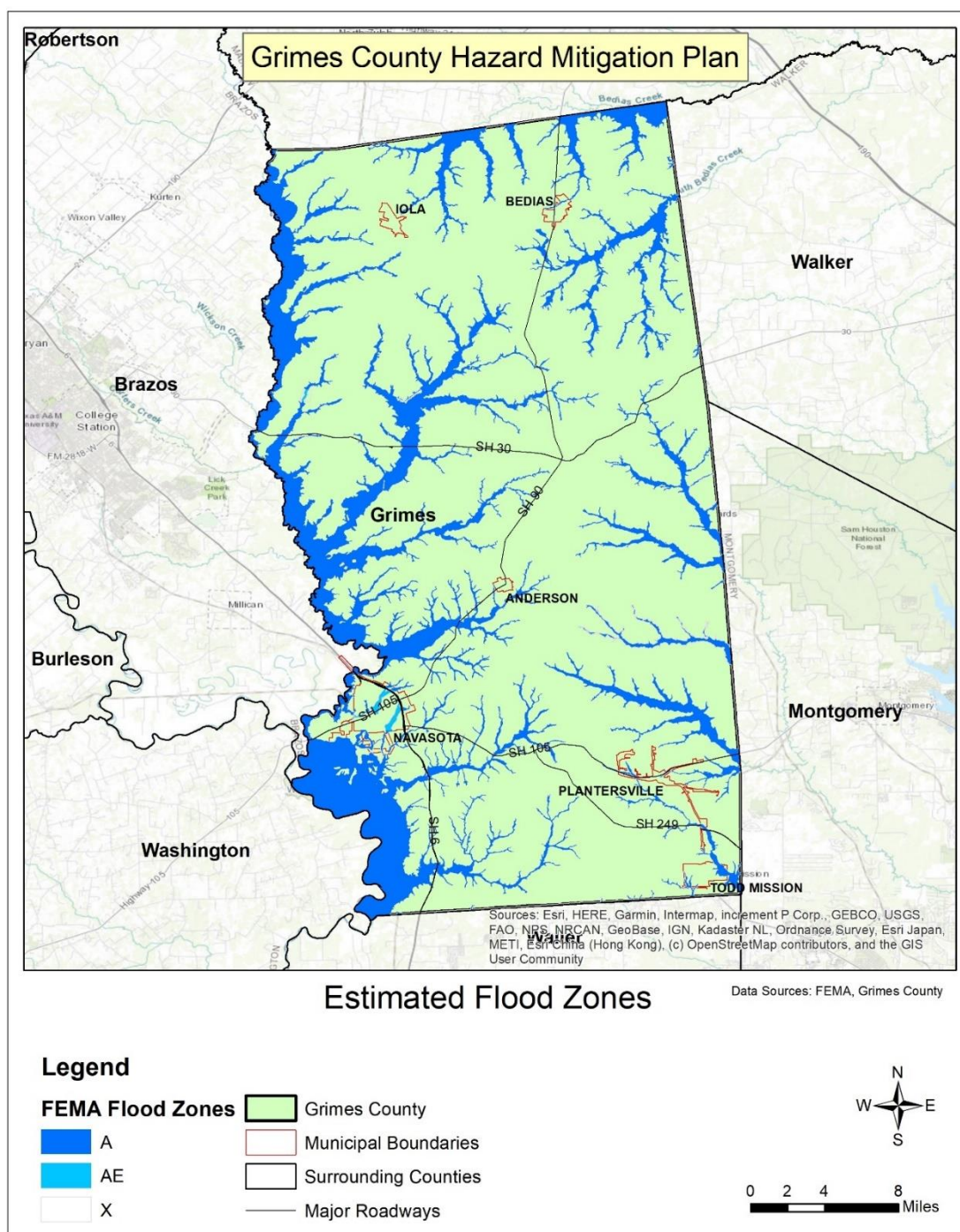
### **5.2 LOCATION**

The Flood Insurance Rate Map (FIRM) data provided by FEMA for Grimes County shows the following flood hazard areas:

- Zone A: Areas subject to inundation by the 1 percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown (with the exception of the zones within the city of Navasota which have elevations and floodways included). Mandatory flood insurance requirements and floodplain management standards apply.
- Zone AE: Areas subject to inundation by 1 percent-annual-chance shallow flooding. It is the base floodplain where BFEs are provided. AE zones are now used on new format FIRMs instead of A1-30 zones.
- Zone X: Moderate risk areas within the 0.2 percent-annual-chance floodplain, areas of 1 percent-annual-chance flooding where average depths are less than 1 foot, areas of 1 percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1 percent-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones.

It is noted that the City of Iola currently has No Special Flood Hazard Locations. Locations of flood zones in Grimes County are based on the Digital Flood Insurance Rate Map (DFIRM) from FEMA are detailed below (Figure 5-1).





dam

**Figure 5-1. Estimated Flood Zones in Grimes County**

In addition to the estimated flood zones (Figure 5-1), there are three dams of concern within the planning area that could create substantial flooding for the planning area. The Gibbons Creek Reservoir Dam and the Texas Municipal Power Agency's (TMPA) Gibbons Creek Mine Dam-50 are located about 10 miles northwest of the Town of Anderson. The Yaboro Dam is a privately owned dam located approximately 8 miles southeast of City of Navasota. In the event of a breach of the dams,

downstream of the breach, could experience extensive flooding that may exceed the boundaries of the Special Flood Hazard Area (SFHA).

### 5.3 EXTENT

The severity of a flood event is determined by a combination of several factors: stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and degree of vegetative clearing and impervious surface. Typically, floods are long-term events that may last for several days.

Determining the intensity and magnitude of a flood event is dependent upon the flood zone and location of the flood hazard area in addition to depths of flood waters. Extent of flood damages can be expected to be more damaging in the areas that will convey a base flood. FEMA categorizes areas on the terrain according to how the area will convey flood water. Flood zones are the categories that are mapped on FIRMs. Table 5-1 provides a description of FEMA flood zones and the flood impact in terms of severity or potential harm. Flood Zones A, AE and X are the only hazard areas mapped in the region. Figures 5-1 should be read in conjunction with the extent for flooding in Tables 5-1 and 5-2 to determine the intensity of a potential flood event.

**Table 5-1. Flood Zones**

Intensity	Zone	Description
High	Zone A	Areas with a 1 percent-annual chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones.
	Zone A1-30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a Base Flood Elevation (BFE) (old format).
	Zone Ae	The base floodplain where base flood elevations are provided. AE Zones are now used on the new format FIRMs instead of A1-A30 Zones.
	Zone Ao	River or stream flood hazard areas and areas with a 1 percent or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
	Zone Ah	Areas with a 1 percent-annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from one to three feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
	Zone A99	Areas with a 1 percent-annual chance of flooding that will be protected by a federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.



Intensity	Zone	Description
	Zone Ar	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations
Moderate to Low	Zone X	An area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than one foot or with drainage areas less than 1 square mile; or an area protected by levees from 100-year flooding.

Zone A is interchangeably referred to as the 100-year flood, the 1 percent-annual chance flood, the SFHA, or more commonly, the base flood. This is the area that will convey the base flood and constitutes a threat to the planning area. The impact from a flood event can be more damaging in areas that will convey a base flood.

Structures built in the SFHA are subject to damage by rising waters and floating debris. Moving water exerts pressure on everything in its path and causes erosion of soil and solid objects. Utility systems, such as heating, ventilation, air conditioning, fuel, electrical systems, sewage maintenance systems and water systems, if not elevated above base flood elevation, may also be damaged.

The intensity and magnitude of a flood event is also determined by the depth of flood waters. Table 5-2 describes the stream gauge data provided by the U.S. Geological Survey (USGS).

**Table 5-2. Extent for Peak Flow Events for Grimes County**

Jurisdiction *	Peak Flow Event
Grimes County	The Caney Creek near Dobbin, Texas, reached a peak flow of about 12,200 cubic feet per second (cfs) in January 1965 whereas the normal flow is about 21 cfs. This USGS station (08067700) is at the border of Montgomery and Grimes County and located inside adjacent Montgomery County. Streamflow elevation data is not available for this location.
Grimes County	The Navasota River near College Station, Texas, (USGS station 08111010) reached a peak flow of about 29,000 cfs in October 1984, whereas the normal flow is about 595 cfs. The maximum streamflow elevation recorded for the Navasota River near this location is 21.89 feet, whereas the normal flow depth is about 4 feet.

Note: Severity estimated by averaging floods at certain stage level over the history of flood events. Severity and peak events are based on U.S. Geological Survey data.

<sup>a</sup> Severity is provided for jurisdictions where peak data was provided.

**Table 5-3. Extent of Floods for Grimes County**

<b>Jurisdiction *</b>	<b>Extend of Flood</b>
Grimes County	Water depth up to six feet
Town of Anderson	Water depth up to one foot
City of Bédias	Water depth up to one foot
City of Iola	Water depth up to one foot
City of Navasota	Water depth up to three feet
City of Todd Mission	Water depth up to one foot

the data described in Tables 5-1 and 5-2, together with Figures 5-1 and historical occurrences for the area, provides an estimated potential magnitude and severity for the planning area. For example, the City of Navasota, as shown in Figure 5-2, has areas designated as Zone A & AE. Navasota also has the highest number of parcels and buildings that are inside 100-year flood zone. Reading this figure in conjunction with Table 5-1 means the area is an area of high risk for flood.



**Figure 5-2. City of Navasota Flood Zones**

## 5.4 HISTORICAL OCCURRENCES

Historical evidence indicates that areas within the planning area are susceptible to flooding, especially in the form of flash flooding. It is important to note that only flood events that have been reported have been factored into this risk assessment, therefore it is likely that additional flood occurrences have gone unreported before and during the recording period. Table 5-3 identifies historical flood events within the Grimes County planning area. Table 5-4 provides the historical flood event summary by jurisdiction. Historical data is provided by team members and the Storm Prediction Center (NOAA), NCEI database for Grimes County.

**Table 5-4. Historical Flood Events, 1997-2021**

Jurisdiction	Date	Deaths	Injuries	Property Damage (\$)	Crop Damage
Grimes County	10/17/1998	0	0	0	0
Grimes County	2/20/1997	0	0	9,057	0
Grimes County	11/12/1998	0	0	26,442	0
Grimes County	11/13/1998	0	0	17,628	0
Grimes County	5/4/2000	0	0	84,288	0
Grimes County	11/4/2000	0	0	83,029	0
Grimes County	11/6/2000	0	0	41,514	0
Grimes County	8/15/2002	0	0	39,998	0
Grimes County	11/4/2002	0	0	31,892	0
Grimes County	2/20/2003	0	0	12,632	0
Grimes County	5/13/2004	0	0	76,443	0
Anderson	11/23/2004	0	0	0	0
Anderson	5/25/2015	0	0	0	0
Bedias	6/18/2015	0	0	0	0
Central Portion	1/21/1998	0	0	5,367	0
Iola	10/18/2006	0	0	24,355	0
Iola	1/13/2007	0	0	0	0
Iola	6/9/2010	0	0	0	0
Iola	10/13/2018	0	0	0	0
Navasota	8/4/1998	0	0	3,539	0
Navasota	6/27/2004	0	0	53,341	0
Navasota	4/28/2009	0	0	2,712	0
Navasota	2/18/2012	0	0	2,540	2,540
Navasota	8/27/2017	0	0	0	0
Navasota	5/25/2015	0	0	12,157	0
North Portion	11/3/2000	0	0	24,909	0
North Portion	11/3/2000	0	0	166,059	0
Piedmont	2/15/2012	0	0	190,485	12,699
Plantersville	7/14/2002	0	0	4,816	0
Plantersville	5/26/2016	0	0	601,736	60,174
Richards	11/11/2008	0	0	2,722	0
Roans Prairie	5/1/2007	0	0	0	0
South Portion	11/12/1998	0	0	17,629	0
Southeast Portion	6/9/2001	0	0	0	0
Stoneham	5/11/2015	0	0	0	0
Todd Mission	5/27/2015	0	0	0	0

Jurisdiction	Date	Deaths	Injuries	Property Damage (\$)	Crop Damage
Todd Mission	4/18/2016	0	0	966,673	0
Todd Mission	8/27/2017	0	0	0	0
Todd Mission	4/30/2021	0	0	0	0
Yarboro Station	5/18/2015	0	0	0	0

Note: Only recorded events with fatalities, injuries, and/or damages are listed, values are in 2022 dollars. Historical events are listed from January 1997 through May 2022.

**Table 5-5. Summary of Historical Flood Events, 1997-2021**

Jurisdiction	Number of Events	Deaths	Injuries	Property Damage (\$)	Crop Damage
Anderson	2	0	0	0	0
Bedias	1	0	0	0	0
Iola	4	0	0	24,355	0
Navasota	6	0	0	74,289	2,540.00
Plantersville	2	0	0	606,552	60,174.00
Todd Mission	4	0	0	966,673	0
Grimes County	40	0	0	2,501,963	75,413.00

Based on the list of historical flood events for the Grimes County planning area (listed above), 12 of the events have occurred since the 2013 Plan.

## 5.5 SIGNIFICANT EVENTS

### Flash Flood of April 18, 2016

A slow moving upper low over the southwestern U.S. combined with near-record-level moisture aided in producing extremely heavy rainfall and devastating flooding over portions of Harris, Waller, and Fort Bend Counties. Northwest to southeast orientated bands of precipitation commenced during the early evening hours of April 17 across extreme southwestern and western Harris County as well as north and west into Grimes, Waller, Fort Bend, Austin, and Colorado Counties. Between 8:00 p.m. and 9:00 p.m., thunderstorms began to greatly intensify and slow their northward movement over Waller County and, by late evening, had stalled and began shifting eastward into western Harris County. Excessive rainfall spread across northwestern Harris County during the late evening hours of April 17 and into the early morning hours of April 18. Slow thunderstorm movement and rain rates over 4 inches per hour resulted in a large portion of northwest Harris and Waller Counties receiving between 10 and 20 inches of rainfall over mainly a 12-hour period. A few CoCoRaHS gauges in Waller County measured over 20 inches. The flooding resulted in eight direct fatalities over the region, all drownings in vehicles. Six of these were in Harris County with one in Waller County and another in Austin County. An estimated 40,000 cars and trucks were flooded. Several bayous and creeks were flooded. The Addicks Barker Reservoir was severely impacted. At least 10,000 homes were flooded. Damage was estimated from Damage Survey Reports to be near \$60 million.

Approximately \$1 million of damage (2022 value) was recorded for Grimes County. There were water rescues in the Todd Mission area. Major flooding occurred along County Road 311 northwest of Todd Mission with water halfway up the street signage.

### **Flash Flood of May 26, 2016**

Strong upper-level disturbances combined with above-average moisture levels and favorable upper-level wind patterns to produce a round of severe thunderstorms that eventually trained and produced excessive rainfall and flash flooding during the afternoon hours of May 26 and into the overnight and early morning hours of May 27. Rainfall totals of 6 to 10 inches were common over the north and northwestern parts of Harris County into Waller, Montgomery, and Washington Counties, with much of the rain falling in a 3- to 6-hour period. Portions of Washington County recorded over 12 inches of rainfall in a 3-hour period. In Grimes County, Water rescues were occurring through the county. Farm to Market Road 362 (FM 362) at Beason Creek was closed due to flooding. Washington Street at Foster Street, Buckingham Lane at FM 379, and Courtney Street in the town of Navasota were all impassable and closed as they were inundated with nearly 2 feet of water. Approximately \$616,000 of property damage and \$61,600 of crop damage (2022 value) was reported in Grimes County.

### **Flash Flood of February 15, 2012**

Training of heavy to moderate thunderstorms produced widespread flooding along a line from Navasota to Huntsville. A band of moderate-to-heavy rainfall caused flooding in and around Grimes and Huntsville. Numerous road closures and stalled cars were reported in the town of Navasota with additional closures in and around the communities of Anderson and Huntsville. Approximately \$195,230 of property damage was reported (2022 value) for Grimes County.

## **5.6 PROBABILITY OF FUTURE EVENTS**

Based on 40 recorded historical occurrences within a 25-year reporting period within the Grimes County planning area, flooding is highly likely with one to two events per year anticipated.

## **5.7 VULNERABILITY AND IMPACT**

A property's vulnerability to a flood depends on its location and proximity to the floodplain. Structures that lie along banks of a waterway are the most vulnerable and are often repetitive-loss structures. Grimes County encourages development outside of the floodplain, and the impact for flooding for the entire planning area is "Limited" as facilities and services would be shut down for more than one day, more than 10 percent of property destroyed or with major damage, and injuries or illness that does not result in permanent disability depending on the scale of the storm.

Table 5-5 and Figure 5-3 includes the critical facilities that were determined to be located within the SFHA by FIRM mapping and further by major jurisdictions.

**Table 5-6. Critical Facilities in the 100-Year Floodplain by Jurisdiction**

<b>Jurisdiction</b>	<b>Critical Facility</b>
Grimes County	1 Closed Well, 2 Communication Facilities, 1 Fire Stations, 2 Government Buildings, 1 Hazardous Site, 1 Manufacturing Facility, 1 Police Stations, 1 Prison, 2 Public Gathering Centers, 1 School, 1 Water/Wastewater Facility.
Town of Anderson	None
City of Bédias	None
City of Iola	None
City of Navasota	1 Communication Facility, 1 Fire Station, 2 Government Building, 1 Hazardous Site, 1 Police Station, 1 School.
City of Plantersville	None
City of Todd Mission	None

Historic loss estimates due to flood are presented in Table 5-6 below. Considering 40 flood events over a 25-year period, frequency is approximately one-to-two events every year. The historical damage data available in NCEI database are almost always under reported for various reasons.

**Table 5-7. Potential Annualized Losses by Jurisdiction**

<b>Jurisdiction</b>	<b>Property &amp; Crop Damage</b>	<b>Annualized Loss Estimate</b>
Grimes County	2,577,367	103,095



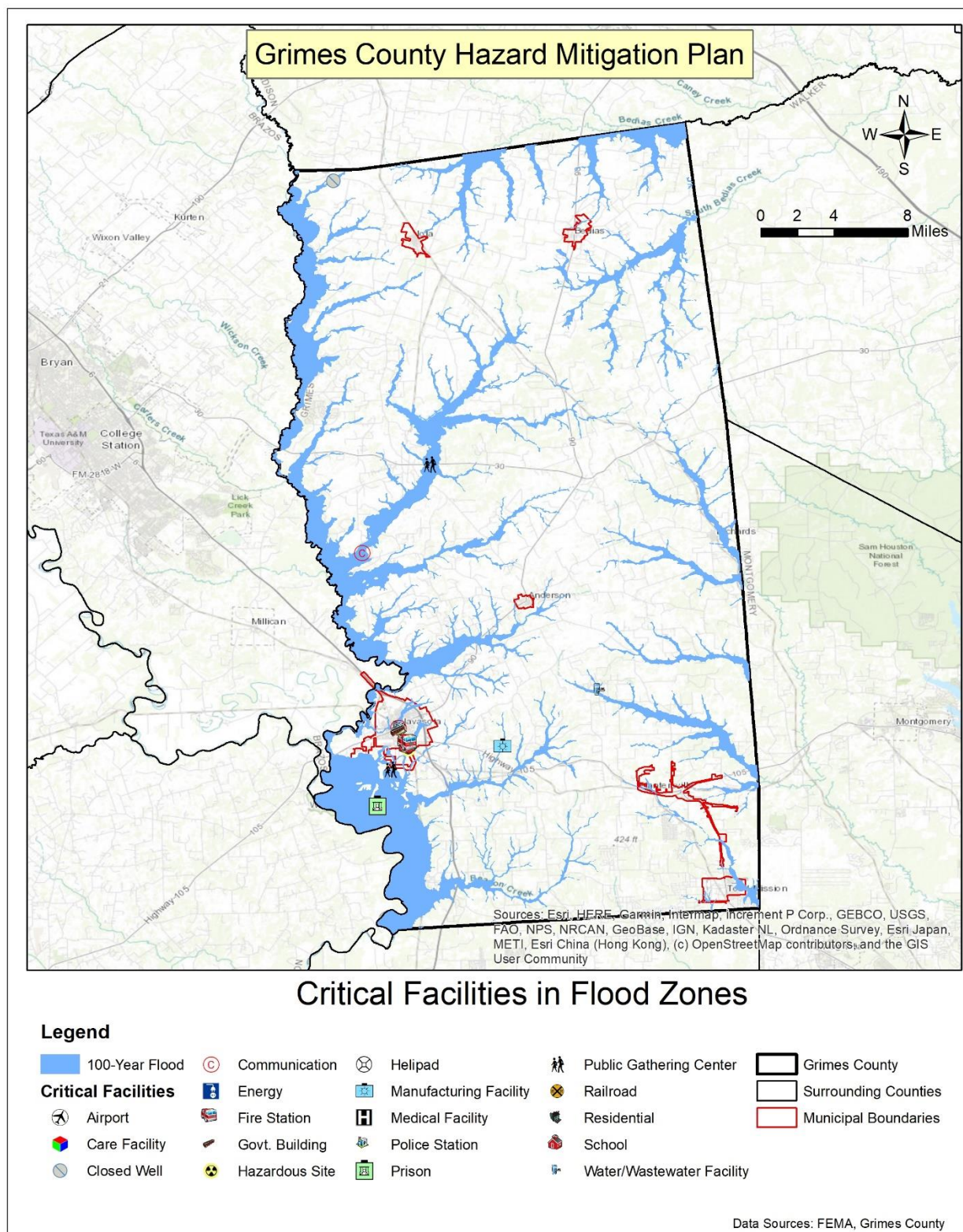


Figure 5-3. Critical Facilities Affected by 100-Year Flood in Grimes County



To get a more accurate estimation of potential damage, FEMA allowable cost data was collected from Grimes County Office of Emergency Management. Table 5-7 shows the FEMA allowable cost between 2015-2018 in 2022-dollar value and potential annualized cost based on the data.

**Table 5-8. FEMA Allowable Cost, 2015-2018**

Event Name	Event Date	Allowable Cost
DR4223	May 2015	\$677,034
DR4269	April 2016	\$110,971
DR4272	May 2016	\$320,222
DR4332 (Hurricane Harvey)	August 2017	\$414,853
DR4416	October 2018	\$302,375
<b>Total FEMA allowable cost for Flooding between 2015-2018:</b>		\$1,825,455
<b>Annualized allowable cost:</b>		\$456,364

In Table 5-8, potential damage for 100-year flood event was analyzed for Grimes County based on the parcel and building data available. The highest number of parcels and buildings that can be affected by a 100-Year flood are located in Navasota. 500-Year flood data is not available for Grimes County.

**Table 5-9. Potential Property Damage for 100-Year flood in Grimes County**

Location	100-year Flood		
	Approx. Number of Parcels	Approx. Number of Buildings	Approx. Improved Value of Buildings
Town of Anderson	1	0	0
City of Bedias	16	3	998,260
City of Iola	0	0	0
City of Navasota	755	422	64,401,077
City of Plantersville	42	8	1,693,016
City of Todd Mission	67	13	7,516,410
Total Grimes County	4,537	821	375,344,015

While all citizens are at risk to impacts from flooding, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 17 percent of the planning area population live below the poverty level (Table 5-9).

**Table 5-10. Populations at Greatest Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Population Below Poverty Level</b>
Town of Anderson	50 (19.5%)
City of Bédias	82 (21.9%)
City of Iola	17 (8.1%)
City of Navasota <sup>a</sup>	1,060 (14.6%)
City of Plantersville	169 (39.2%)
City of Todd Mission	2 (6.9%)
Grimes County Total	4,134 (17%)

Source: U.S. Census Bureau.

<sup>a</sup> The population counts for Navasota include units located in neighboring Brazos County. These population counts are not included in the Grimes County total.

## 5.8 ASSESSMENT OF IMPACTS

Flooding is the deadliest natural disaster that occurs in the U.S. each year, and it poses a constant and significant threat to the health and safety of the people in the Grimes County planning area. The impact of climate change could produce larger, more severe flood events, exacerbating the current flood impacts. Worsening flood conditions can be frequently associated with a variety of impacts, including:

- Flood-related rescues may be necessary at swift 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, life and/or safety.
- Extended power outages can result in an increase in structural fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- 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 otherwise impacted by a flood event and be 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 jurisdiction and its residents rely on, such as utility providers, financial institutions, and medical-care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- 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 being 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 normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, 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.
- Large floods may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities such as fishing, boating, and camping activities at Gibbons Creek, Navasota River and Brazos River may be unavailable and tourism can be unappealing for years following a large flood event, devastating directly related local businesses and negatively impacting economic recovery.
- Flooding may cause significant disruptions of clean water and sewer services, elevating health risks and delaying recovery efforts.
- The psycho-social effects on flood victims and their families can traumatize them for long periods of time, creating long term increases in medical treatment and services.
- Extensive or repetitive flooding can lead to decreases in property value for the affected community.
- Flooding poses a potential catastrophic risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Flood-related declines in production may lead to an increase in unemployment.
- Large floods may result in loss of livestock, potential increased livestock mortality due to stress and water-borne disease, and increased cost for feed.

The overall extent of damages caused by floods is dependent on the extent, depth and duration of flooding, and the velocities of flows in the flooded areas. The level of preparedness and pre-event

planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a flood event.

## **5.9 NATIONAL FLOOD INSURANCE PROGRAM (NFIP) PARTICIPATION**

Flood insurance offered through the National Flood Insurance Program (NFIP) is the best way for home and business owners to protect themselves financially against the flood hazard. Per the Community Status Book, Grimes County and the City of Navasota are NFIP participating jurisdictions.

The flood hazard areas throughout the planning area are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, of which adversely affect public safety.

These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods. This use of the flood hazard area can also be hazardous to other lands because structures are inadequately elevated, floodproofed or otherwise protected from flood damage and their obstruction extends the flood's reach. Mitigation actions are included to address flood maintenance issues as well, including routinely clearing debris from drainage systems and bridges and expanding drainage culverts and storm water structures to convey flood waters more adequately.

It is the purpose of Grimes County to continue to promote public health, safety, and general welfare by minimizing public and private losses due to flood conditions in specific areas. The NFIP participating jurisdiction in the Plan is guided by their local Flood Damage Prevention Ordinance. Each community will continue to comply with NFIP requirements through their local permitting, inspection, and record-keeping requirements for new and substantially developed construction. Further, the NFIP program promotes sound development in floodplain areas and includes provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood-control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in floodplains;
- Help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas; and
- Ensure that potential buyers are notified that property is in a flood area.

In order to accomplish these tasks, Grimes County and the City of Navasota seek to follow these guidelines to achieve flood mitigation by:

- Restrict or prohibit uses that are dangerous to health, safety, or property in times of flood, such as filling or dumping, that may cause excessive increases in flood heights and/or velocities;
- Require that uses vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of initial construction as a method of reducing flood losses;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
- Control filling, grading, dredging, and other development, which may increase flood damage; and
- Prevent or regulate the construction of flood barriers that will unnaturally divert floodwaters or that may increase flood hazards to other lands.

### **5.10 NFIP COMPLIANCE AND MAINTENANCE**

As mentioned, Grimes County and the City of Navasota have developed mitigation actions that relate to either NFIP maintenance or compliance. Compliance and maintenance actions can be found in Section 19.

Flooding was identified by all participating communities as a high-risk hazard during hazard ranking activities at the Risk Assessment Workshop. As such, many of the mitigation actions were developed with flood mitigation in mind. The majority of these flood actions address compliance with the NFIP and implementing flood awareness programs.

Each NFIP participating jurisdiction has a designated floodplain administrator. The floodplain administrators in the planning area will continue to maintain compliance with the NFIP including continued floodplain administration, zoning ordinances, and development regulation. The floodplain ordinance adopted by jurisdictions outline the minimum requirements for development in special flood hazard areas.

### **5.11 REPETITIVE LOSS**

The Flood Mitigation Assistance (FMA) Grant Program under FEMA provides federal funding to assist states and communities in implementing mitigation measures to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) and repetitive loss (RL) residential structures insured under the NFIP. The TWDB administers the FMA grant program for the state of Texas. One of the goals of the FMA program is to reduce the burden of repetitive loss and severe repetitive loss properties on the NFIP through mitigation activities that significantly reduce or eliminate the threat of future flood damages.

Repetitive Loss properties are defined as structures that are:

- Any insurable building for which two or more claims of more than \$1,000 each, paid by the NFIP within any 10-year period, since 1978;
- May or may not be currently insured under the NFIP.

- Severe Repetitive Loss properties are defined as residential properties that are:
- Covered under the NFIP and have at least four flood-related damage claim payments (building and contents) over \$5,000.00 each, and the cumulative amount of such claim's payments exceed \$20,000; or
- At least two separate claim payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

According to TWDB, in either scenario, at least two of the referenced claims must have occurred within any 10-year period and must be greater than 10 days apart. Table 5-10 and Table 5-11 show repetitive loss and severe repetitive loss properties for the Grimes County Planning area.

**Table 5-11. Repetitive Loss Properties**

Loss Type	Community Name	Number of Structures	Number of Losses
Repetitive Loss	Grimes County (excluding Navasota)	3	7
	City of Navasota	7	24
	<b>Total</b>	10	31

**Table 5-12. Repetitive Loss and Severe Repetitive Loss Properties**

Loss Type	Community Name	Number of Structures	Number of Losses
Severe Repetitive Loss	City of Navasota	2	10
	<b>Total</b>	2	10

## **6.0 HURRICANES**

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### **6.1 HAZARD DESCRIPTION**

Hurricanes often begin as tropical depressions that intensify into tropical storms when maximum sustained winds increase to between 35 and 64 knots (39 and 73 mph). At these wind speeds the storm becomes more organized and circular in shape and begins to resemble a hurricane. Tropical storms can be equally problematic without ever becoming a hurricane, resulting in heavy rainfall, high winds, and tidal surge in coastal communities. When maximum sustained winds reach or exceed 39 mph, the system becomes a tropical storm. Once sustained winds reach or exceed 74 mph, the storm becomes a hurricane.

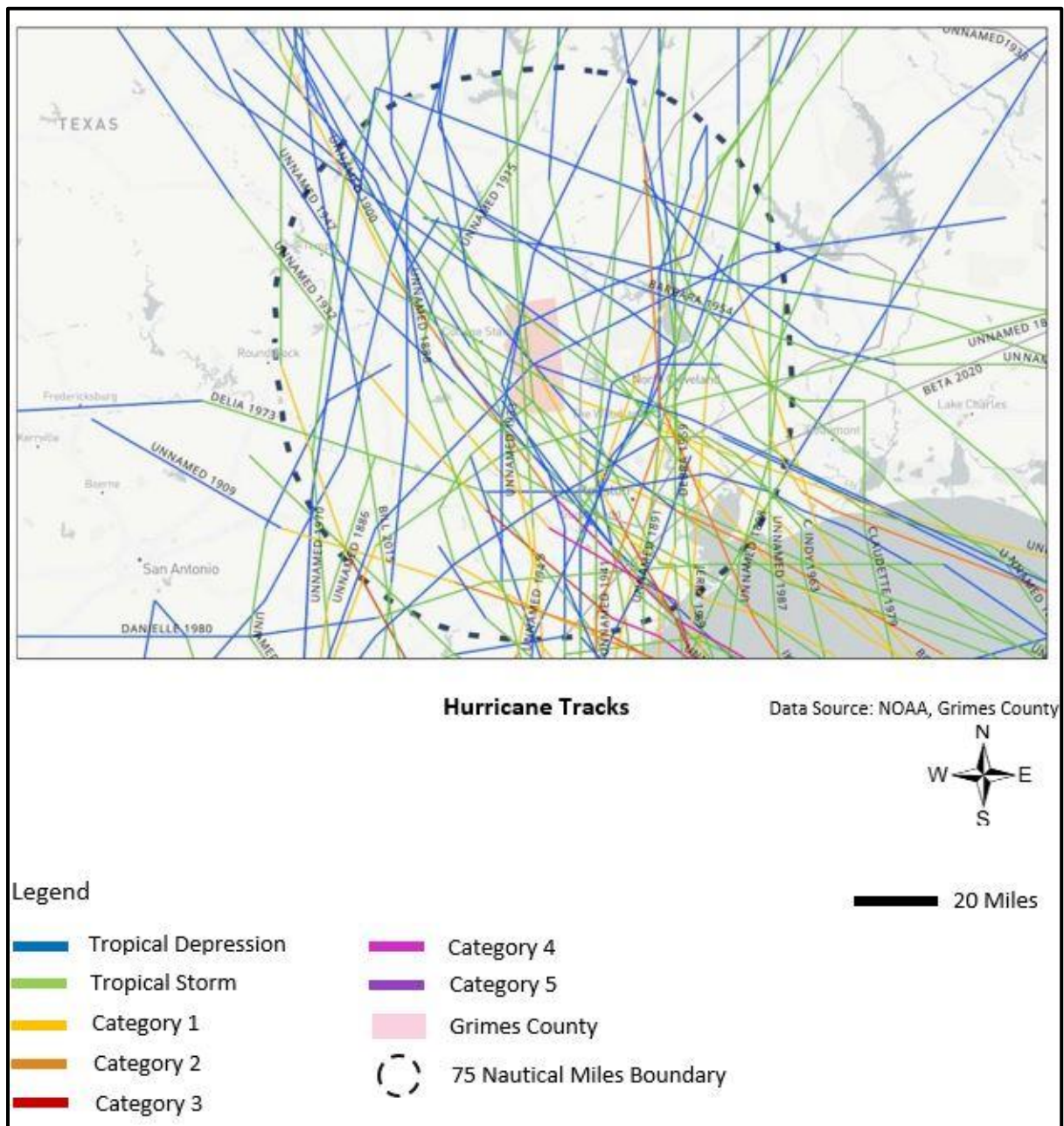
The intensity of a land-falling hurricane is expressed in categories related to wind speeds and potential damage. Tropical storm-force winds are strong enough to be dangerous to those caught in them. For this reason, emergency managers plan to have evacuations completed and personnel sheltered before winds of tropical storm-force arrive, which precedes the arrival of hurricane-force winds.

According to the National Hurricane Center, the greatest potential for loss of life related to a hurricane is from storm surge. This happens when low pressure and high circular winds “pile” the water into a dome shape that can be from 50 to 100 miles wide. The surge travels with the storm and is most severe on the right side of the storm, relative to the direction the storm travels. The surge can be 15 feet deep, topped by waves, and make landfall ahead of the center, or “eye,” of the hurricane. Wind-driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with normal high tides.

### **6.2 LOCATION**

Grimes County is about 100 miles north of the Gulf of Mexico coast. Grimes County is vulnerable to threats directly and indirectly related to a hurricane event, such as high-force winds, excessive rainfall, and flooding. Storm surge due to hurricane will not affect Grimes County. Hurricanes and/or tropical storms can impact Grimes County from June to November, the official Atlantic U.S. hurricane season. As Grimes County is about 100 miles from the coast, it is in low to moderate risk area for hurricane wind speed of 110 to more than 155 mph. In Figure 6-1 below, hurricane tracks are reflective of their strength in the Grimes County planning area.





Source: NOAA Hurricane Track Database.

**Figure 6-1. Location of Historic Storm Tracks**



### 6.3 EXTENT

Hurricanes are categorized according to the strength and intensity of their winds using the Saffir-Simpson Hurricane Scale (see Table 6-1). A Category 1 storm has the lowest wind speeds, while a Category 5 hurricane has the highest. This scale only ranks wind speed, but lower category storms can inflict greater damage than higher category storms depending on where they strike, other weather they interact with and how slow they move.

**Table 6-1. Extent Scale for Hurricanes**

Category	Maximum Sustained Wind Speed (mph)	Minimum Surface Pressure (millibars)
1	74-95	Greater than 980
2	96-110	979-965
3	111-130	964-945
4	131-155	944-920
5	155+	Less than 920

Table 6-2 explains the type of damage expected for all the hurricane categories. One of the main purposes this scale serves is to help estimate potential property damage. However, it's important to note that this hurricane categories damage scale does not take into account other potentially damaging factories like rainfall flooding, storm surge, and tornadoes.

**Table 6-2. Description of Potential Hurricane Damage**

Storm Category	Damage Level	Description of Potential Damage
1	Moderate	Very dangerous winds will produce some damage; these winds can cause some damage to buildings, including tearing off roof shingles, siding, and gutters. Additionally, tree branches can break off of trees. Falling branches and other storm debris can further damage properties or cause injury to people. Category 1 hurricanes also have the potential to snap or otherwise damage power lines, leading to short-term power outages.
2	Extensive	Extremely dangerous winds will cause extensive damage; during a Category 2 hurricane, buildings are likely to sustain major roof and siding damage. There is also a bigger risk of additional damage and injury caused by flying storm debris. Shallow-rooted trees can be uprooted, blocking roads, and taking down power lines. There is a big risk of total power loss that can last for days in hard-hit areas.
3	Major	Devastating damage will occur. A Category 3 hurricane is a major hurricane that will cause major damage to residential and commercial buildings. The strong winds can potentially tear roof decking and gable ends off well-built homes, for example. Many trees will be uprooted, and electricity and water will be unavailable for days or even weeks after the storm.

Storm Category	Damage Level	Description of Potential Damage
4	Extreme	Catastrophic damage will occur; Catastrophic damage from a Category 4 hurricane means that buildings will sustain extreme structural damage, potentially losing most of the roof structure and parts of exterior walls. There is a very high risk of injury and further storm damage due to falling and flying storm debris and most trees and power poles will be downed. Power outages and water shortages can make areas uninhabitable for weeks or months.
5	CATASTROPHIC	Catastrophic damage will occur; Hurricanes in the highest hurricane category cause near total destruction. A large number of homes and buildings will be completely destroyed. Areas hit by this level of hurricane will lack power and water and be uninhabitable for weeks or months.

Based on the historical storm tracks for hurricanes and tropical storms, as well as the location of Grimes County, the average extent to be mitigated for is a Category 1 storm. The Grimes County planning area is located in the 74 to 96 mph wind zone in terms of average wind speeds that should be mitigated in the event of a hurricane. This data is based on the design wind speeds for a 100-year event. The strongest hurricane to have impacted the Grimes County planning area is Category 4 named Carmen in 1974 and an unnamed hurricane in 1932-both had wind speed of up to 150 mph (130 knots).

## 6.4 HISTORICAL OCCURRENCES

Previous occurrences include storms that had a direct path through the Grimes County planning area. Table 6-3 below lists the storms that have impacted the Grimes County planning area during the years 1854–2020.

**Table 6-3. Historical Hurricane Occurrences**

Date of Occurrence	Storm Name	Maximum Sustained Wind Speed (knots)	Storm Category
09/17/2020	Beta	55	Tropical Storm
09/17/2019	Imelda	40	Tropical Storm
06/16/2015	Bill	50	Tropical Storm
09/01/2008	Ike	125	Category 4
08/03/2008	Edouard	55	Tropical Storm
08/30/2003	Grace	35	Tropical Storm
06/05/2001	Allison	50	Tropical Storm
09/08/1998	Frances	55	Tropical Storm
07/28/1995	Dean	40	Tropical Storm
10/12/1989	Jerry	75	Category 1
07/30/1989	Chantal	70	Category 1
06/24/1989	Allison	45	Tropical Storm

Date of Occurrence	Storm Name	Maximum Sustained Wind Speed (knots)	Storm Category
08/09/1987	Unnamed	40	Tropical Storm
06/23/1986	Bonnie	75	Category 1
08/15/1983	Alicia	100	Category 3
06/03/1981	Unnamed	30	Tropical Depression
09/04/1980	Danielle	50	Tropical Storm
07/17/1980	Unnamed	30	Tropical Depression
08/30/1979	Elena	35	Tropical Storm
07/15/1979	Claudette	45	Tropical Storm
07/13/1977	Unnamed	25	Tropical Depression
08/29/1974	Carmen	130	Category 4
08/24/1974	Unnamed	30	Tropical Depression
09/06/1973	Unnamed	30	Tropical Depression
09/01/1973	Delia	60	Tropical Storm
07/07/1971	Unnamed	25	Tropical Depression
09/12/1970	Felice	60	Tropical Storm
09/01/1970	Unnamed	30	Tropical Depression
09/01/1970	Unnamed	30	Tropical Depression
09/16/1963	Cindy	55	Tropical Storm
09/03/1961	Carla	125	Category 4
07/22/1960	Unnamed	50	Tropical Storm
07/22/1959	Debra	75	Category 4
09/14/1958	Gerda	50	Tropical Storm
08/08/1957	Bertha	55	Tropical Storm
08/25/1955	Unnamed	45	Tropical Storm
07/27/1954	Barbara	50	Tropical Storm
09/27/1949	Unnamed	95	Category 2
08/18/1947	Unnamed	70	Category 1
07/13/1946	Unnamed	35	Tropical Storm
08/24/1945	Unnamed	100	Category 3
07/25/1943	Unnamed	90	Category 2
08/17/1942	Unnamed	70	Category 1
09/17/1941	Unnamed	110	Category 3
09/11/1941	Unnamed	50	Tropical Storm
08/03/1940	Unnamed	85	Category 2
10/10/1938	Unnamed	50	Tropical Storm
07/14/1933	Unnamed	45	Tropical Storm
08/12/1932	Unnamed	130	Category 4

Date of Occurrence	Storm Name	Maximum Sustained Wind Speed (knots)	Storm Category
08/20/1926	Unnamed	100	Category 3
06/16/1921	Unnamed	80	Category 1
08/05/1915	Unnamed	125	Category 4
07/13/1909	Unnamed	100	Category 3
06/21/1902	Unnamed	70	Category 1
07/01/1901	Unnamed	60	Tropical Storm
08/27/1900	Unnamed	125	Category 4
06/26/1899	Unnamed	35	Tropical Storm
09/20/1898	Unnamed	50	Tropical Storm
09/10/1897	Unnamed	75	Category 1
10/02/1895	Unnamed	35	Tropical Storm
07/03/1891	Unnamed	80	Category 1
08/08/1889	Unnamed	40	Tropical Storm
07/04/1888	Unnamed	50	Tropical Storm
06/16/1888	Unnamed	70	Category 1
09/16/1886	Unnamed	85	Category 2
09/14/1882	Unnamed	50	Tropical Storm
09/02/1882	Unnamed	65	Category 1
06/21/1880	Unnamed	40	Tropical Storm
09/08/1875	Unnamed	100	Category 3
06/08/1871	Unnamed	50	Tropical Storm
06/01/1871	Unnamed	50	Tropical Storm
09/18/1854	Unnamed	90	Category 2

Source: NCEI National Storm Database.

## 6.5 SIGNIFICANT EVENTS

### Hurricane Ike on September 1, 2008

The eye of Hurricane Ike moved ashore in Galveston County near the city of Galveston. At landfall, Ike had a central pressure of 951.6 mb, as measured at Galveston Pleasure Pier, and a maximum estimated storm surge of 17 feet over portions of Chambers County and the Bolivar Peninsula. Maximum sustained winds at landfall were estimated at 95 knots (110 mph) with gusts to 110 knots (127 mph). A ship near the coast recorded a wind gust of 105 knots as the eye came through. At landfall, Ike was a Category 2 hurricane on the Saffir-Simpson scale based on wind speed, but due to its large size, had a storm surge more typical of a Category 3 or 4. The height of the storm tide ranged from 4 to 6 feet in Matagorda county, 6 to 9 feet in Brazoria county, 10 to 13 feet along most of Galveston Island and Galveston Bay, to as high as 17 feet over portions of the Bolivar Peninsula and Chambers County. Most of the property damage at the coast was a result of storm surge.

Collectively, damage amounts are estimated to be near \$14 billion over the counties of Harris, Chambers, Galveston, Liberty, Polk, Matagorda, Brazoria, Fort Bend, San Jacinto, and Montgomery with an estimated 8 billion of that due to storm surge in coastal Galveston, Harris, and Chambers Counties. Fresh water flooding also occurred near the city of Houston where up to 14 inches of rain fell over a two-day period, first from Ike, then from a line of thunderstorms associated with a cold front moving through the following day. The number of fatalities directly related to Ike was 12 in the aforementioned counties with 11 of those occurring in Galveston County from drowning due to the storm surge. In addition, there were at least 25 fatalities indirectly related to Ike, either due to carbon monoxide poisoning from generators, accidents while clearing debris, or house fires from candles. There were no known tornadoes associated with Ike.

In Grimes County, Hurricane Ike produced tropical storm force winds. Moderate wind damage with trees and limbs down and shingle damage to roofs.

### **Tropical Storm Bill on June 16, 2015**

Tropical Storm Bill made landfall at Matagorda Island on the morning of June 16. Strong winds and minor coastal flooding occurred near Matagorda Bay in Jackson and Matagorda Counties and along the coast of Brazoria and Galveston Counties. Heavy rainfall of more than 13 inches caused significant inland flooding in and around the towns of Lolita, Edna, and Ganado. The maximum sustained wind reported in Matagorda Bay was 45 knots (52 mph). The maximum wind gust of 54 knots (62 mph) was reported on the Bolivar Peninsula at Crab Lake. There were no reported tornadoes associated with Tropical Storm Bill.

Storm surge heights ranged from 2.1 feet in Chambers County to 3.2 feet in Galveston County. Roads were flooded and closed around Sargent in Matagorda County. Flood waters rose around homes in the city of Matagorda, but no damage was reported. In Brazoria County, surge produced minor coastal flooding near Surfside beaches, the Treasure Island subdivision, and San Luis Pass Park but with little or no damage. In the village of Surfside Beach, Seashell, Surf and Beach Roads were closed due to high water from storm surge. All countywide beach access roads were closed. Heavy rain caused the flooding of Chocolate and Halls Bayous. There were four trees that were downed by wind. There was minor coastal flooding on the Bolivar Peninsula in Galveston County with some debris removal required on State Highway 87. High surf caused erosion of Galveston Island beaches. Sand and debris washed up on the streets of various West End Island communities. There was minor flooding damage to downstairs garages in Jamaica Beach with two temporarily closed roads. In Harris County, there was minor storm-surge flooding in Shoreacres, Clear Lake Shores, and along Toddville Road in Seabrook. Two feet of water impacted Shoreacres when Taylor Bayou came out of its banks. Parks in Nassau Bay also experienced minor storm surge flooding. In Chambers County, there were low lying rural roads that experienced minor coastal flooding.

High rainfall occurred near the core of Bill and also within its outer bands that tapped into higher moisture that fed back into the tropical storm. This heavy rainfall caused inland flooding. Storm total rainfall ranged from 1.38 inches in San Jacinto County to 13.78 inches in Ganado (Jackson County). In Jackson County, FM 1593 west of La Ward and State Highway 59 from Edna to the Wharton County line were closed. Flash flooding in Washington County caused road closures in the town of Brenham early in the morning of June 17. In Grimes County, numerous roads were closed including FM 3090 north of Navasota and FM 1774 north of Plantersville. In Wharton County, several roads were closed in El Campo. In Colorado County, numerous roads were closed including FM 2761, FM 2434, and

FM 532. In Houston County, Highway 287 near Crockett and SH 19 between Crockett and Lovelady were closed. In Walker County, there were 10 county roads and a state highway that were flooded.

In Grimes County, Numerous roads were closed due to high flood waters including FM 3090 north of Navasota and FM 1774 north of Plantersville.

### **Hurricane Harvey on August 17, 2017**

Hurricane Harvey was a Category 4 Hurricane that brought record setting rainfalls and flooding to the state of Texas. Harvey made landfall near Rockport on the night of August 25. As Harvey moved inland the storm's forward motion slowed to a near 5 mph. The storm then weakened to a tropical storm and slowed, looping back, and tracking over Southeast Texas then back over the Gulf of Mexico making a second landfall along the Louisiana coast during the early morning hours of August 30. During that five-day period over Southeast Texas, now demoted to a Tropical Storm, Harvey produced catastrophic flooding with a large area of 30 to 60 inches of rain, 23 tornadoes, and tropical storm force winds. In some of the heavier bands, rain fell at a rate of over five inches per hour. This copious record amount of rain over a led to catastrophic flooding.

*"Grimes County Urging Residents to Avoid Certain Areas that are Known to Flood"* was the title of an article ran by KBTX News in the days leading up to Hurricane Harvey's arrival, listing 14 areas across that county commonly known for "significant flooding." In Grimes County, more than 20 inches of rain fell on rural communities over 2 days. Hurricane Harvey exasperated the county's already existing drainage challenges and communities that rely on dirt or gravel roads were impassable. Dozens of homes were impacted, and in four instances water rescues were needed to remove citizens from their homes. Other residents were displaced for months as the damage sustained to their homes rendered them non-livable.

Overall, NOAA reports that Grimes County suffered \$50M in property damages. To date, Hurricane Harvey is still regarded as one of the most devastating hurricanes in U.S. history.

## **6.6 PROBABILITY OF FUTURE EVENTS**

Due to the location on the Gulf Coast, and the previous history of 73 events over a 146-year reporting period for the area, the likelihood or future probability of a tropical storm or hurricane in the Grimes County planning area is likely, meaning an event is probable in the next 2 years. When the county is impacted, the damage could be widespread, threatening lives and property throughout the planning area. Furthermore, the Center for Climate and Energy Solutions indicates climate change is exacerbating the effects of hurricanes by increasing the intensity and decreasing the speed at which storm systems travel. While researchers are currently uncertain whether the United States will see a change in the number of annual hurricanes, it is certain that the intensity and severity of this hazard will continue to increase.<sup>3</sup>

## **6.7 VULNERABILITY AND IMPACT**

Hurricane-force winds can cause major damage to large areas; hence all existing buildings, facilities and populations are equally exposed and vulnerable to this hazard and could potentially be impacted.

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<sup>3</sup> <https://www.c2es.org/content/hurricanes-and-climate-change/>

Warning time for hurricanes has lengthened due to modern and early warning technology. Hurricane-force winds can easily destroy poorly constructed buildings and mobile homes, as well as debris such as signs, roofing materials, and small items left outside become extremely hazardous in hurricanes and tropical storms. Extensive damage to trees, towers, and underground utility lines (from uprooted trees) and fallen poles cause considerable civic disruption. Older structures may suffer greater damages from storm surge along the coast due to lower elevation of foundations.

The Grimes County planning area features multiple mobile or manufactured home parks throughout the planning area. In addition, manufactured homes are located sporadically throughout the planning area and unincorporated areas of the county which would also be more vulnerable. The U.S. Census data indicates a total of 348 manufactured homes located in the Grimes County planning area (3.1%) (Table 6-4). It should be noted that the Town of Anderson and Cities of Plantersville and Todd Mission currently do not feature any manufactured homes. In addition, 35.7 percent (approximately 3,898 structures) of the single-family residential (SFR) structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant Hurricane events.

**Table 6-4. Structures at Greater Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Manufactured Homes</b>	<b>Structures Built Before 1980</b>
Grimes County	348	3,898
Town of Anderson	0	67
City of Bédias	9	97
City of Iola	6	74
City of Navasota <sup>a</sup>	31	1,431
City of Plantersville	0	73
City of Todd Mission	0	53

Source: U.S. Census Bureau.

<sup>a</sup> The housing unit counts for Navasota includes units located in neighboring Brazos County. These housing units are not included in the Grimes County total.

While all citizens are at risk to the impacts of a hurricane, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 17 percent of the planning area population live below the poverty level (Table 6-5).

**Table 6-5. Populations at Greater Risk by Jurisdiction**

Jurisdiction	Population Below Poverty Level
Grimes County	4,134 (17%)
Town of Anderson	50 (19.5%)
City of Bédias	82 (21.9%)
City of Iola	17 (8.1%)
City of Navasota <sup>a</sup>	1,060 (14.6%)
City of Plantersville	169 (39.2%)
City of Todd Mission	2 (6.9%)

Source: U.S. Census Bureau.

<sup>a</sup> The population counts for Navasota include units located in neighboring Brazos County. These population counts are not included in the Grimes County total.

Hazus 5.1 shows the probable wind speed Grimes County, and the jurisdictions will face for different recurrence interval events. Table 6-6 shows the probable wind speeds for 50-year, 100-year, 500-year and 1,000-year events.

**Table 6-6. Probable Peak Hurricane/Tropical Storm Wind Speeds (mph) from Hazus 5.1**

Location	50-year event	100-year event	500-year event	1,000-year event
Anderson	80	82	100	101
Bédias	82	80	105	112
Iola	80	82	100	101
Navasota	79	92	105	111
Plantersville	79	92	106	112
Todd Mission	77	92	106	112
Grimes County	82	93	106	112

The following critical facilities would be vulnerable to hurricane wind events in Grimes County jurisdictions, respectively.

**Table 6-7. Critical Facilities by Jurisdiction**

Jurisdiction	Critical Facility
Grimes County	1 Airport, 18 Closed Well, 4 Commercial Facilities, 33 Communication Facilities, 65 Dams, 54 Energy Facilities, 9 Fire Stations, 20 Government Buildings, 38 Hazardous Sites, 7 Helipads, 5 Manufacturing Facilities, 5 Medical Facilities, 3 Police Stations, 2 Prisons, 39 Public Gathering Centers, 5 Railroads, 12 Schools, 48 Water/Wastewater Facilities.
Town of Anderson	4 Closed Wells, 1 Commercial Facility, 11 Communication Facilities, 29 Energy Facilities, 1 Fire Station, 10 Government Buildings, 11 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 1 Police Station, 7 Public Gathering Centers, 2 Schools, 8 Water/Wastewater Facilities.



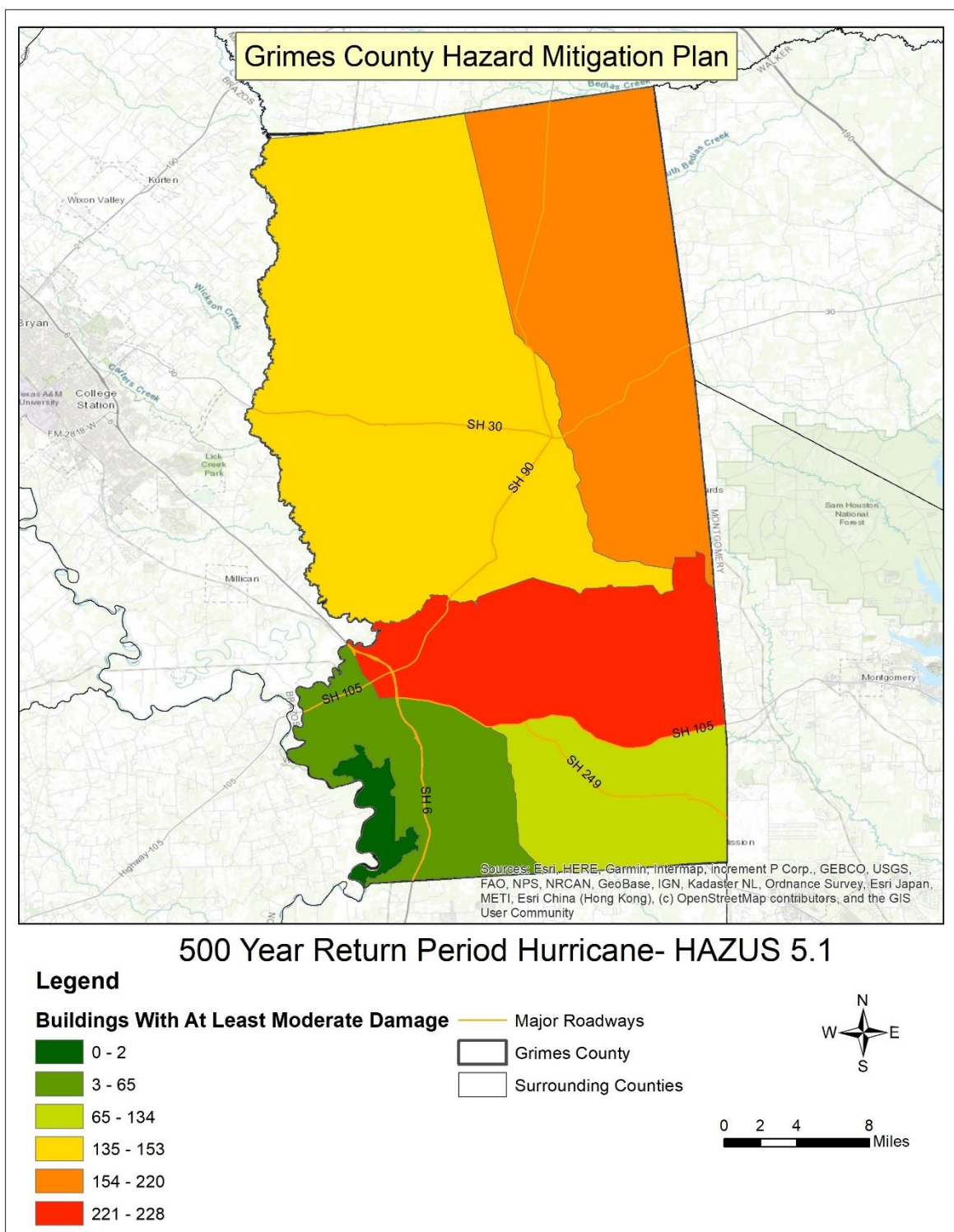
Jurisdiction	Critical Facility
City of Bédias	1 Closed Well, 4 Communication Facilities, 4 Energy Facilities, 1 Fire Station, 3 Hazardous Sites, 1 Helipad, 4 Public Gathering Centers, 9 Water/Wastewater Facilities.
City of Iola	10 Closed Wells, 2 Communication Facilities, 13 Energy Facilities, 2 Fire Stations, 4 Government Buildings, 5 Hazardous Sites, 2 Helipads, 5 Public Gathering Centers, 2 Schools, 10 Water/Wastewater Facilities.
City of Navasota	1 Airport, 2 Care Facilities, 2 Closed Wells, 2 Commercial Facilities, 8 Communication Facilities, 6 Energy Facilities, 1 Fire Station, 6 Government Buildings, 12 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 5 Medical Facilities, 1 Police Station, 17 Public Gathering Centers, 3 Railroads, 7 Schools, 15 Water/Wastewater Facilities.
City of Plantersville	1 Commercial Facility, 4 Communication Facilities, 1 Dam, 2 Fire Stations, 1 Hazardous Site, 1 Manufacturing Facility, 1 Police Station, 4 Public Gathering Centers, 4 Water/Wastewater Facilities.
City of Todd Mission	1 Communication Facility, 1 Energy Facility, 1 Fire Station, 1 Police Station, 2 Public Gathering Centers, 1 Water/Wastewater Facility.

Storm track data is available for the last 150 years; however, the property and crop loss data is not available specifically for Grimes County. Hazus 5.1 was used to get the annualized loss estimation for Hurricane Wind (Table 6-8). The average annual loss estimate for the Grimes County planning area is estimated to be approximately \$715,190.

**Table 6-8. Annualized Loss Estimation from Hazard – Hazus 5.1**

Location	Building Loss	Contents Loss	Inventory Loss	Total Annualized Loss
Grimes County	\$492,990	\$146,540	\$140	\$715,190

The potential number of buildings that can sustain at least moderate damage and the total loss possible for a 500-year hurricane events are shown in Figure 6-2 and 6-3. In Hazus 5.1, Grimes County was divided into six zones to show the potential damage.



**Figure 6-2. Potential Number of Damaged Buildings from 500-Year Hurricane**

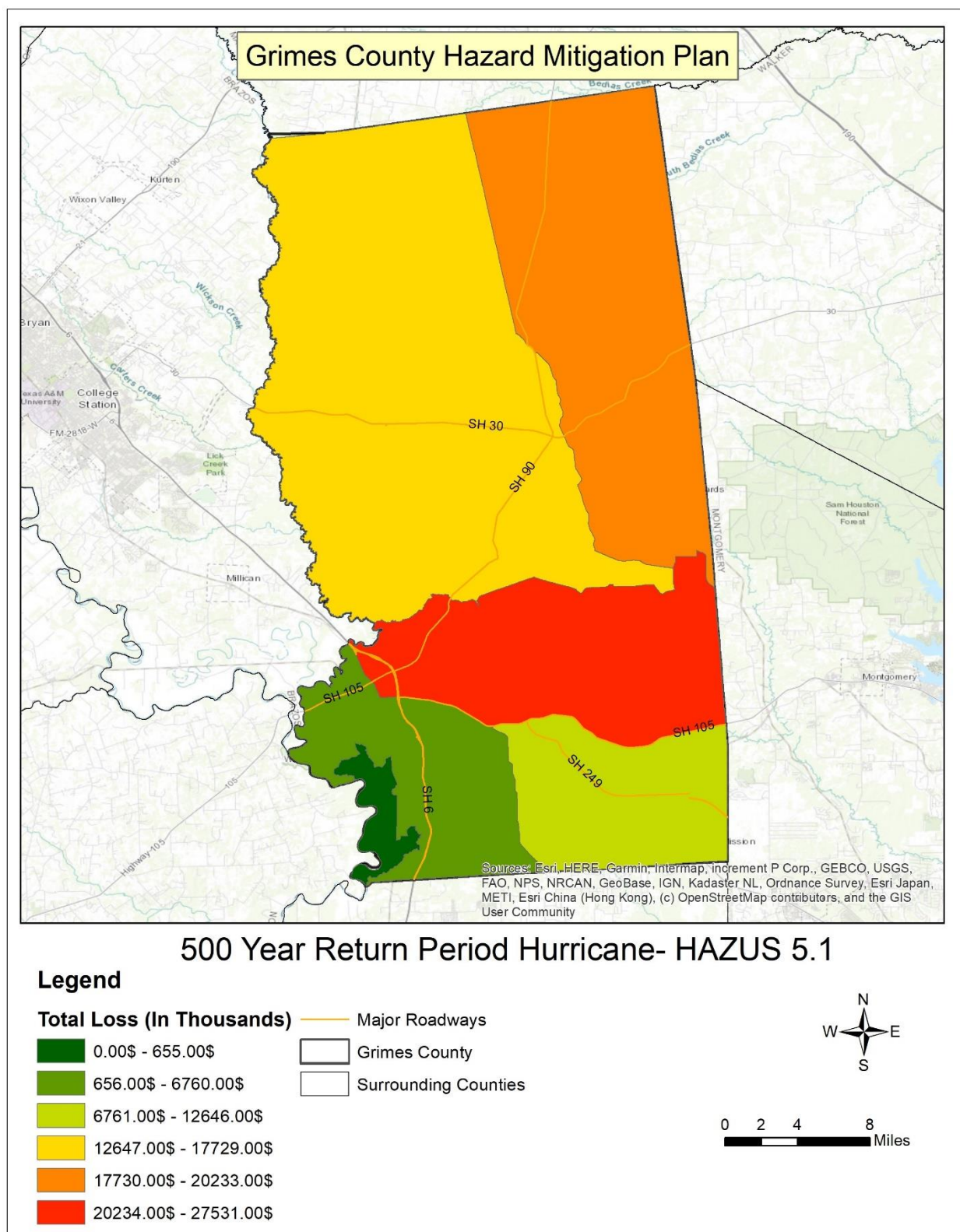


Figure 6-3. Potential Total Loss from 500-year Hurricane Event

The potential severity of impact from a hurricane for the Grimes County planning area is classified as “critical;” multiple deaths/injuries possible, complete shutdown of critical facilities and services for more than 1 week, and more than 25 percent of property would be destroyed or have major damage.

## 6.8 ASSESSMENT OF IMPACTS

Hurricane events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. The impact of climate change could produce larger, more severe hurricane events, exacerbating the current hurricane impacts. Worsening hurricane conditions can be frequently associated with a variety of impacts, including:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Damaged bridges could prevent or delay emergency response, strand or prevent entry of tourists, commuters, supply delivery, or goods and services for extended periods.
- Driving conditions in all jurisdictions may be dangerous during a hurricane event, especially over elevated bridges, elevating the risk of injury and accidents during evacuations if not timed properly.
- Additional resources may be required for emergency preparedness and response during the summer months due to high probability of hurricane.
- Emergency evacuations may be necessary prior to a hurricane landfall, requiring emergency responders, evacuation routing and temporary shelters.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During hurricane landfall, first responders may be prevented from responding to calls, as the winds may reach a speed in which their vehicles and equipment are unsafe to operate.
- Hurricane events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages often result in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Extreme hurricane events may rupture gas lines and down trees and power lines, increasing the risk of structure fires during and after a storm event.
- Extreme hurricane events may lead to prolonged evacuations during search and rescue, and immediate recovery efforts requiring additional emergency personnel and resources to prevent entry and protect citizens and property.
- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.



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

The economic and financial impacts of a hurricane on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses and citizens will also contribute to the overall economic and financial conditions in the aftermath of any hurricane event.

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## **7.0 EXTREME HEAT**

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### **7.1 HAZARD DESCRIPTION**

Extreme heat is a prolonged period of excessively high temperatures and exceptionally humid conditions. Extreme heat during the summer months is a common occurrence throughout Texas, and Grimes County is no exception. The entire planning area typically experiences extended heat waves. A heat wave is an extended period of extreme heat and is often accompanied by high humidity.

Although heat can damage buildings and facilities, it presents a more significant threat to the safety and welfare of citizens. The major human risks associated with severe summer heat include heat cramps, sunburn, dehydration, fatigue, heat exhaustion, and even heat stroke. The most vulnerable population to heat casualties are children and the elderly or infirmed who frequently live on low fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being.

### **7.2 LOCATION**

There is no specific geographic scope to the extreme heat hazard as extreme heat could occur anywhere within the Grimes County planning area.

### **7.3 EXTENT**

The magnitude or intensity of an extreme heat event is measured according to temperature in relation to the percentage of humidity. According to NOAA, this relationship is referred to as the “Heat Index” and is depicted in Figure 7-1. This index measures how hot it feels outside when humidity is combined with high temperatures.

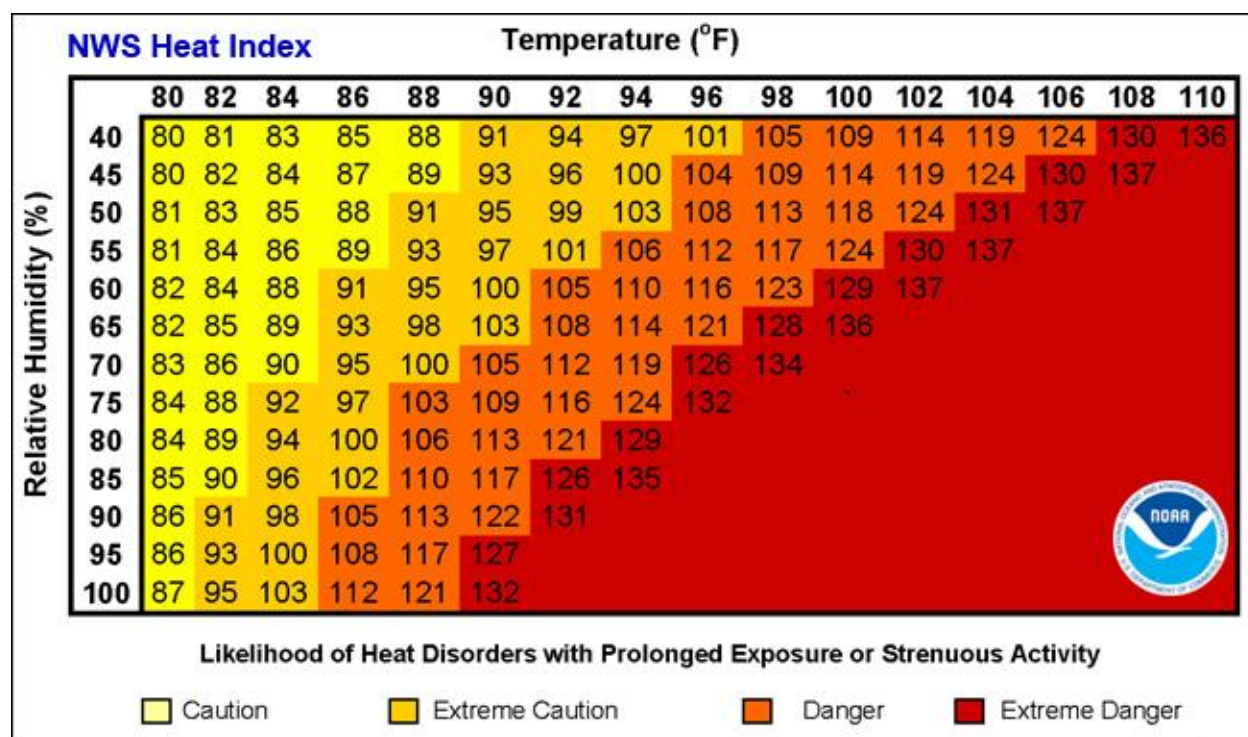


Figure 7-1. Extent Scale for Extreme Summer Heat

The Extent Scale in Figure 7-1 displays varying categories of caution depending on the relative humidity combined with the temperature. For example, when the temperature is at 90 degrees Fahrenheit (°F) or lower, caution should be exercised if the humidity level is at or above 40 percent.

The shaded zones on the chart indicate varying symptoms or disorders that could occur depending on the magnitude or intensity of the event. “Caution” is the first category of intensity, and it indicates when fatigue due to heat exposure is possible. “Extreme Caution” indicates that sunstroke, muscle cramps, or heat exhaustion are possible, and a “Danger” level means that these symptoms are likely. “Extreme Danger” indicates that heat stroke is likely. The National Weather Service (NWS) initiates alerts based on the Heat Index as shown in Table 7-1.

Table 7-1. Heat Index and Warnings

Category	Heat Index	Possible Heat Disorders	Warning Type
Extreme Danger	125°F and higher	Heat stroke or sun stroke likely.	A heat advisory will be issued to warn that the Heat Index may exceed 105°F.
Danger	103–124°F	Sunstroke, muscle cramps, and/or heat exhaustion are likely. Heatstroke possible with prolonged exposure and/or physical activity.	
Extreme Caution	90–103°F	Sun and/or stroke, muscle cramps, heat exhaustion possible with prolonged exposure and/or physical activity.	An Excessive Heat Warning is issued if the Heat Index rises above 105°F at least 3 hours during the day or above 80°F at night.
Caution	80–90°F	Fatigue is possible with prolonged exposure and/or physical activity.	



Grimes County covers 802 square miles, with an elevation range from 193 feet above sea level in the southeast to 415 feet in the northwest. Grimes County lies in a transitional vegetation zone between the post oak savannah, which covers the northern and western sections of the county, and, to the south and east, a region of intermixed forest and prairie, which supports dense stands of oak, elm, pecan, and mesquite, as well as several species of grass. Hardwoods, found in stream valleys and lowlands throughout the county, include post oak, blackjack oak, white oak, hickory, and maple. Fingers of the East Texas Piney Woods extend into the southeastern corner of the county, and upland areas everywhere are mantled by forests of loblolly, shortleaf, and longleaf pine. Between 1 and 10 percent of the land in the county is classified as prime farmland. Grimes County's climate is subtropical and sub-humid, with hot summers and mild winters. Temperatures in the county range from an average high of 96°F in July to an average low of 40°F in January. Rainfall averages 40.5 inches a year. Snowfall is exceedingly rare. The growing season lasts 278 days, with the first freeze in mid-December and the last in late January.

Figure 7-2 displays the summer maximum temperature normal as derived from NOAA's Cooperative Institute for Satellite Earth System Studies (CISS) based on data compiled from 1991 to 2020. Grimes County can expect a normal temperature between 90 and 100°F during summer. Grimes County does not have a maximum temperature record available but adjacent College Station, Texas, which is about 20 miles west of Grimes County, has a maximum 112°F temperature on record on September 4, 2000. This range is expected for Grimes County as well.

Also, the NCEI NOAA database does not provide any historical data for Grimes County for number of days that are warmer than 90°F, but the data is available for the closest metropolitan area, Houston, which is about 80 miles south from center of Grimes County. Table 7-2 shows number of days expected to be warmer than 90°F based on city of Houston data compiled between 1969 and 2018. Similar data is expected for Grimes County.

**Table 7-2. Days Warmer than 90°F**

Station	Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Houston, Texas	1969-2018	0	–	–	1	8	21	27	26	17	4	0	0	104

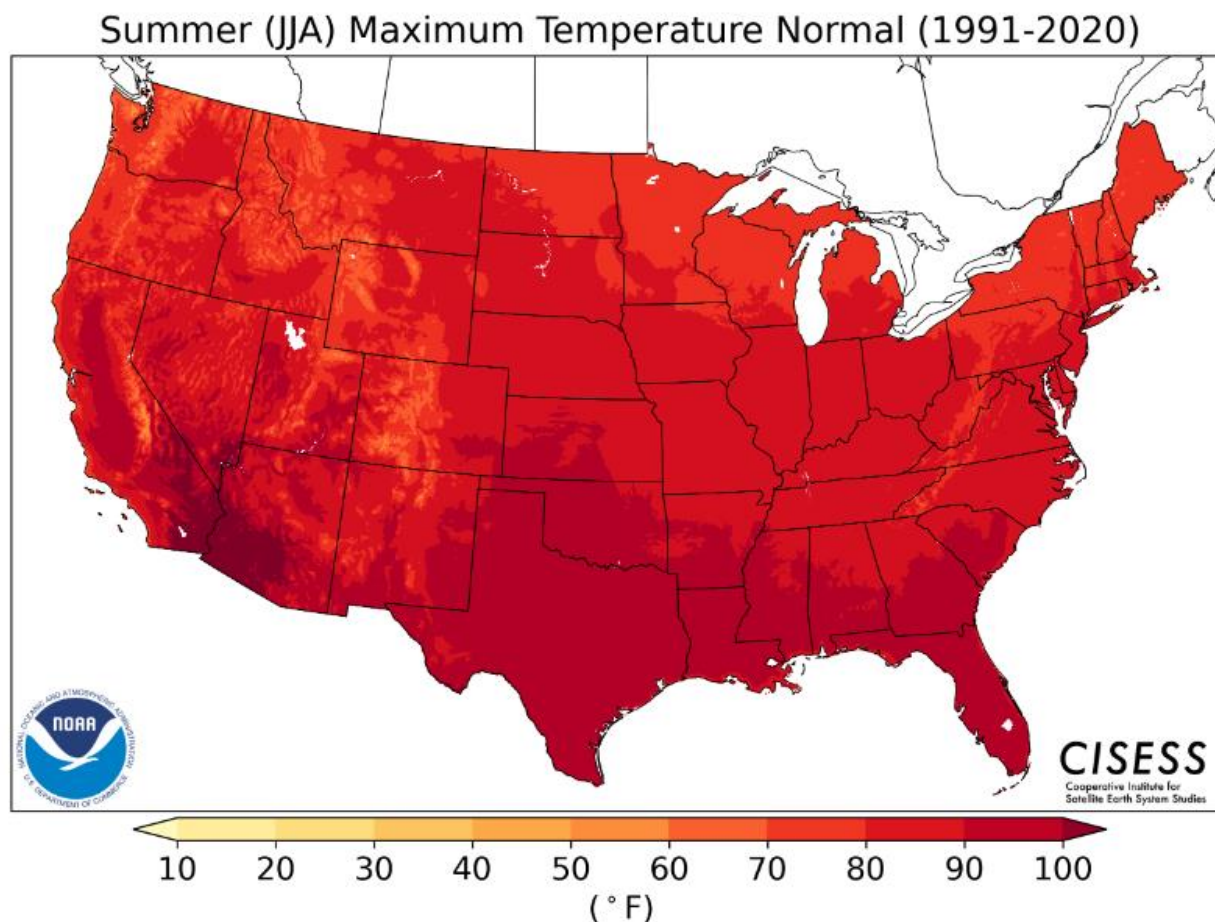


Figure 7-2. Summer Maximum Temperature Normal

## 7.4 HISTORICAL OCCURRENCES

Every summer, the hazard of heat-related illness becomes a significant public health issue throughout much of the United States. Mortality from all causes increases during heat waves, and excessive heat is an important contributing factor to deaths from other causes, particularly among the elderly. Table 7-3 depicts historical occurrences of mortality from heat (hyperthermia) from 1994 to 2021. Data from 1994 to 1998 was obtained from the Texas Department of State Health Services and 1999–2021 data was collected from the Centers for Disease Control (CDC) and Prevention’s CDC Wonder.

**Table 7-3. Extreme Heat Related Deaths in Texas**

Year	Deaths
1994	1
1995	12
1996	10
1997	2
1998	66
1999	42
2000	61
2001	26
2002	39
2003	44
2004	44
2005	66
2006	55
2007	16
2008	34
2009	47
2010	65
2011	126
2012	40
2013	35
2014	26
2015	38
2016	54
2017	36
2018	46
2019	72
2020	54
2021	62

Because the Texas Department of State Health Services reports on total events statewide, previous occurrences for extreme heat are derived from the NCEI database. According to heat-related incidents located solely within Grimes County, there are only six heat waves on record for the Grimes County planning area (Table 7-4). Historical extreme heat information, as provided by the NCEI, shows extreme heat activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical extreme heat data for Grimes County is provided in the NCEI database. Only extreme heat events that have been reported have been factored into this Risk Assessment. It is highly likely additional extreme heat occurrences have gone

unreported before and during the recording period. Due to the limited number of reported events, average high temperatures have been analyzed in order to determine the probability of future events.

**Table 7-4. Historical Extreme Heat Events, 1999-2020**

Jurisdiction	Date
Grimes County	6/26/1999
Grimes County	8/1/1999
Grimes County	7/6/2000
Grimes County	8/29/2000
Grimes County	9/1/2000
Grimes County	6/24/2009

Note: Even though the County experiences heat waves each summer, NCEI data only records events reported. Based on reports, only five events are on record.

## 7.5 SIGNIFICANT EVENTS

### September 1, 2000

A record-setting heat wave continued over southeast Texas through the first week of September 2000. The temperature at Houston Intercontinental Airport soared to 109°F on September 4 and 108°F on the September 5, setting new records for the all-time highest temperatures recorded in Houston. The temperature in College Station peaked at 112°F on September 4 and 111°F on September 5, both the highest temperatures ever recorded in College Station. In Galveston, the all-time record high temperature of 101 °F was tied on the September 4, then broken the next day when the temperature rose to 104°F. Temperatures over southeast Texas began to cool on September 6. In all, Houston recorded 6 consecutive days with temperatures of 104°F or higher and College Station recorded 6 consecutive days of 107°F or higher. Galveston reached 100°F or higher for the first time since 1939, and for the first time on record had more than 1 day in a season with hundred-degree temperatures. A heat wave with temperatures of this duration and magnitude is unprecedented for southeast Texas. All five heat related deaths occurred in adjacent Harris County.

### June 24, 2009

Hot, humid conditions led to heat indices above 105 °F for several days in late June. Several indirect fatalities were attributed to the heat in southeast Texas.

## 7.6 PROBABILITY OF FUTURE EVENTS

Average high temperatures for the planning area through the summer months indicate a probability of one event or more every year. This frequency supports a highly likely probability of future events. Regarding the impact of climate change on extreme heat probability, The Center for Climate and Energy Solutions notes that some climate models find that the rapid increase in the average

temperature across the continental United States, suggest the likelihood of this hazard will increase in the future.<sup>4</sup>

## 7.7 VULNERABILITY AND IMPACT

There is no defined geographic boundary for extreme heat events. While the entire Grimes County planning area is exposed to extreme temperatures, existing buildings, infrastructure, and critical facilities are not likely to sustain significant damage from extreme heat events. Therefore, any estimated property losses associated with the extreme heat hazard are anticipated to be minimal across the area.

Extreme temperatures do, however, present a significant threat to life and safety for the population of the County as a whole. Heat casualties for example are typically caused by a lack of adequate air-conditioning or heat exhaustion. The most vulnerable population to heat casualties are the elderly or infirmed who frequently live on low fixed incomes and cannot afford to run air conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being. Children may also be more vulnerable if left unattended in vehicles. In addition, populations living below the poverty level are unable to run air-conditioning on a regular basis and are limited in their ability to seek medical treatment. Another segment of the population at risk are those whose jobs consist of strenuous labor outdoors. Additionally, livestock and crops can become stressed, decreasing in quality or in production, during times of extreme heat.

The population over 65 in the Grimes County planning area is estimated at 5.5 percent of the total population and children under the age of 5 are estimated at 16.9 percent, or an estimated total of 6,271 potentially vulnerable residents in the planning area based on age. In addition, an estimated 17 percent of the planning area population live below the poverty level (Table 7-5).

**Table 7-5. Populations at Greater Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Population 65 Years and Older</b>	<b>Population Under 5 Years Old</b>	<b>Population Below Poverty Level</b>
Grimes County	1,530 (5.46%)	4,741 (16.94%)	4,134 (17%)
Town of Anderson	11 (4.3%)	49 (9.1%)	50 (19.5%)
City of Bedias	44 (11.8%)	98 (26.2%)	82 (21.9%)
City of Iola	0 (0.0%)	35 (16.7%)	17 (8.1%)
City of Navasota <sup>a</sup>	506 (6.7%)	982 (13.0%)	1,060 (14.6%)
City of Plantersville	0 (0.0%)	117 (27.1%)	169 (39.2%)
City of Todd Mission	2 (6.9%)	1 (3.4%)	2 (6.9%)

Source: U.S. Census Bureau.

<sup>a</sup> The population counts for Navasota includes units located in neighboring Brazos County. These population counts are not included in the Grimes County total.

<sup>4</sup> <https://science2017.globalchange.gov/chapter/6/>

Extreme high temperatures can have significant secondary impacts, leading to droughts, water shortages, increased fire danger, and prompt excessive demands for energy. The possibility of rolling blackouts increases with unseasonably high temperatures in what is a normally mild month with low power demands.

Typically, more than 12 hours of warning time would be given before the onset of an extreme heat event. In terms of vulnerability to structures, the impact from extreme heat would be negligible. It is possible that critical facilities and infrastructure could be shut down temporarily if cooling units are running constantly, leading to a temporary power outage. Only minor property damage is expected. Based on the data, the potential impact of extreme heat for the entire Grimes County planning area can be considered “Minor.” Based on historical records over a 24-year period, annualized property and crop losses for the Grimes County planning area are negligible.

## **7.8 ASSESSMENT OF IMPACTS**

The greatest risk from extreme heat is to public health and safety. The impact of climate change could produce longer, more severe heat waves, exacerbating the current impacts. Worsening extreme heat conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly and children under 5, can face serious 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 any other professions where individuals are required to work outside, are more subject to extreme-heat-related illnesses since their exposure would typically be greater.
- High-energy-demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts which would elevate 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 increases in mechanical failures.
- Extreme-heat events during times of drought can exacerbate the environmental impacts associated with 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 an increase in food costs due to increases in production costs and crop and livestock losses.
- Fisheries may be negatively impacted by extreme heat, suffering damage to fish habitats (either natural or man-made) and a loss of fish and/or other aquatic organisms due to decreased water flows or availability.
- Negatively impacted water suppliers may face increased costs resulting from the transport of water resources or development of supplemental water resources.

- Outdoor activities such as fishing, boating, and camping activities along Gibbons Creek, Navasota River and Brazos River may see an increase in injury or illness during extreme heat events.
- The economic and financial impacts of extreme heat on the community will depend on the duration of the event, demand for energy, drought associated with extreme heat, and many other factors. The level of preparedness and the amount of planning done by the jurisdiction, local businesses, and citizens will impact the overall economic and financial conditions before, during, and after an extreme heat event.

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## **8.0 THUNDERSTORMS, WIND, AND LIGHTNING**

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### **8.1 HAZARD DESCRIPTION**

Thunderstorms create extreme wind events, which include straight-line winds. Wind is the horizontal motion of the air past a given point, beginning with differences in air pressures. Pressure that is higher at one place than another sets up a force pushing from the high toward the low pressure: the greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air is accelerated.

Thunderstorms are created when heat and moisture near the Earth's surface are transported to the upper levels of the atmosphere. By-products of this process are the clouds, precipitation, and wind that become the thunderstorm.

According to the NWS, a thunderstorm occurs when thunder accompanies rainfall. Radar observers use the intensity of radar echoes to distinguish between rain showers and thunderstorms.

Straight-line winds are responsible for most thunderstorm wind damages. One type of straight-line wind, the downburst, is a small area of rapidly descending air beneath a thunderstorm. A downburst can cause damage equivalent to a strong tornado and make air travel extremely hazardous.

### **8.2 LOCATION**

Thunderstorm wind events can develop in any geographic location and are considered a common occurrence in Texas. Therefore, a thunderstorm wind event could occur at any location within Grimes County's planning area, as these storms develop randomly and are not confined to any geographic area within the County. It is assumed that the Grimes County planning area is uniformly exposed to the threat of thunderstorms winds.

### **8.3 EXTENT**

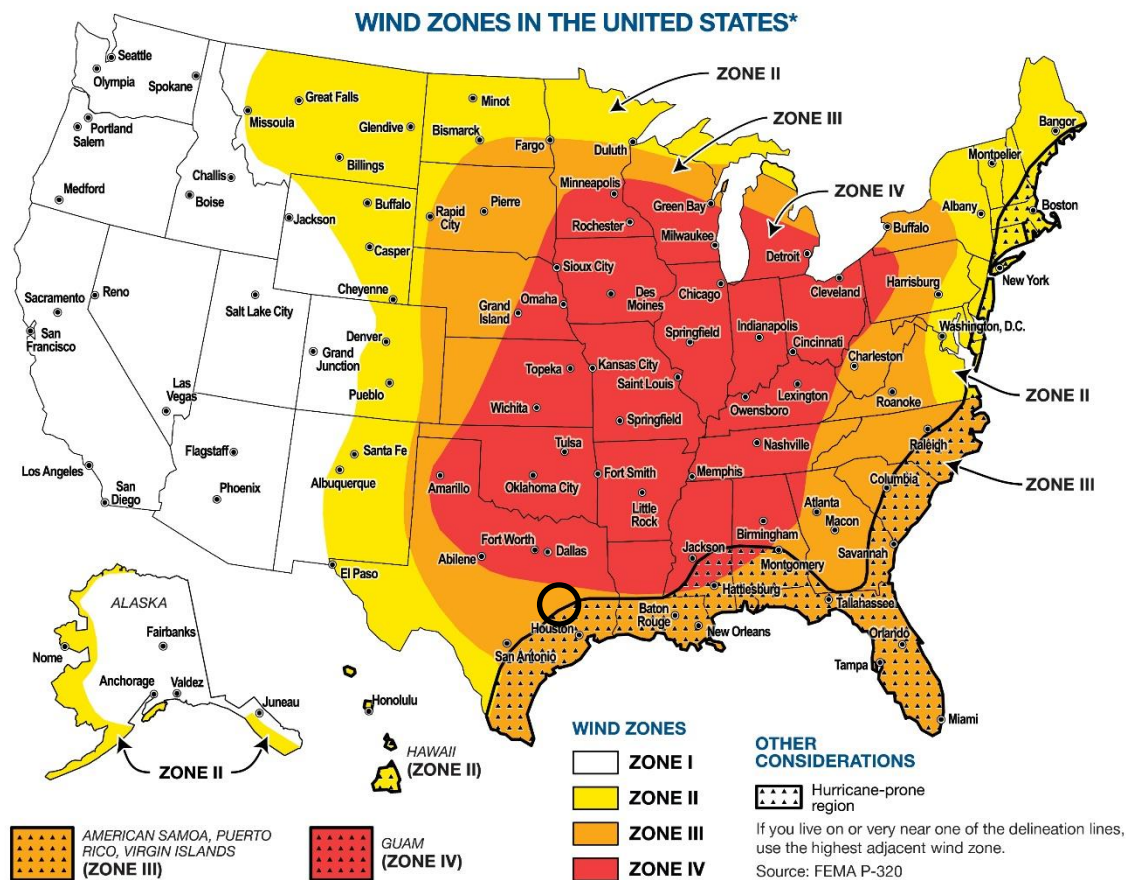
The extent or magnitude of a thunderstorm wind event is measured by the Beaufort Wind Scale. Table 8-1 describes the different intensities of wind in terms of speed and effects, from calm to violent and destructive.

**Table 8-1. Beaufort Wind Scale**

Force	Wind (mph)	WMO Classification	Appearance of Wind Effects
0	Less than 1	Calm	Calm, smoke rises vertically
1	1–3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4–8	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	9–14	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	15–21	Moderate Breeze	Dust, leaves, and loose paper lifted; small tree branches move
5	22–28	Fresh Breeze	Small trees in leaf begin to sway
6	29–36	Strong Breeze	Larger tree branches moving, whistling in wires
7	37–44	Near Gale	Whole trees moving, resistance felt walking against wind
8	45–53	Gale	Whole trees in motion, resistance felt walking against wind
9	54–62	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	63–72	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	73–83	Violent Storm	If experienced on land, widespread damage
12	84+	Hurricane	Violence and destruction

Source: World Meteorological Organization.

Figure 8-1 displays the wind zones as derived from NOAA.



**Figure 8-1. Wind Zones in the United States**

On average, the planning area experiences two to three thunderstorm wind events every year. Grimes County is located in Zone III, meaning they can experience winds up to 200 mph. Grimes County has experienced a significant wind event or an event with winds in the range of “Force 12” on the Beaufort Wind Scale with winds at or above 84 mph. This is the most significant event that can be expected in the future for Grimes County.

## 8.4 HISTORICAL OCCURRENCES

Tables 8-2, 8-3, and 8-4 and Figure 8-2 depict historical occurrences of thunderstorm wind events for the Grimes County planning area according to NCEI data. Since 1957, 76 thunderstorm wind events are known to have impacted the Grimes County planning area based upon NCEI records. Table 8-3 presents information on known historical events impacting the Grimes County planning area with resulting damage, injuries, or fatalities. It is important to note that high wind events associated with other hazards, such as tornadoes, are not accounted for in this section.

The NCEI is a national data source organized under NOAA. The NCEI is the largest archive available for climate data; however, it is important to note that the only incidents recorded are those that are reported to the NCEI from 1961 through 2020 have been factored into this risk assessment. In the tables that follow throughout this section, some occurrences seem to appear multiple times in one

table. This is due to reports from various locations throughout the County. In addition, property damage estimates are not always available. Where an estimate has been provided in a table for losses, the dollar amounts have been altered to indicate the damage in 2022 dollars.

Historical thunderstorm wind data for Grimes County are provided on a Countywide basis per the NCEI database.

**Table 8-2. Historical Thunderstorm Wind Events  
with Reported Damages, 1957-2020**

Maximum Wind Speed Recorded (mph)	Number of Reported Events
0–30	23
31–40	0
41–50	9
51–60	19
61–70	5
Unknown	19

**Table 8-3. Historical Thunderstorm Wind Events, 1957-2020**

Location	Date	Magnitude (Knots)	Deaths	Injuries	Property Damage <sup>a</sup>	Crop Damage
Grimes Co.	3/20/1957	0	0	0	0	0
Grimes Co.	9/11/1957	0	0	0	0	0
Grimes Co.	4/27/1958	0	0	0	0	0
Grimes Co.	10/18/1960	0	0	0	0	0
Grimes Co.	2/10/1981	0	0	0	0	0
Grimes Co.	5/16/1981	0	0	0	0	0
Grimes Co.	5/20/1983	0	0	0	0	0
Grimes Co.	5/17/1986	0	0	0	0	0
Grimes Co.	3/17/1987	0	0	0	0	0
Grimes Co.	3/17/1987	0	0	0	0	0
Grimes Co.	3/17/1987	0	0	0	0	0
Grimes Co.	11/15/1987	0	0	0	0	0
Grimes Co.	3/17/1988	0	1	2	0	0
Grimes Co.	8/1/1988	0	0	0	0	0
Grimes Co.	4/2/1990	0	0	0	0	0
Grimes Co.	4/27/1990	0	0	1	0	0
Grimes Co.	7/9/1990	0	0	0	0	0
Grimes Co.	6/30/1992	0	0	0	0	0

Location	Date	Magnitude (Knots)	Deaths	Injuries	Property Damage <sup>a</sup>	Crop Damage
Grimes Co.	5/29/1994	0	0	0	0	0
Grimes Co.	5/18/1995	0	0	0	3,799	0
Grimes Co.	5/18/1995	0	0	0	3,799	0
Grimes Co.	5/29/1995	0	0	0	1,900	0
Grimes Co.	5/29/1995	0	0	0	1,900	0
Grimes Co.	11/7/1996	50	0	0	9,114	0
Grimes Co.	11/5/2000	NA	0	0	166,059	0
Grimes Co.	11/5/2000	NA	0	0	41,515	0
Grimes Co.	6/16/2019	55	0	0	4,515	0
Anderson	4/22/1996	NA	0	0	92,485	0
Anderson	5/12/2000	NA	0	0	25,286	0
Anderson	3/12/2001	NA	0	0	16,408	0
Anderson	6/15/2001	NA	0	0	1,624	0
Anderson	4/29/2006	50	0	0	14,348	0
Anderson	4/25/2007	48	0	0	55,951	0
Bedias	12/23/2002	52	0	0	12,785	0
Bedias	6/12/2003	53	0	0	4,821	0
Bedias	1/25/2012	56	0	0	51,020	6377
Bedias	5/11/2021	50	0	0	0	0
Bedias	6/21/2021	50	0	0	5,320	0
Carlos	7/24/1996	NA	0	0	9207	0
Carlos	8/26/2009	50	0	0	3,000	0
Carlos	6/21/2021	50	0	0	5,320	0
Courtney	11/5/2000	NA	0	0	83,023	0
Erwin	3/24/2017	52	0	0	0	3,558
Iola	8/21/2000	NA	0	0	83,654	0
Iola	3/12/2001	NA	0	0	16,408	0
Iola	5/20/2001	NA	0	0	4,881	0
Iola	2/1/2011	52	0	0	2,613	0
Keith	5/27/2008	53	0	0	8,007	0
Navasota	4/25/1997	52	0	0	9,023	0
Navasota	12/23/1997	52	0	0	5,377	0
Navasota	7/14/1998	NA	0	0	106,290	0
Navasota	6/20/1999	NA	0	0	43,488	0
Navasota	10/13/2001	NA	0	0	8,135	0
Navasota	11/23/2004	60	0	0	15,136	0
Navasota	2/15/2012	50	0	0	38,097	0

Location	Date	Magnitude (Knots)	Deaths	Injuries	Property Damage <sup>a</sup>	Crop Damage
Navasota	4/27/2015	70	0	0	122,194	0
Navasota Municipal Airport	5/26/2016	55	0	0	0	0
Navasota	6/11/1995	0	0	0	1,896	0
Plantersville	6/17/1997	NA	0	0	9,018	0
Plantersville	10/5/2003	62	0	0	9,377	0
Plantersville	9/3/2009	65	0	0	40,160	0
Richards	2/26/1998	NA	0	0	893	0
Richards	9/3/2009	50	0	0	1,339	0
Richards	4/18/2019	52	0	0	0	3,394
Roans Prairie	5/30/1997	NA	0	0	9,029	0
Roans Prairie	9/9/1997	55	0	0	0	0
Shiro	8/21/2000	NA	0	0	167,308	0
Shiro	8/27/2003	52	0	0	10,963	0
Singleton	6/4/2017	52	0	0	0	0
Stoneham	1/11/1998	NA	0	0	26,836	0
Stoneham	9/3/2009	70	0	0	33,466	0
White Hall	4/24/2020	52	0	0	0	5,638
White Hall	4/24/2020	52	0	0	0	5,638

Note: Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available.

<sup>a</sup> Damage values are in 2020 dollars.

**Table 8-4. Summary of Historical Thunderstorm Wind Events, 1957-2020**

Jurisdiction	Number of Events	Highest Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Grimes County	75	70	1	3	1,396,587	37,799
Town of Anderson	6	50	0	0	206,102	0
City of Bédias	5	56	0	0	73,946	6,377
City of Iola	4	52	0	0	107,556	0
City of Navasota	11	70	0	0	349,636	0
City of Plantersville	3	65	0	0	58,555	0



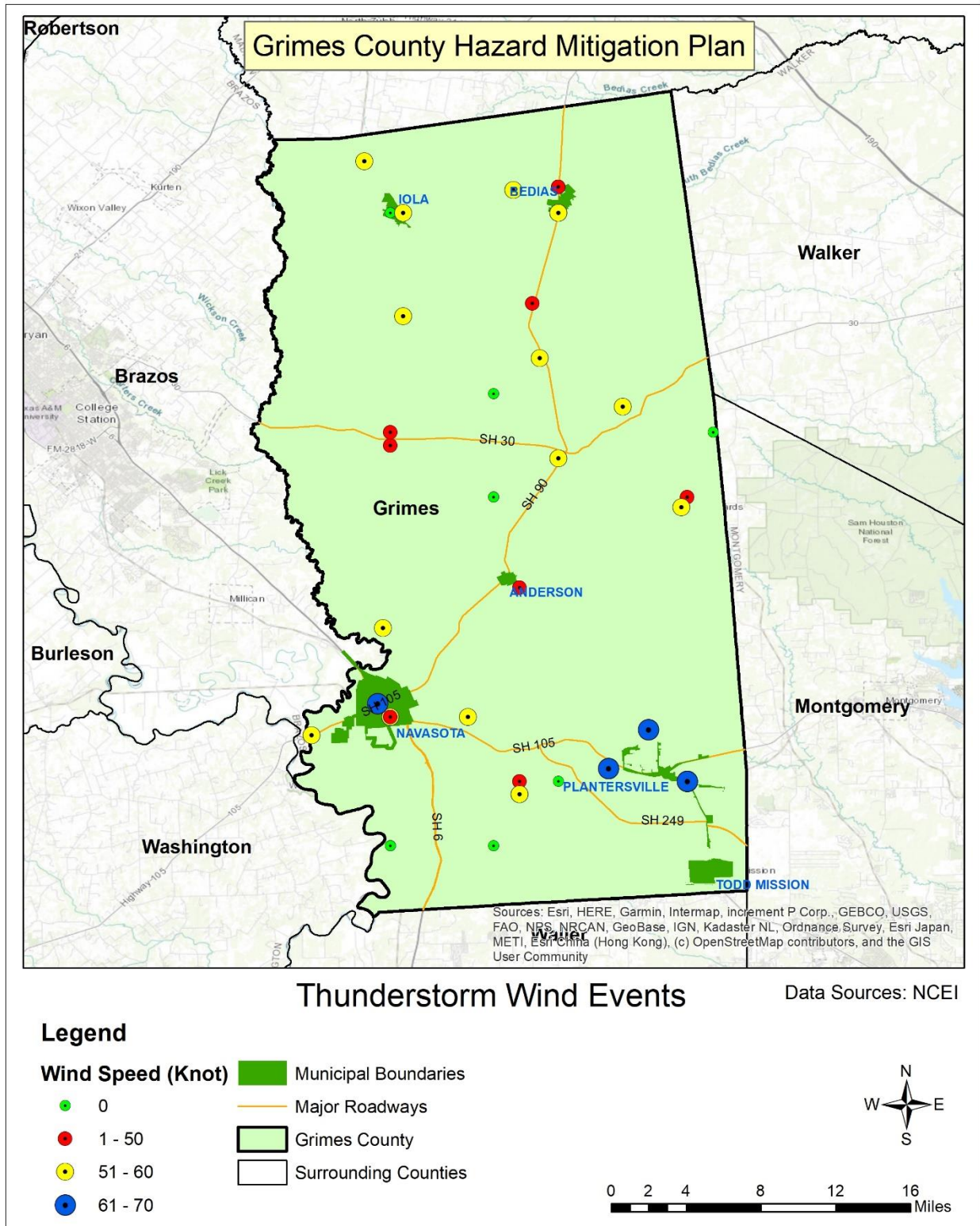


Figure 8-2. Historical Thunderstorm Events

Based on the list of historical thunderstorm wind events for the Grimes County planning area (listed above), 14 of the events have occurred since the 2013 Hazard Mitigation Plan.

## **8.5 SIGNIFICANT EVENTS**

### **April 27, 2015**

A large line of severe thunderstorms raced eastward across the central and northern portions of Southeast Texas during the overnight hours and produced strong damaging winds across the area. Strong damaging winds and wind gusts were observed across a large part of Grimes County in association with a large line of severe thunderstorms. The NWS accompanied by the Grimes County emergency manager conducted a storm survey and found several areas with trees uprooted or snapped. In each case, trees were pushed down to the east or northeast and generally in the same direction as nearby damage. All observed damages were consistent with straight-line downburst winds. A parked tractor trailer was blown over between Navasota and Anderson along Highway 90. A hay barn was destroyed near the intersection of CR 211 and CR 215, about 3 miles east-southeast of Anderson, with debris blown toward the east. There were also trees down in Roans Prairie and Richards, again pointing eastward. Some of the more significant damage occurred near the town of Shiro where several large trees were uprooted, some of which fell onto mobile homes. No injuries were reported. Other damages were observed in Navasota where trees and power lines were downed, and doors were blown off at a fire station. In the Roans Prairie area, there was sign damage at a gas station, and trees were also downed. A total of about \$123K in damages was reported in Grimes County based on 2022-dollar value.

### **September 3, 2009**

Severe thunderstorms developed in the mid-afternoon hours across the far northern counties as an outflow boundary from earlier north Texas convection became active. Severe thunderstorms moved to the south and southwest across a very warm and unstable airmass. Severe thunderstorm winds destroyed two barns near Plantersville. In Stoneham, a modular home was shifted off its foundation. Numerous trees were downed. A tree was downed at the intersection of FM 1486 and FM 149 just to the northwest of Richards. A total of about \$75K in damages was reported in Grimes County based on 2022-dollar value.

### **April 25, 2007**

A complex of strong-to-severe thunderstorms developed over central and south-central Texas as an upper-level disturbance approached from the west on the morning of Wednesday, April 25. A tree was blown down onto residential home. A total of about \$56K in damages was reported in Grimes County based on 2022-dollar value.

## **8.6 PROBABILITY OF FUTURE EVENTS**

Most thunderstorm winds occur during the months of March, April, May, and September. Based on available records of historic events, there have been 75 events in a 64-year reporting period, which provides a probability of one to two events every year. Even though the intensity of thunderstorm wind events is not always damaging for the Grimes County planning area, the frequency of occurrence for a thunderstorm wind event is highly likely. This means that an event is probable within the



next year for the Grimes County planning area. This probability level is supported by reported trends due to climate change. In the continental United States, annual precipitation has increased by 0.2 inches since 1901.<sup>5</sup> This trend is expected to continue as warmer temperatures increase the capacity of air to hold water vapor, increasing the chance of heavy rainfall events.<sup>6</sup>

## **8.7 VULNERABILITY AND IMPACT**

Vulnerability is difficult to evaluate since thunderstorm wind events can occur at different strength levels, in random locations, and can create relatively narrow paths of destruction. Due to the randomness of these events, all existing and future structures and facilities in the Grimes County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from strong winds.

Trees, power lines and poles, signage, manufactured housing, radio towers, concrete block walls, storage barns, windows, garbage receptacles, brick facades, and vehicles, unless reinforced, are vulnerable to thunderstorm wind events. More severe damage involves windborne debris; in some instances, patio furniture and other lawn items have been reported to have been blown around by wind and, very commonly, debris from damaged structures in turn have caused damage to other buildings not directly impacted by the event. In numerous instances roofs have been reported as having been torn off buildings. The portable buildings typically used at schools and construction sites would be more vulnerable to thunderstorm wind events than typical site-built structures and could potentially pose a greater risk for wind-blown debris.

U.S. Census data indicate a total of 348 manufactured homes (approximately 3.1%) located in the Grimes County planning area. (Table 8-5). It is noted that the Town of Anderson and Cities of Plantersville and Todd Mission do not currently feature any manufactured homes. In addition, 35.7 percent (approximately 3,898 structures) of the residential structures in the Grimes County planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant wind events.

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<sup>5</sup> <https://www.c2es.org/content/extreme-precipitation-and-climate-change/>

<sup>6</sup> <https://www.epa.gov/climate-indicators/climate-change-indicators-heavy-precipitation#tab-2>

**Table 8-5. Structures at Greater Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Manufactured Homes</b>	<b>Structures Built Before 1980</b>
Grimes County	348	3,898
Town of Anderson	0	67
City of Bédias	9	97
City of Iola	6	74
City of Navasota <sup>a</sup>	31	1,431
City of Plantersville	0	73
City of Todd Mission	0	53

Source: U.S. Census Bureau.

<sup>a</sup> The housing unit counts for Navasota include units located in neighboring Brazos County. These housing units are not included in the Grimes County total.

While all citizens are at risk to the impacts of thunderstorm wind, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 17 percent of the planning area population live below the poverty level (Table 8-6).

**Table 8-6. Populations at Greater Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Population Below Poverty Level</b>
Grimes County	4,134 (17%)
Town of Anderson	50 (19.5%)
City of Bédias	82 (21.9%)
City of Iola	17 (8.1%)
City of Navasota <sup>a</sup>	1,060 (14.6%)
City of Plantersville	169 (39.2%)
City of Todd Mission	2 (6.9%)

Source: U.S. Census Bureau.

<sup>a</sup> The population counts for Navasota include units located in neighboring Brazos County. These population counts are not included in the Grimes County total.

The following critical facilities would be vulnerable to thunderstorm wind events in each participating jurisdiction:

**Table 8-7. Critical Facilities at Risk to Thunderstorm Wind**

<b>Jurisdiction</b>	<b>Critical Facility</b>
Grimes County	1 Airport, 18 Closed Well, 4 Commercial Facilities, 33 Communication Facilities, 65 Dams, 54 Energy Facilities, 9 Fire Stations, 20 Government Buildings, 38 Hazardous Sites, 7 Helipads, 5 Manufacturing Facilities, 5 Medical Facilities, 3 Police Stations, 2 Prisons, 39 Public Gathering Centers, 5 Railroads, 12 Schools, 48 Water/Wastewater Facilities.
Town of Anderson	4 Closed Wells, 1 Commercial Facility, 11 Communication Facilities, 29 Energy Facilities, 1 Fire Station, 10 Government Buildings, 11 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 1 Police Station, 7 Public Gathering Centers, 2 Schools, 8 Water/Wastewater Facilities.
City of Bedias	1 Closed Well, 4 Communication Facilities, 4 Energy Facilities, 1 Fire Station, 3 Hazardous Sites, 1 Helipad, 4 Public Gathering Centers, 9 Water/Wastewater Facilities.
City of Iola	10 Closed Wells, 2 Communication Facilities, 13 Energy Facilities, 2 Fire Stations, 4 Government Buildings, 5 Hazardous Sites, 2 Helipads, 5 Public Gathering Centers, 2 Schools, 10 Water/Wastewater Facilities.
City of Navasota	1 Airport, 2 Care Facilities, 2 Closed Wells, 2 Commercial Facilities, 8 Communication Facilities, 6 Energy Facilities, 1 Fire Station, 6 Government Buildings, 12 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 5 Medical Facilities, 1 Police Station, 17 Public Gathering Centers, 3 Railroads, 7 Schools, 15 Water/Wastewater Facilities.
City of Plantersville	1 Commercial Facility, 4 Communication Facilities, 1 Dam, 2 Fire Stations, 1 Hazardous Site, 1 Manufacturing Facility, 1 Police Station, 4 Public Gathering Centers, 4 Water/Wastewater Facilities.
City of Todd Mission	1 Communication Facility, 1 Energy Facility, 1 Fire Station, 1 Police Station, 2 Public Gathering Centers, 1 Water/Wastewater Facility.

A thunderstorm wind event can also result in traffic disruptions, injuries and in rare cases, fatalities. Impact of thunderstorm winds experienced in the Grimes County planning area has resulted in three injuries and one fatality. Impact of thunderstorm wind events experienced in the Grimes County planning area, including all participating jurisdictions, would be “Minor,” and very few injuries, if any. Only minor property damage and minimal disruption on quality of life and temporary shutdown of critical facilities is expected. Overall, the average loss estimate (in 2022 dollars) is \$1,434,386, having an approximate annual loss estimate of \$22,412 (Table 8-8).

**Table 8-8. Potential Annualized Losses for Grimes County**

<b>Jurisdiction</b>	<b>Property &amp; Crop Loss</b>	<b>Annual Loss Estimates</b>
Grimes County	\$1,434,386	\$22,412

## 8.8 ASSESSMENT OF IMPACTS

Thunderstorm wind events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. The impact of climate change could produce larger, more severe thunderstorm wind events, exacerbating the current thunderstorm wind impacts. Worsening thunderstorm wind conditions can be frequently associated with a variety of impacts, including:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During exceptionally heavy wind events, first responders may be prevented from responding to calls, as the winds may reach a speed in which their vehicles and equipment are unsafe to operate.
- 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/or life safety.
- Extended power outages often result in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
- Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.
- Critical staff may be unable to report for duty, limiting response capabilities.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.
- Private-sector entities that the City and its residents rely on, such as utility providers, financial institutions, and medical-care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by thunderstorm wind events may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to thunderstorm winds.

- Large scale wind events can have significant economic impact on the affected area, as it must now fund expenses such as infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.
- Activities at locations such as Gibbons Creek, Navasota River and Brazos River attract tourism including hiking, camping, boating, and fishing throughout the year. A large thunderstorm wind event could impact recreational activities, placing visitors in imminent danger, potentially requiring emergency services or evacuations.
- Recreational areas and parks may be damaged or inaccessible due to downed trees or debris, causing temporary impacts to area businesses.

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

## **8.9 LIGHTNING**

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

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

## **8.10 LOCATION**

Lightning can strike in any geographic location and is considered a common occurrence in Texas. The Grimes County planning area is 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 entire Grimes County planning area is uniformly exposed to the threat of lightning.

### 8.11 EXTENT

According to the NOAA, the average number of cloud-to-ground flashes for the state of Texas between 2007 and 2016 was 11.3 flashes per square mile. Vaisala's U.S. National Lightning Detection Network lightning flash density map (Figure 8-3) shows a range of 12-to-28 cloud-to-ground lightning flashes per square mile per year for the entire Grimes County planning area. This rate equates to approximately 9,624 to 22,456 flashes per year for the entire planning area. The report also shows that Texas is the top state in United states by total lightning count in 2021, with a total of 41,914,516 lightnings events. Detailed lightning data is unavailable and is a data deficiency. A mitigation action will be created to document and develop a hazard history for lightning to understand the extent for each participating community.

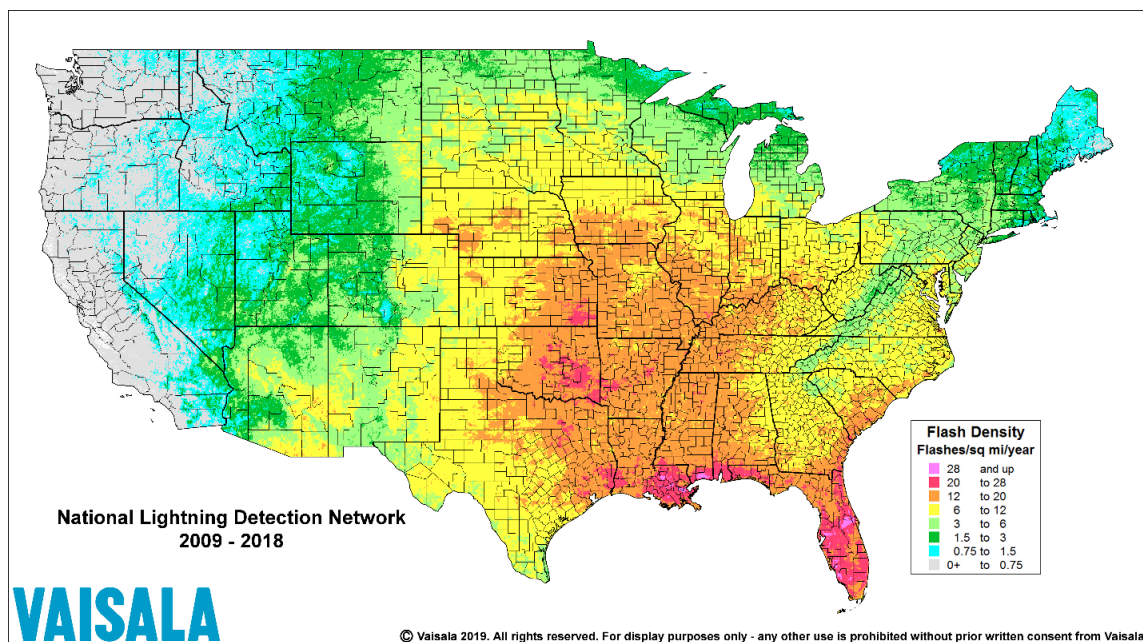


Figure 8-3. Lightning Flash Density, 2009-2018

### 8.12 HISTORICAL OCCURRENCES

Since October 2006, there have been two recorded events for the Grimes County planning area. It is highly likely multiple lightning occurrences have gone unreported before and during the recording period. The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration and considered a reliable resource for hazards. However, the flash density for the planning area along with input from local team members indicates regular lightning occurrences that simply have not been reported.

Table 8-9. Historical Lightning Events, 2006-2021

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
Anderson	10/12/2006	Lightning	1	0	\$11,461	0
Plantersville	05/07/2019	Lightning	0	0	\$16,936	0

Note: Damages are reported in 2022 dollars.

As shown in Table 8-9, one event has occurred since the 2013 Hazard Mitigation Plan.

### **8.13 SIGNIFICANT EVENTS**

#### **October 12, 2006, in Anderson**

Severe thunderstorms developed ahead of a cold frontal passage. A 21-year-old male was struck by lightning while riding a horse. He was transported to a local hospital where he was pronounced dead. Two horses in a nearby pasture were also killed by a lightning strike.

#### **May 7, 2019, in Plantersville**

Slow moving thunderstorms produce several inches of rain near Kingwood and over Fort Bend County. A lightning strike caused a structural fire in Plantersville.

### **8.14 PROBABILITY OF FUTURE EVENTS**

Based on historical records and input from the planning team the probability of occurrence for future lightning events in the Grimes County planning area, is considered highly likely, or an event probable in the next year. The planning team stated that lightning occurs regularly in the area. In addition to increasing frequency and severity, climate change is expected to increase potential damages associated with lightning. According to NOAA, the Grimes County planning area is located in an area of the country that experiences 12 to 28 lightning flashes per square mile per year (approximately 9,624 to 22,456 flashes per year). Given this estimated probability of events and expected outlook due to climate change, it can be projected that future lightning events will continue to threaten life and cause minor property damages throughout the planning area, including all participating jurisdictions.

### **8.15 VULNERABILITY AND IMPACT**

Vulnerability is difficult to evaluate since lightning events can occur at different strength levels, in random locations, and can create a broad range of damages depending on the strike location. Due to the randomness of these events, all existing and future structures and facilities in the Grimes County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from lightning strikes. The Grimes County planning area has two reported lightning events per the NCEI; however, the county, including all participating jurisdictions, are vulnerable and could be impacted by lightning.

The direct and indirect losses associated with these events include injury and loss of life, damage to structures and infrastructure, agricultural losses, utility failure (power outages), and stress on community resources. The entire population of Grimes County, including all participating jurisdictions, is considered exposed to the lightning hazard. The peak lightning season in Texas is from June to August; however, the most fatalities occur in July. Fatalities occur most often when people are outdoors and/or participating in some form of recreation. The population located outdoors is considered at risk and more vulnerable to a lightning strike compared to being inside a structure. Moving to a lower risk location will decrease a person's vulnerability.



The entire general building stock and all infrastructure of the Grimes County planning area are considered exposed to the lightning hazard. Lightning can be responsible for damage to buildings, cause electrical, forest and/or wildfires, and damage infrastructure such as power transmission lines and communication towers. Agricultural losses can be extensive due to lightning and resulting fires.

While all citizens are at risk to the impacts of lightning, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 17 percent of the planning area population live below the poverty level.

Table 8-10. shows the potential annualized loss estimation based on the two historical events that were reported in the last 16 years between 2006 and 2021.

**Table 8-10. Potential Annualized Losses for Grimes County**

Jurisdiction	Property & Crop Loss	Annual Loss Estimate
Grimes County	\$28,397	\$1,775

Note: Damages in 2022 dollars.

## 8.16 ASSESSMENT OF IMPACTS

Lightning events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. The impact of climate change could produce more frequent and severe lightning events, exacerbating the current lightning impacts. Additional impacts to the planning area can include:

- Individuals exposed to the storm can be directly struck, posing significant health risks and potential death.
- Structures can be damaged or crushed by falling trees damaged by lightning, which can result in physical harm to the occupants.
- Lightning strikes can result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages often result in an increase in structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Lightning strikes can be associated with structure fires and wildfires, creating additional risk to residents and first responders.
- Emergency operations and services may be significantly impacted due to power outages and/or loss of communications.
- City or 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 loss in revenue.



- Some businesses not directly damaged by lightning events may be negatively impacted while utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

The economic and financial impacts of lightning on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the county, communities, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any lightning event.

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## **9.0 EARTHQUAKE**

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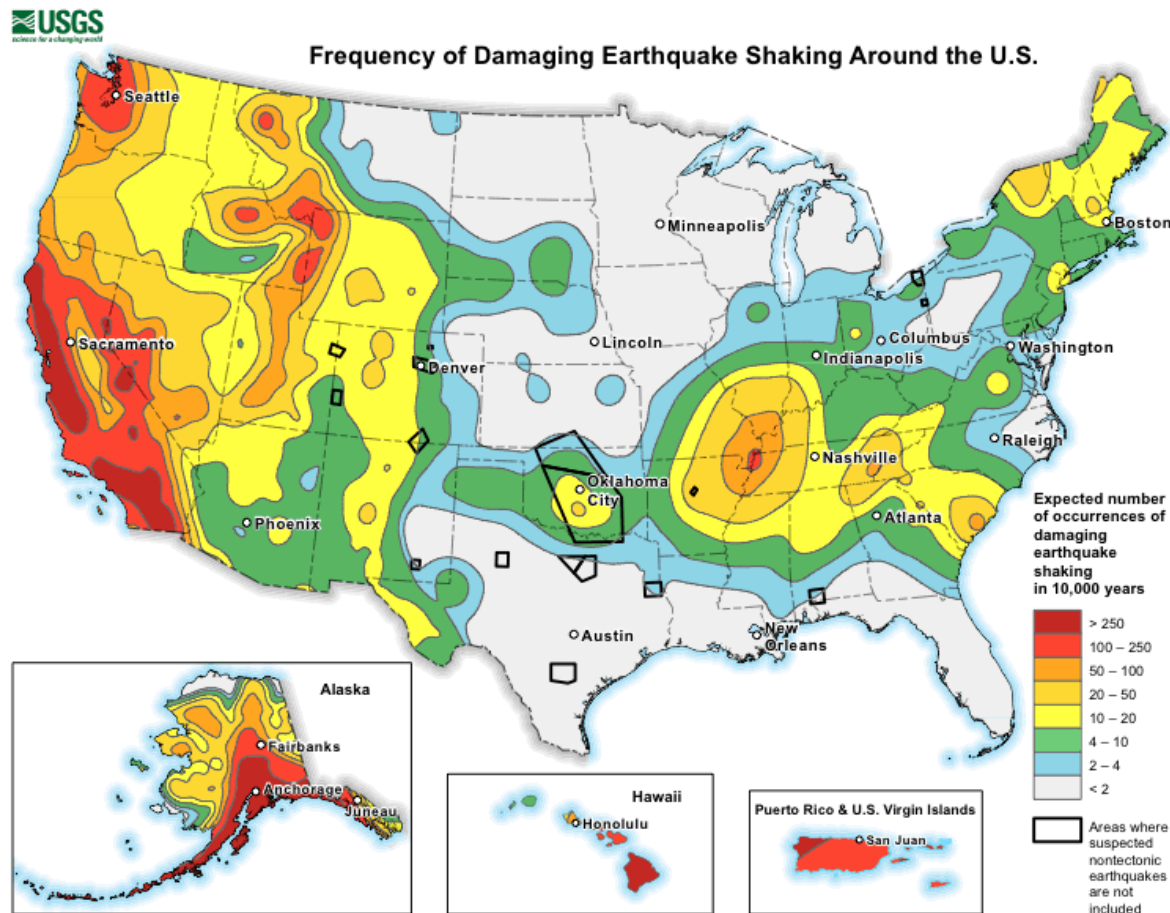
### **9.1 HAZARD DESCRIPTION**

An earthquake is movement or trembling of the ground produced by sudden displacement of rock in the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of caverns. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons and disrupt the social and economic functioning of the affected area.

Most property damage and earthquake-related deaths are caused by failure and collapse of structures due to ground shaking. The level of damage depends upon the amplitude and duration of the shaking, which are directly related to the earthquake size, distance from the fault, site, and regional geology. Other damaging earthquake effects include landslides, the down-slope movement of soil and rock (mountain regions and along hillsides), and liquefaction, in which ground soil loses the ability to resist shear and flows much like quicksand. In the case of liquefaction, anything relying on the substrata for support can shift, tilt, rupture, or collapse.

Most earthquakes are caused by the release of stress accumulated as a result of the rupture of rocks along opposing fault planes in the Earth's outer crust. These fault planes are typically found along borders of the Earth's 10 tectonic plates. The areas of greatest tectonic instability occur at the perimeters of the slowly moving plates, as these locations are subjected to the greatest strains from plates traveling in opposite directions and at different speeds. Deformation along plate boundaries causes strain in the rock and the consequent buildup of stored energy. When the built-up stress exceeds the rocks' strength, a rupture occurs. The rock on both sides of the fracture is snapped, releasing the stored energy, and producing seismic waves, generating an earthquake.

The greatest earthquake threat in the United States is along tectonic plate boundaries and seismic fault lines located in the central and western states; most parts of Texas have minimal probability of experiencing an earthquake. Figure 9-1 shows relative seismic risk for the United States.



Source: USGS.

**Figure 9-1. United States Earthquake Hazard Map**

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude (Table 9-1). Each unit increase in magnitude on the Richter Scale corresponds to a 10-fold increase in wave amplitude, or a 32-fold increase in energy. Intensity is measured using the Modified Mercalli Intensity (MMI) Scale based on direct and indirect measurements of seismic effects. The scale levels are typically described using roman numerals, ranging from "I" corresponding to imperceptible (instrumental) events to "XII" for catastrophic (total destruction). A detailed description of the MMI Scale of earthquake intensity and its correspondence to the Richter Scale is given in Table 9-2.

**Table 9-1. Richter Scale**

Richter Magnitudes	Earthquake Effects
less than 3.5	Generally not felt but recorded.
3.5–5.4	Often felt, but rarely causes damage.
5.4–6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1–6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0–7.9	Major earthquake. Can cause serious damage over larger areas.
8 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Source: FEMA.

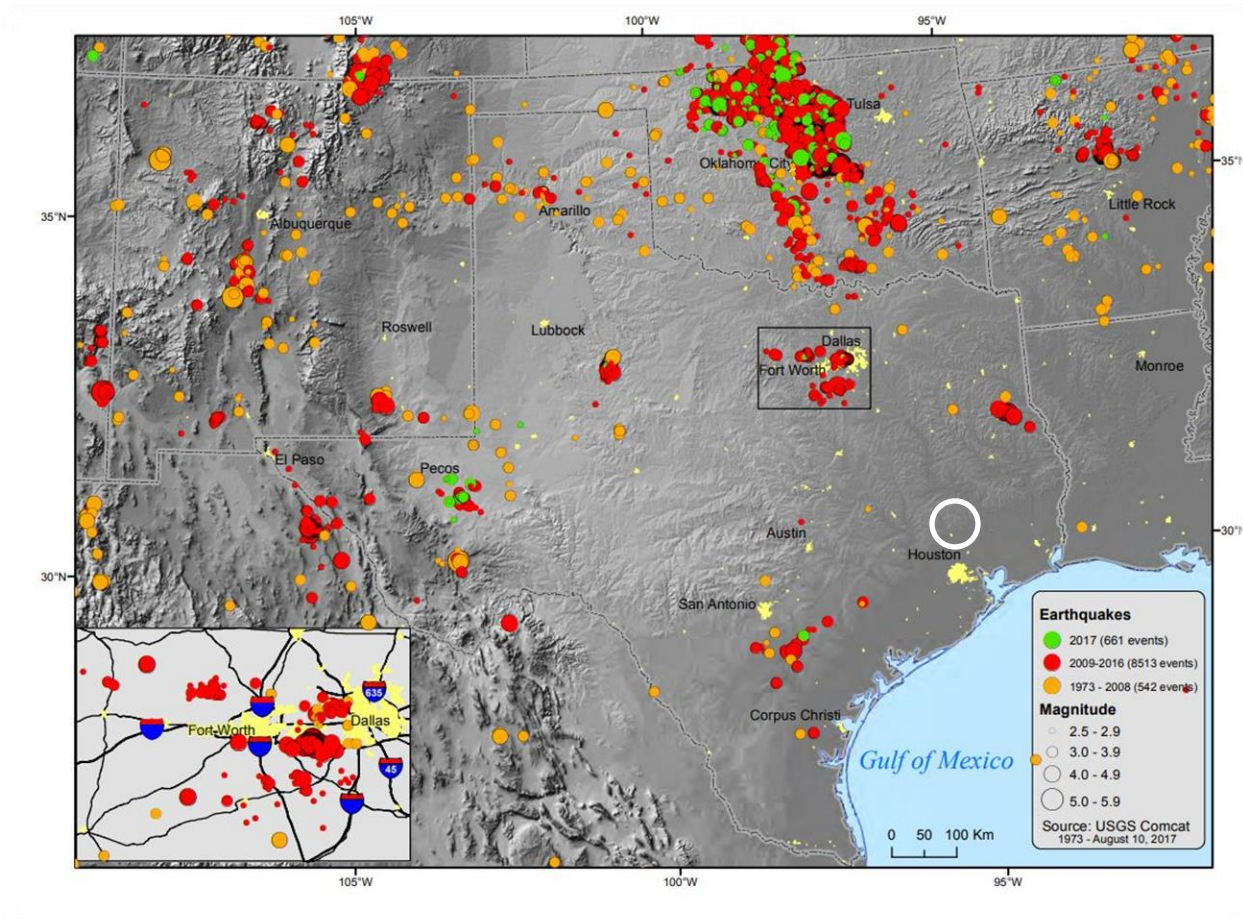
**Table 9-2. Modified Mercalli Intensity Scale for Earthquakes**

Scale	Intensity	Description of Effects	Corresponding Richter Scale Magnitude
I	Instrumental	Detected only on seismographs.	
II	Feeble	Some people feel it.	<4.2
III	Slight	Felt by people resting; like a truck rumbling by.	
IV	Moderate	Felt by people walking.	
V	Slightly Strong	Sleepers awake; church bell ring.	<4.8
VI	Strong	Trees sway, suspended objects swing, objects fall off shelves.	<5.4
VII	Very Strong	Mild alarm; wall crack; plaster falls.	<6.1
VIII	Destructive	Moving cars uncontrollable; Masonry fractures, poorly constructed building damaged.	
IX	Ruinous	Some houses collapse; ground cracks; pipes break open.	<6.9
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread.	<7.3
XI	Very Disastrous	Most buildings and bridges collapse; roads, railway pipes and cable destroyed; general triggering of other hazards.	<8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves.	>8.1

Source: FEMA.

## 9.2 LOCATION

Most of Texas is not subject to earthquakes, but there are few regions in the state that have experienced earthquakes between 1973 and 2017. The Dallas metro and surrounding suburbs, the area between San Antonio and Corpus Christi, and southeast of Lubbock have recorded earthquakes in the last 50 years. Figure 9-2 shows that Grimes County has not been affected by any earthquakes in the last 50 years. The white circle above Houston shows the approximate location of Grimes County.



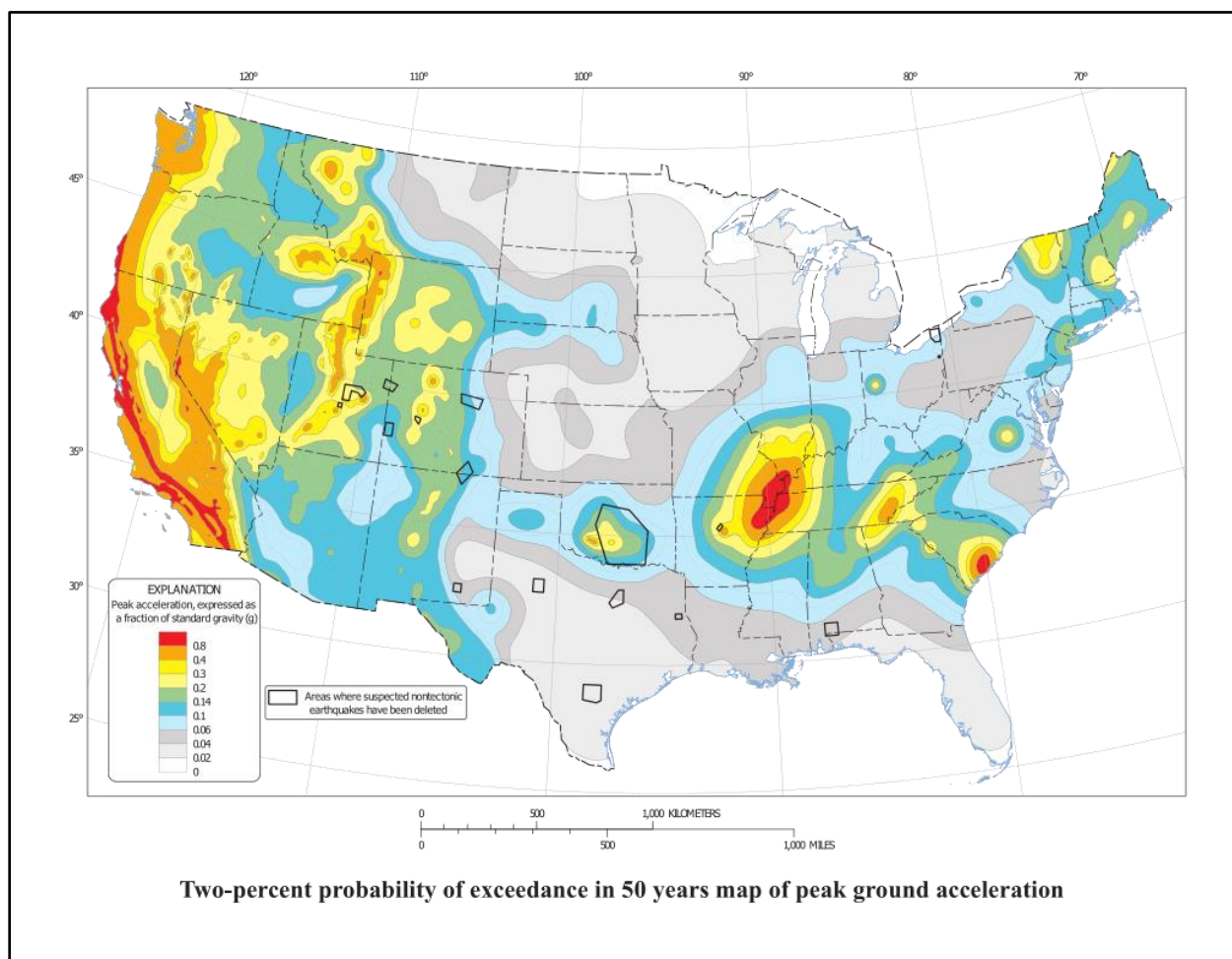
Source: USGS COMCAT.

**Figure 9-2. Earthquake Occurrences in Texas between 1973 and 2017**

### 9.3 EXTENT

Figure 9-3 shows the intensity level associated with Grimes County, based on the national U.S. Geological Survey (USGS) map of peak acceleration with 2 percent probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 2 percent probability of exceedance in 50 years. The map was compiled by the USGS Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Grimes County lies within the zone of 0.02 peak ground acceleration. This indicates that the county, as a whole, exists within an area of lowest risk.





Source: USGS.

**Figure 9-3. Peak Acceleration with 2 Percent Probability of Exceedance in 50 Years**

## 9.4 HISTORICAL OCCURRENCES

According to USGS, only one earthquake affected Grimes County in recorded history. A magnitude 3.3 earthquake happened between Anderson and Richards on December 30, 1914. No damage was recorded, and people usually do not feel earthquakes less than 3.5 in magnitude. Table 9-3 shows the location of historical earthquake in Grimes County.

**Table 9-3. Historical Earthquake in Grimes County**

Date	Time	Latitude	Longitude	Place	Magnitude
12/31/1914	1:00 AM	30.50	-95.90	Anderson	3.3

## 9.5 PROBABILITY OF FUTURE EVENTS

The probability of earthquake events affecting Grimes County is unlikely, the annual probability level for the county is less than 1 percent. Impacts from climate change are not expected to change the probability of earthquakes affecting the County.

## 9.6 VULNERABILITY AND IMPACT

For the earthquake hazard vulnerability assessment, a probabilistic scenario was created to estimate the annualized loss for the county. The results of the analysis reported at the U.S. Census tract level do not make it feasible to estimate losses at the jurisdiction level. Since the scenario is annualized, no building counts are provided. Losses reported included losses due to building damage (structural and nonstructural), contents, and inventory. Table 9-4 summarizes the findings.

**Table 9-4. Annualized Loss Estimations for Earthquake Hazard – Hazus 5.1**

Location	Structural Building Loss	Non-Structural Building Loss	Content Loss	Inventory Loss	Total Annualized Loss
Grimes County	\$100	\$500	\$120	0	\$3,360

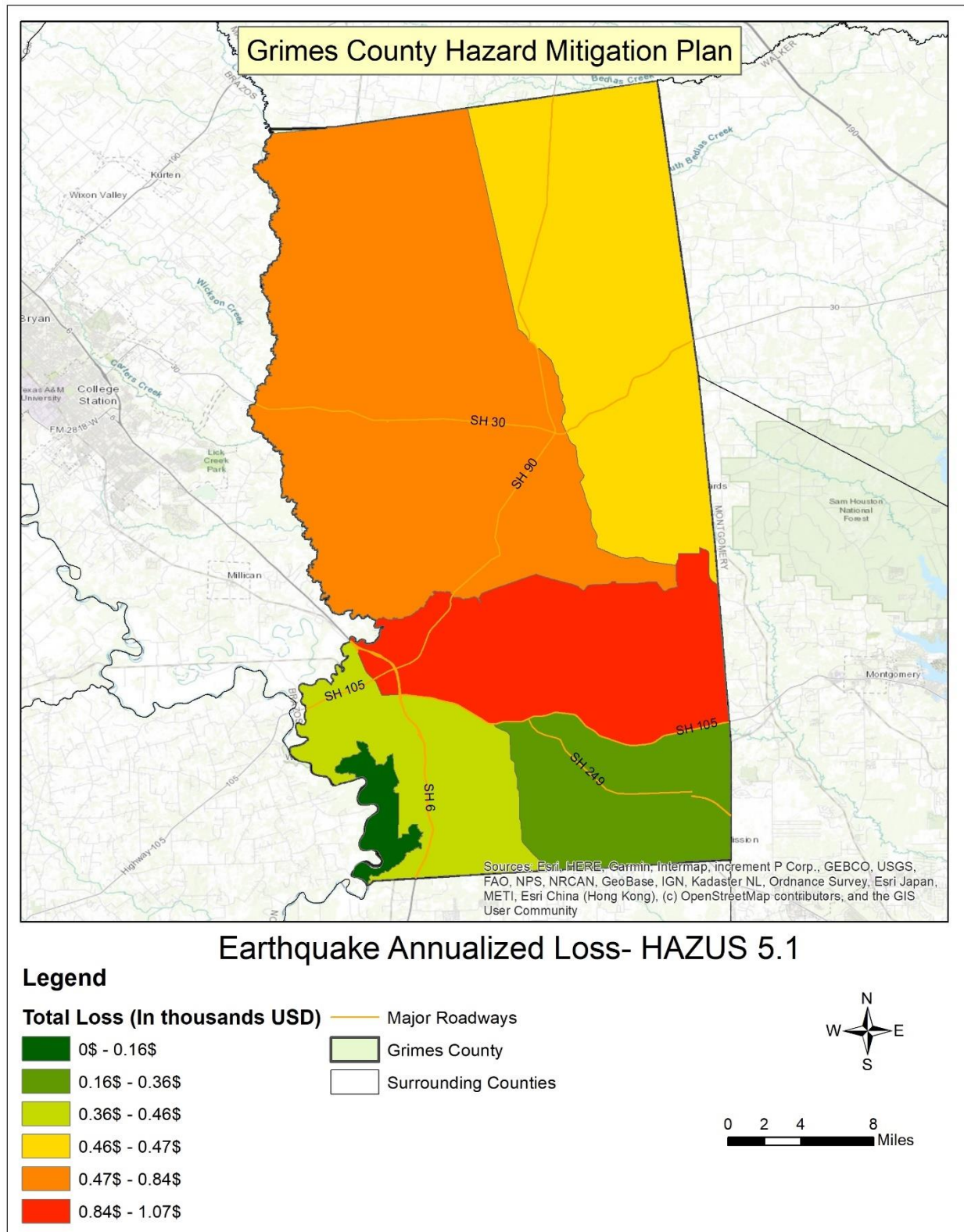
In addition, Figure 9-4 shows annualized loss estimates by census tract as calculated by a Hazus-MH (multi-hazard) model run. The amount of damage possible from earthquake in Grimes County is negligible.

## 9.7 ASSESSMENT OF IMPACT

Probability of high impact earthquake in Grimes County is very low. But in the event of an earthquake, damage can happen, including:

- The public typically experiences some shaking in these events and the greatest threat to health and well-being is often from objects falling from shelves. Public confidence would likely not be affected drastically in the event of an earthquake.
- There would be little impact on responders in the event of an earthquake because Grimes County is only likely to experience a low- or moderate-magnitude earthquake at a maximum. Since there would be minimal damage to structures and infrastructure, responders would likely not be impacted in their ability to respond to an earthquake. If there were any major collapses of buildings or infrastructure, however, responders will need to take care when accessing these structures in case they have become structurally unstable and unsafe. It should also be noted that because earthquakes can knock items such as candles off shelves or damage gas lines, fires are possible directly after an event. This may cause additional emergency calls for responders and create a burden on response operations.
- During and after an earthquake, continuity of operations could relatively easily be maintained and there would likely be little disruption to services or operations during an event. The most likely impact may be downed communication networks which could cause interruptions to normal operations.
- Ground shaking is the primary cause of damage to the built environment during an earthquake. There are three important variables that determine the amount of damage: the intensity of the quake, local soil characteristics, and the quality of the impacted structures. The amount of damaged caused by an earthquake is strongly influenced by soil characteristics. The velocity at which the rock or soil transmits shear waves is the main contributor to ground shaking. Shaking is increased by soft, thick, or wet soil types.





**Figure 9-4. Estimated Total Annualized Dollar Losses from Earthquake**

- Certain building types are particularly vulnerable to earthquake damage: wood-frame multi-unit buildings, single-family homes, mobile homes, and unreinforced masonry buildings. The most susceptible structures are wood-frame, multi-story, mixed-use buildings that have large openings on the first floor for garages or commercial space and housing on the upper floors. During an earthquake, these types of structures could sway or even collapse.
- Single-family homes built prior to the 1970s are often not bolted to their foundations, and walls surrounding crawl spaces are not braced (i.e., cripple walls). Typical earthquake damage to these structures includes cracked foundations, chimneys breaking at the roof line, wood frames coming off their foundations, and racking of cripple walls.
- Mobile homes that are built of light-weight metal or a combination of steel frame and wood are easily damaged by a quake. Mobile homes installed prior to 1995 were often not attached to their foundations and could shift off their supports.
- Unreinforced masonry—masonry walls that have not been reinforced with steel -- were often built before 1960 in an era when reinforcing was not generally used, anchorage to floors and roofs was missing, and use of low-strength lime mortar was common. Earthquake damage to these buildings can be severe. A lack of reinforcement and tie-downs can result in substantial damage in the form of cracked or leaning walls. Damage may also occur between the walls, and separation between the framing and walls could lead to full collapse due to a lack of vertical support.
- There are a handful of key resource categories that could be impacted by an earthquake including transportation systems, communication systems, and utility systems. Expected damage in Grimes County to these resources would be very minor; however, an inspection of certain features after a strongly felt earthquake may be necessary.
- There are several sources of economic loss associated with an earthquake including property damage and business interruption costs; cost to repair public transportation, communication, or utility systems; and debris removal costs. Historically, there have been very minor losses from earthquakes felt within the county.
- There would be no substantial impacts to the environment following an earthquake in Grimes County. Secondary effects from the damage of the key resources mentioned above (e.g., utility systems) could impact the environment, but the probability of this type of situation is very small. For instance, a ruptured pipeline could release dangerous materials that could damage the surrounding environment, but the likelihood of an earthquake causing this in Grimes County is very low.
- The Hazus probabilistic analysis indicated that no critical facilities would sustain measurable damage in an earthquake event. However, all critical facilities should be considered at-risk to minor damage, should an event occur.

In conclusion, the economic and financial impacts of an earthquake on the area will depend entirely on the magnitude of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any earthquake event.

## 10.0 DROUGHT

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### 10.1 HAZARD DESCRIPTION

Drought is a period of time without substantial rainfall that persists from one year to the next. Drought is a normal part of virtually all climatic regions, including areas with high, low, and average rainfall. Drought is the consequence of anticipated natural precipitation reduction over an extended period of time, usually a season or more in length. Droughts can be classified as meteorological, hydrologic, agricultural, and/or socioeconomic. Table 10-1 presents definitions for these different types of droughts.

Droughts are one of the most complex of all natural hazards as it is difficult to determine their precise beginning or end. In addition, droughts can lead to other hazards such as extreme heat and wildfires. Their impact on wildlife and farming is enormous, often killing crops, grazing land, edible plants, and in severe cases, trees. A secondary hazard to drought is wildfire because dying vegetation serves as a prime ignition source. Therefore, a heat wave combined with a drought is a very dangerous situation.

**Table 10-1. Drought Classification Definitions**

<b>Meteorological Drought</b>	The degree of dryness or departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
<b>Hydrologic Drought</b>	The effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
<b>Agricultural Drought</b>	Soil moisture deficiencies relative to water demands of plant life, usually crops.
<b>Socioeconomic Drought</b>	The effect of demands for water exceeding the supply as a result of a weather-related supply shortfall.

Source: Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA.

### 10.2 LOCATION

Droughts occur regularly throughout Texas and the Grimes County planning area and are not unusual. However, they can vary greatly in their intensity and duration. The Drought Monitor shows the planning area is experiencing severe to extreme drought conditions throughout the county over the last year, 2022 (Figure 10-1). There is no distinct geographic boundary to drought; therefore, it can occur throughout the Grimes County planning area equally, including in all participating jurisdictions.

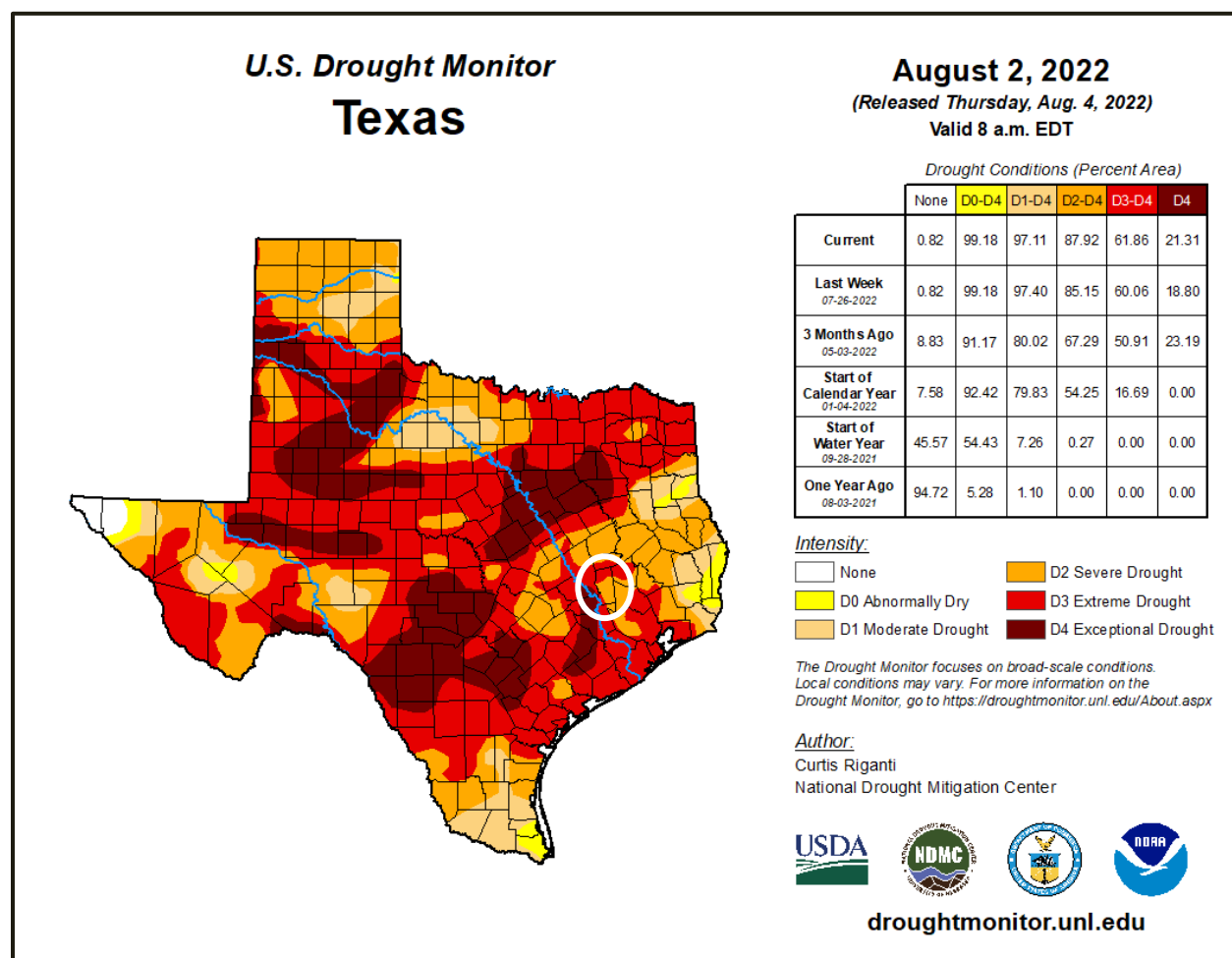


Figure 10-1. U.S. Drought Monitor for Texas, August 2, 2022

### 10.3 EXTENT

The Palmer Drought Index is used to measure the extent of drought by measuring 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. Table 10-2 depicts magnitude of drought, while Table 10-3 describes the classification descriptions.

**Table 10-2. 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

**Table 10-3. Palmer Drought Category Descriptions**

Category	Description	Possible Impacts	Palmer Drought Index
D0	Abnormally High	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, streams, and wells, creating water emergencies.	-5.00 or less

Source: National Drought Mitigation Center.

Drought is monitored nationwide by the National Drought Mitigation Center (NDMC). Indicators are used to describe broad scale drought conditions across the U.S. and correspond to the intensity of drought.

Based on the historical occurrences for drought and the location of the Grimes County planning area, including all participating jurisdictions, the area can anticipate a range of drought from abnormally

dry to exceptional, or D0 to D4, based on the Palmer Drought Category. The entire planning area has experienced exceptional drought conditions. This is the most extreme drought conditions, and the planning area can anticipate experiencing them in the future.

## 10.4 HISTORICAL OCCURRENCES

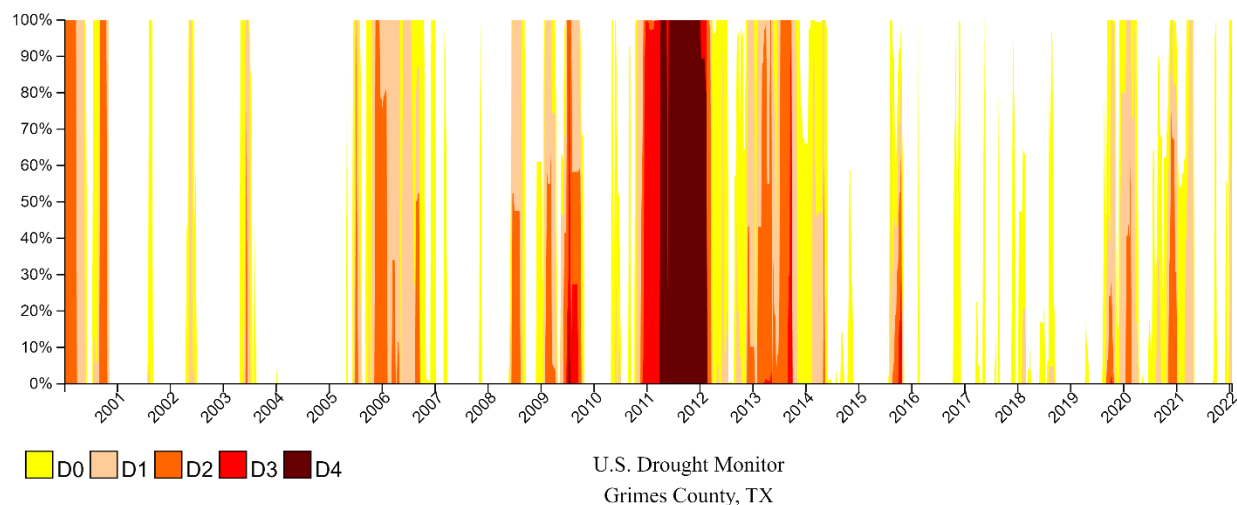
The Grimes County planning area has experienced severe drought. Table 10-4 lists historical maximum droughts that have occurred in Grimes County each year as reported in the NCEI. Figure 10-3 depicts the percent of affected area by different categories of drought between the year 2000 and December 2021. Historical events with reported damages are listed in 2022-dollar values. Injuries and fatalities are also shown in Table 10-5. Only nine events have been reported in the NCES storm database between 1996 and 2000, as shown in Table 10-5, and a summary of total damages is included in Table 10-6.

Historical drought information shows drought activity across a multi-county forecast area for each event, so, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical drought data for all participating jurisdictions in the Grimes County planning area are provided on a countywide basis per the NCEI database.

**Table 10-4. Historical Drought Years, 2000-2021**

Year	Maximum Drought Category
2000	Severe
2001	Moderate
2002	Moderate
2003	Severe
2004	Abnormally Dry
2005	Severe
2006	Severe
2007	Abnormally Dry
2008	Severe
2009	Exceptional
2010	Extreme
2011	Exceptional
2012	Exceptional
2013	Extreme
2014	Severe
2015	Extreme
2016	Abnormally Dry
2017	Abnormally Dry
2018	Moderate
2019	Extreme
2020	Severe
2021	Moderate





**Figure 10-2. Yearly Percentage of Drought Affected Area**

**Table 10-5. Historical Drought Events, 1996-2000**

Jurisdiction	Date	Deaths	Injuries	Property Damage	Crop Damage
Grimes County	4/1/1996	0	0	0	0
Grimes County	5/1/1996	0	0	0	0
Grimes County	6/1/1996	0	0	0	0
Grimes County	5/1/1998	0	0	0	0
Grimes County	6/1/1998	0	0	0	0
Grimes County	7/1/1998	0	0	0	0
Grimes County	8/1/1998	0	0	\$1,769,333	\$12,916,130
Grimes County	8/1/2000	0	0	0	0
Grimes County	9/1/2000	0	0	0	0

**Table 10-6. Historical Drought Events Summary, 1996-2000**

Jurisdiction	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Grimes County	9	0	0	\$1,769,333	\$12,916,130

Based on the historical drought events for the Grimes County planning area, Grimes County has faced all categories of drought each year, from Abnormally Dry to Exceptional Drought since the 2013 Hazard Mitigation Plan.

## 10.5 SIGNIFICANT EVENTS

No injuries or losses due to drought have been reported between 2001 and 2021 for Grimes County in the NCEI database. However, some events are reported for nearby Leon and Robertson counties.

### April 1, 2011

The prolonged drought continued to worsen during the month of April but some rainfall near the end of the month provided a little relief to mainly the northeastern counties of north Texas. However, several rounds of severe weather during the latter half of the month damaged crops and fields. The drought was the worst in Leon, Robertson, and part of Milam and Grimes County where exceptional drought (D4) persisted for most of the month. Wildfires became a significant problem this month over the western half of the county warning area (CWA) due to the extremely dry conditions. During the month, 33 counties had Burn Bans. According to the US Drought Monitor, Grimes County was classified as extreme (D3) to exceptional drought (D4) during 2011.

## 10.6 PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, there have been 9 drought events within a 22-year reporting period, which provides a probability of one event almost every year. This frequency supports a highly likely probability of future events.

## 10.7 VULNERABILITY AND IMPACT

Loss estimates were based on 5 years of statistical data available from the NCEI between 1996–2000. A drought event frequency-impact was then developed to determine an impact profile on agriculture products and estimate potential losses due to drought in the area. Table 10-7 shows annualized loss.

**Table 10-7. Potential Annualized Losses for Grimes County, 1996-2000**

Jurisdiction	Property & Crop Loss	Annualized Loss Estimates
Grimes County	\$14,685,463	\$2,937,093

Drought impacts large areas and crosses jurisdictional boundaries. All existing and future buildings, facilities, and populations are exposed to this hazard and could potentially be impacted. However, drought impacts are mostly experienced in water shortages and crop/livestock losses on agricultural lands and rarely impact buildings.

The overall population, agricultural industries, and the environment are all vulnerable to drought in the Grimes County planning area, including all participating jurisdictions. Typical demand can deplete water resources during extreme drought conditions. As resources are depleted, potable water is in short supply and overall water quality can suffer. This elevates health concerns for all residents, but especially vulnerable populations – typically children, the elderly, the ill, and those living below the poverty level. In addition, potable water is necessary for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities.



The average person will survive only a few days without potable water, and this timeframe can be drastically shortened for those people with more-fragile health. The population over 65 in the Grimes County planning area is estimated at 5.5 percent of the total population and children under the age of 5 are estimated at 16.9 percent, or an estimated total of 6,271 potentially vulnerable residents in the planning area based on age. In addition, an estimated 17 percent of the planning area population live below the poverty level (Table 10-8) which may contribute to overall health impacts of a drought.

**Table 10-8. Populations at Greater Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Population 65 Years and Older</b>	<b>Population Under 5 Years Old</b>	<b>Population Below Poverty Level</b>
Grimes County	1,530 (5.46%)	4,741 (16.94%)	4,134 (17%)
Town of Anderson	11 (4.3%)	49 (9.1%)	50 (19.5%)
City of Bedias	44 (11.8%)	98 (26.2%)	82 (21.9%)
City of Iola	0 (0.0%)	35 (16.7%)	17 (8.1%)
City of Navasota <sup>a</sup>	506 (6.7%)	982 (13.0%)	1,060 (14.6%)
City of Plantersville	0 (0.0%)	117 (27.1%)	169 (39.2%)
City of Todd Mission	2 (6.9%)	1 (3.4%)	2 (6.9%)

Source: U.S. Census Bureau.

<sup>a</sup> The population counts for Navasota include units located in neighboring Brazos County. These population counts are not included in the Grimes County total.

The economic impact of droughts can be significant, as they produce a complex web of ramifications that span many sectors of the economy and reach well beyond the area experiencing physical drought. This complexity exists because water is integral to our ability to produce goods and provide services. If droughts extend over several years, the direct and indirect economic impact can be significant.

Habitat damage is a vulnerability of the environment during periods of drought for both aquatic and terrestrial species. The environment also becomes vulnerable during periods of extreme or prolonged drought due to severe erosion and land degradation.

Impacts of droughts experienced in the Grimes County planning area, including all participating jurisdictions, has resulted in no injuries or fatalities supporting a “Limited” severity of impact. This means injuries and/or illnesses are treatable with first aid and shutdown of facilities and services does not last more than 1 day. Annualized losses over the 5-year reporting period between 1996 and 2000 in Grimes County are estimated to be \$2,937,093 in 2022-dollars.

## **10.8 ASSESSMENT OF IMPACTS**

The Drought Impact Reporter was developed in 2005 by the University of Nebraska-Lincoln to provide a national database of drought impacts. Droughts can have an impact on agriculture; business and industry; energy; fire; plants, and wildlife relief and response as well as restrictions to society and public health; tourism and recreation; and water supply and quality. Reports are submitted from Federal, State, and local agencies, as well as the general public. Table 10-9 lists the

drought impacts to Grimes County from 2001 to 2021 based on reports received by the Drought Impact Reporter.

**Table 10-9. Drought Impact Statistics of Grimes County**

Category	Number of Impacts
Agriculture	50
Business and Industry	2
Energy	1
Fire	18
Plants & Wildlife	29
Relief, Response & Restrictions	24
Society & Public Health	2
Water Supply & Quality	4

Drought has the potential to impact people in the Grimes County planning area. While it is rare that drought, in and of itself, leads to a direct risk to the health and safety of people in the United States, severe water shortages could result in inadequate supply for human needs. The impact of climate change could produce longer, more severe droughts, exacerbating the current drought impacts. Worsening drought conditions can be 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/or 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 may increase between municipalities, counties, states, and regions.
- 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 as well as lower quality of water for consumption.
- Firefighters may have limited water resources to aid in firefighting and suppression activities, increasing risk to lives and property.
- During drought there is an increased risk for wildfires and dust storms.
- The community may need increased operational costs to enforce water restrictions or rationing.

- Prolonged drought can lead to increases in illness and disease related to drought.
- Utility providers can see decreases in revenue as water supplies diminish.
- Utilities providers may cut back 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 simply cannot produce as much electricity from low water levels as they can from high water levels.
- 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 pose a threat to plant life as soil quality will decline.
- Dry and dead vegetation will increase the risk of wildfire.
- 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.
- Drought may limit livestock grazing resulting in decreased livestock weight, potential increased livestock mortality, and increased cost for feed.
- Negatively impacted water suppliers may face increased costs resulting from the transport water or develop supplemental water resources.
- Long-term drought may negatively impact future economic development.

The overall extent of damages caused by periods of drought is dependent on its extent and duration. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a drought event.

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## 11.0 TORNADO

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### 11.1 HAZARD DESCRIPTION

A tornado is a rapidly rotating column of air extending between, and in contact with, a cloud and the surface of the earth. The most violent tornadoes are capable of tremendous destruction and have wind speeds of 250 mph or more. In extreme cases, winds may approach 300 mph. Damage paths can be more than 1 mile wide and 50 miles long.

The most powerful tornadoes are produced by “Supercell Thunderstorms.” These thunderstorms are created when horizontal wind shears (winds moving in different directions at different altitudes) begin to rotate. This horizontal rotation can be tilted vertically by violent updrafts, and the rotation radius can shrink, forming a vertical column of very quickly swirling air. This rotating air can eventually reach the ground, forming a tornado. Table 11-1 depicts varying characteristics of tornadoes.

**Table 11-1. Tornado Variations**

Weak Tornadoes	Strong Tornadoes	Violent Tornadoes
<ul style="list-style-type: none"><li>• 69% of all tornadoes</li><li>• Less than 5% of tornado deaths</li><li>• Lifetime 1-10+ minutes</li><li>• Winds less than 110 mph</li></ul>	<ul style="list-style-type: none"><li>• 29% of all tornadoes</li><li>• Nearly 30% of all tornado deaths</li><li>• May last 20 minutes or longer</li><li>• Winds 110–205 mph</li></ul>	<ul style="list-style-type: none"><li>• 2% of all tornadoes</li><li>• 70% of all tornado deaths</li><li>• Lifetime can exceed 1 hour</li><li>• Winds greater than 205 mph</li></ul>

### 11.2 LOCATION

Tornadoes do not have any specific geographic boundary and can occur throughout Grimes County uniformly. It is assumed that the entire Grimes County planning area, including all participating jurisdictions, are uniformly exposed to tornado activity. The entire Grimes County planning area is in Wind Zone III (Figure 11-1), where tornado winds can be as high as 200 mph. The black circle indicates Grimes County’s location.

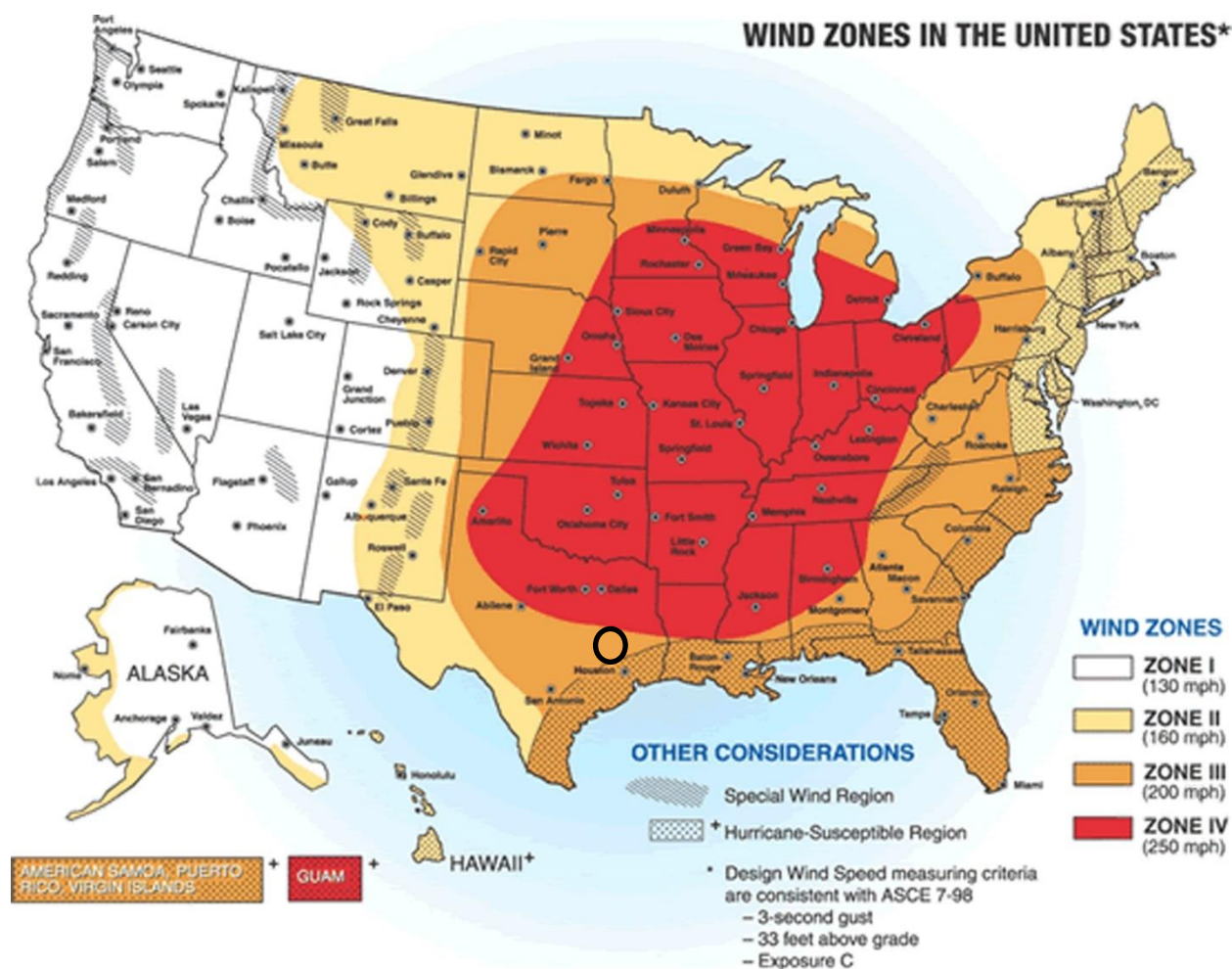


Figure 11-1. FEMA Wind Zones in the United States

### 11.3 EXTENT

The destruction caused by tornadoes ranges from light to inconceivable, depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, such as residential homes (particularly mobile homes).

Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale (Table 11-2). Since February 2007, the Fujita Scale has been replaced by the Enhanced Fujita Scale (Table 11-3), which retains the same basic design and six strength categories as the previous scale. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures.

Both the Fujita Scale and Enhanced Fujita Scale should be referenced in reviewing previous occurrences since tornado events prior to 2007 will follow the original Fujita Scale. The largest magnitude reported within the planning area is an F2 on the Fujita Scale, which is a “Significant Tornado.” Based on the planning area’s location in Wind Zone III, the planning area could experience anywhere from an EF0 to EF4 depending on the wind speed.

**Table 11-2. The Fujita Tornado Scale**

<b>F-Scale Number</b>	<b>Intensity</b>	<b>Wind Speed (mph)</b>	<b>Type of Damage Done</b>	<b>Percent of Appraised Structure Value Lost Due to Damage</b>
F0	Gale Tornado	40–72	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	None Estimated
F1	Moderate Tornado	73–112	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.	0%–20%
F2	Significant Tornado	113–157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	50%–100%
F3	Severe Tornado	158–206	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	100%
F4	Devastating Tornado	207–260	Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown, and large missiles generated.	100%
F5	Incredible Tornado	261–318	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles flying through the air in excess of 330 yards; trees debarked; steel reinforced concrete badly damaged.	100%

Source: NOAA.

**Table 11-3. Enhanced Fujita Scale for Tornadoes**

Storm Category	Damage Level	3-Second Gust (mph)	Description of Damages
EFO	Gale	65–85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.
EF1	Weak	86–110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.
EF2	Strong	111–135	Considerable damage; roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
EF3	Severe	136–165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
EF4	Devastating	166–200	Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown, and large missiles generated.
EF5	Incredible	200+	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles flying through the air in excess of 330 yards; trees debarked; steel reinforced concrete badly damaged.

The events in Grimes County (converted from the Fujita Scale) have been between EF0 and EF3 (Table 11-4). Therefore, the range of intensity that the Grimes County planning area, including all participating jurisdictions, would be expected to mitigate is a tornado event that would be a low to incredible risk, an EF0 to EF3. Historically, the strongest tornado to strike the planning area was a F2, which would be an EF3 on the Enhanced Fujita Scale with the highest wind speed.

National Storm Prediction Center recorded between one and four EF3/EF4/EF5 tornadoes in Grimes County between 1950 and 2006. Figure 11-2 shows the summary of recorded EF3, EF4 and EF5 Tornadoes per 2,470 square miles. The black circle represents Grimes County's location.



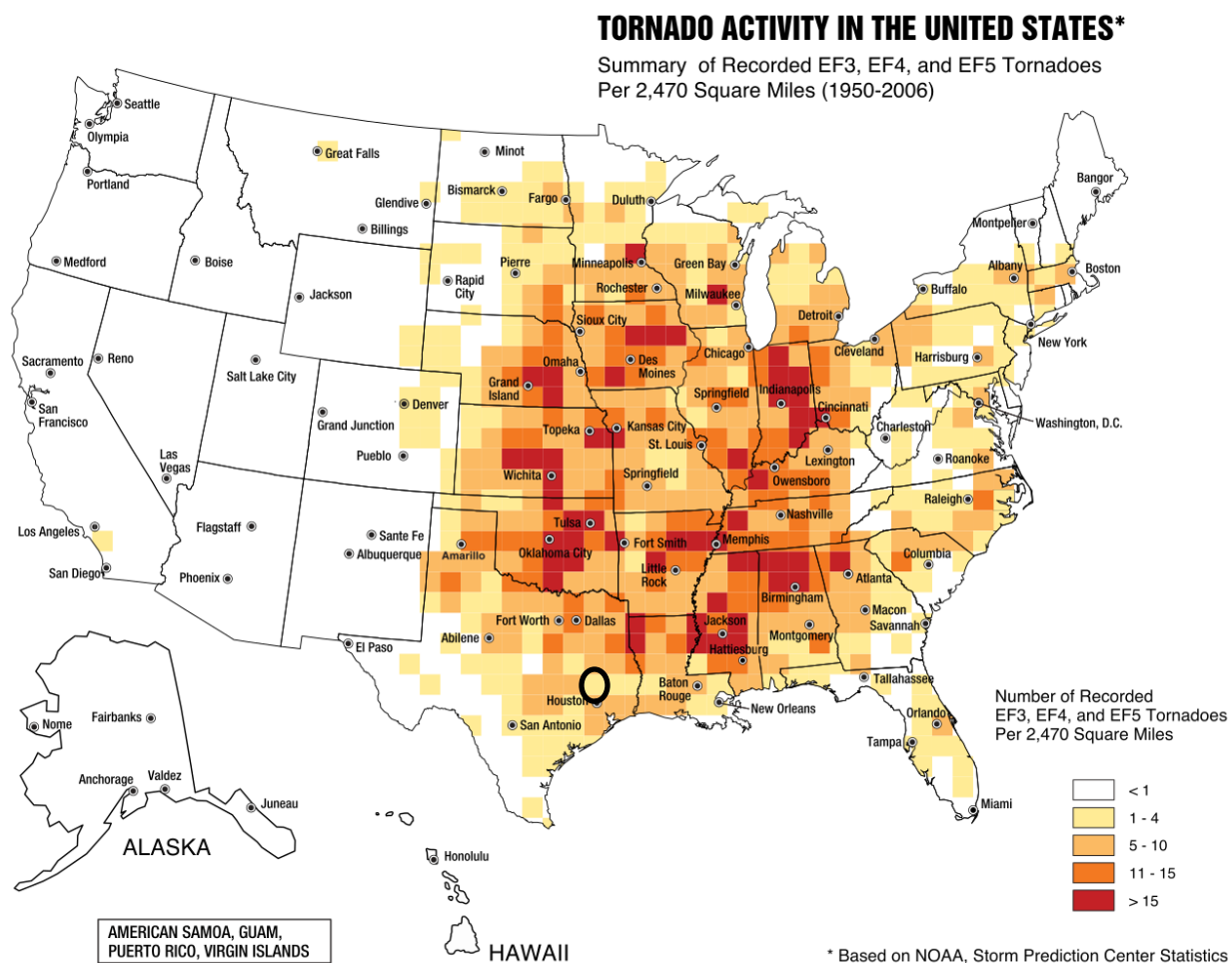


Figure 11-2. Tornado Activities in the United States

## 11.4 HISTORICAL OCCURRENCES

Only reported tornadoes were factored into the Risk Assessment. It is likely that a high number of occurrences have gone unreported over the past 68 years. Historical tornado data for the county and participating jurisdictions is provided within a jurisdiction-wide basis per the NCEI database.

Figure 11-3 identifies the locations of previous occurrences in the Grimes County planning area from 1954 through 2021. A total of 13 events have been recorded by NCEI databases for the Grimes County planning area. Table 11-4 and 11-5 shows the historical damages in Grimes County between 1954 and 2021.

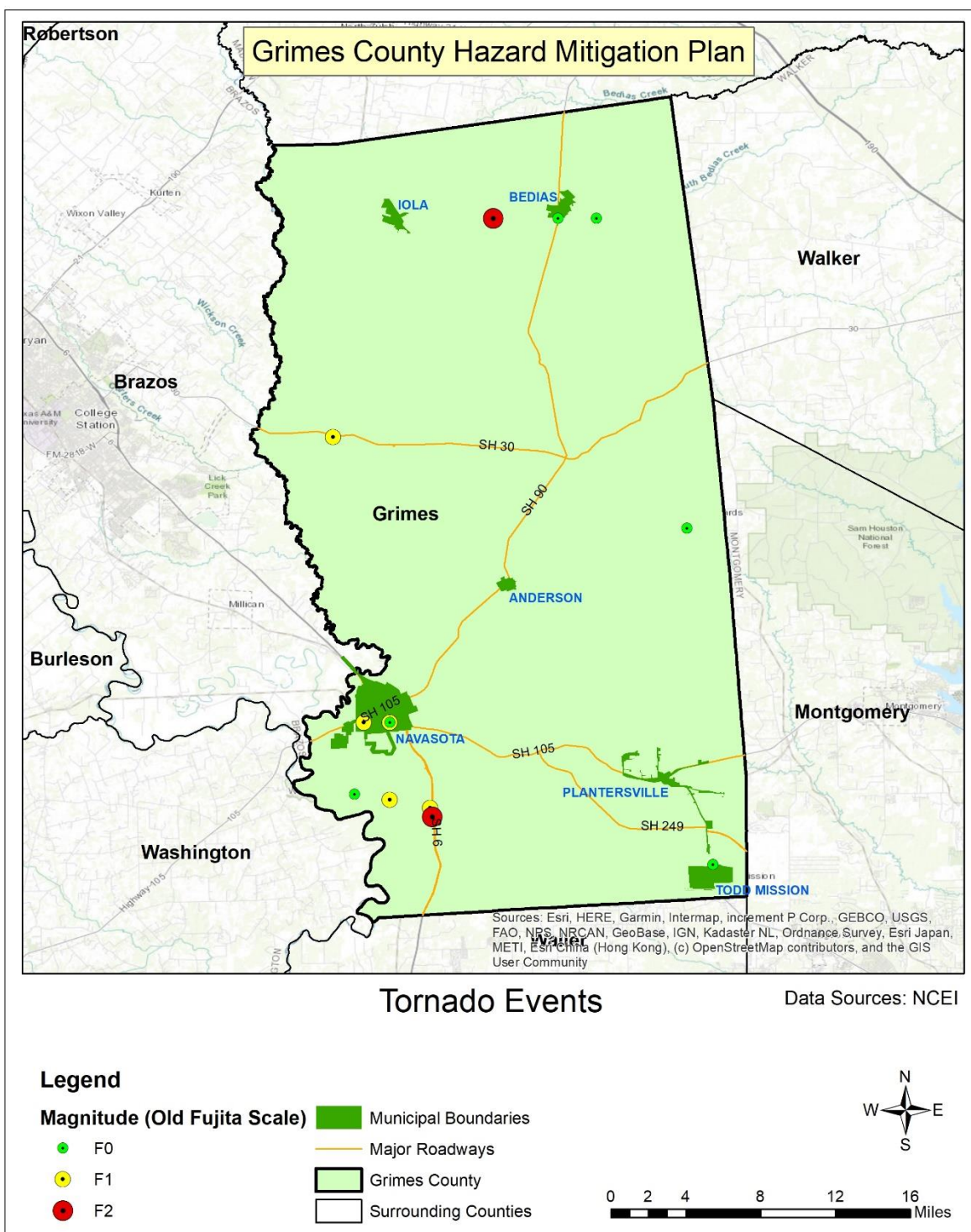


Figure 11-3. Spatial Historical Tornado Events, 1954–2021

**Table 11-4. Historical Tornado Events, 1954–2021**

Location	Date	Magnitude	Death	Injuries	Property Damage <sup>a</sup>	Crop Damage
Grimes Co.	5/11/1954	F1	0	0	0	0
Grimes Co.	7/26/1954	F1	0	0	0	0
Grimes Co.	2/10/1981	F2	0	2	822,266	0
Grimes Co.	5/20/1983	F0	0	0	87	0
Grimes Co.	12/10/1983	F1	0	0	713,497	0
Bedias	3/10/2000	F0	0	0	25,331	0
Bedias	12/23/2002	F0	0	0	11,187	0
Carlos	11/17/2015	EF1	0	0	243,628	0
Courtney	5/26/2016	EF2	0	0	240,695	0
Courtney	5/26/2016	EF1	0	0	120,347	0
Navasota Municipal Airport	5/26/2016	EF0	0	0	60,174	0
Richards	1/21/1998	F0	0	0	8,945	0
Todd Mission	11/23/2004	F0	0	0	0	0

<sup>a</sup> In 2022 Dollar value.**Table 11-5. Summary of Historical Events, 1954-2021**

Jurisdiction	Number of Events	Highest Magnitude	Death	Injuries	Property Damage	Crop Damage
Grimes County	13	EF2	0	2	2,246,157	0

Based on the list of historical tornado events for the entire Grimes County planning area (listed above), including all participating jurisdictions, four of the events have occurred since the 2013 Hazard Mitigation Plan.

## 11.5 SIGNIFICANT EVENTS

### February 10, 1981, Near Bedias

Although widespread light-to-moderate damages were caused by thunderstorm wind gusts through this area, a well-defined tornado path left a 2.5-mile trail of more severe damages in northern Grimes County. The tornado path was along a direction a few degrees north of due east beginning about 3 miles west of the Bedias Community near Farm to Mark Road 1696. Barns, buildings, and fences were extensively damaged at three dairy farms in this area. The tornado passed very close to a mobile home on one of the farms demolishing it and strewing debris for considerable distance down the tornado path. A man, woman, and two children were occupants of the manufactured home. Both adults were injured in the tornado while the two small children were found unhurt in the rubble. The children were found sandwiched between two mattresses, which protected them. The tornado lifted

before reaching Texas Highway 90. No damage occurred in the town of Bedias. Damage was consistent with F2 (EF2/EF3) rating. NCEI record does not mention the exact wind speed, but it was between 113 and 157 mph.

### **May 26, 2016, Navasota, White Hall, and Courtney**

Strong upper-level disturbances combined with above-average moisture levels and favorable upper-level wind patterns produced a round of severe thunderstorms that resulted in excessive rainfall and flash flooding during the afternoon hours of May 26 and into the overnight and early morning hours of May 27. Rainfall totals of 6 to 10 inches were reported in the north and northwestern parts of neighboring Harris, Waller, Montgomery, and Washington counties, with much of the rain falling in a 3- to 6-hour period. Portions of Washington County recorded over 12 inches of rainfall in a 3-hour period. This event was the fourth federal disaster declaration for Harris County in 2016.

The storm uprooted numerous trees around the Wallace Pack prison complex and vehicles in parking lot were moved in different directions. Many large trees were also uprooted west of Route 6. Just east of Wallace Pack, a home had its roof taken off. The damage was consistent with the EF2 rating. The damage path extended from a large commercial metal building on a rancher's property and went east into a wooded area. A large metal building and the house on the property were destroyed. In the wooded area numerous large trees were uprooted and snapped.

## **11.6 PROBABILITY OF FUTURE EVENTS**

Tornadic storms can occur at any time of year and at any time of day, but they are typically more common in the spring months during the late afternoon and evening hours. A smaller, high-frequency period can emerge in the fall during the brief transition between the warm and cold seasons. According to historical records, Grimes County, including all participating jurisdictions, can experience a tornado touchdown approximately once every 5 years. This frequency supports a likely probability of future events for Grimes County and all participating jurisdictions. It should be noted that the link between tornadoes and climate change is currently not fully understood by the research community.<sup>7</sup>

## **11.7 VULNERABILITY AND IMPACT**

Because tornadoes often cross jurisdictional boundaries, all existing and future buildings, facilities, and populations in the entire Grimes County planning area are considered exposed to this hazard and could potentially 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, 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:

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<sup>7</sup> <https://www.c2es.org/content/tornadoes-and-climate-change/>

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

Tornadoes can cause a significant threat to people as they could be struck by flying debris, struck by falling trees/branches, or exposed to downed utility lines and poles. Blocked roads could prevent first responders to respond to calls. Tornadoes commonly cause power outages which could cause health and safety risks to residents and visitors, as well as to patients in hospitals.

The Grimes County planning area features multiple mobile or manufactured home parks throughout the planning area, including all participating jurisdictions. These parks are typically more vulnerable to tornado events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area including all participating jurisdiction and unincorporated areas of the county which would also be more vulnerable. U.S. Census data indicate a total of 348 manufactured homes located in the Grimes County planning area (3.1%) (Table 11-6). It should be noted that the Town of Anderson, Plantersville, and Todd Mission currently do not feature any manufactured homes. In addition, 35.7 percent (approximately 3,898 structures) of the SFR structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant tornado events.

**Table 11-6. Structures at Greater Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Manufactured Homes</b>	<b>Structures Built Before 1980</b>
Grimes County	348	3,898
Town of Anderson	0	67
City of Bédias	9	97
City of Iola	6	74
City of Navasota <sup>a</sup>	31	1,431
City of Plantersville	0	73
City of Todd Mission	0	53

Source: U.S. Census Bureau.

<sup>a</sup> The housing unit counts for Navasota includes units located in neighboring Brazos County; these housing units are not included in the Grimes County total.

While all citizens are at risk to the impacts of a tornado, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 17 percent of the planning area population live below the poverty level (Table 11-7).

**Table 11-7. Populations at Greatest Risk by Jurisdiction**

Jurisdiction	Population Below Poverty Level
Grimes County	4,134 (17%)
Town of Anderson	50 (19.5%)
City of Bédias	82 (21.9%)
City of Iola	17 (8.1%)
City of Navasota <sup>a</sup>	1,060 (14.6%)
City of Plantersville	169 (39.2%)
City of Todd Mission	2 (6.9%)

Source: U.S. Census Bureau.

<sup>a</sup> The population counts for Navasota include units located in neighboring Brazos County, although these population counts are not included in the Grimes County total.

Table 11-8 lists critical facilities vulnerable to tornado events in each participating jurisdiction.

**Table 11-8. Critical Facilities at Risk by Jurisdiction**

Jurisdiction	Critical Facility
Grimes County	1 Airport, 18 Closed Well, 4 Commercial Facilities, 33 Communication Facilities, 64 Dams, 54 Energy Facilities, 9 Fire Stations, 20 Government Buildings, 38 Hazardous Sites, 7 Helipads, 5 Manufacturing Facilities, 5 Medical Facilities, 3 Police Stations, 2 Prisons, 39 Public Gathering Centers, 5 Railroads, 12 Schools, 48 Water/Wastewater Facilities.
Town of Anderson	4 Closed Wells, 1 Commercial Facility, 11 Communication Facilities, 29 Energy Facilities, 1 Fire Station, 10 Government Buildings, 11 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 1 Police Station, 7 Public Gathering Centers, 2 Schools, 8 Water/Wastewater Facilities.
City of Bédias	1 Closed Well, 4 Communication Facilities, 4 Energy Facilities, 1 Fire Station, 3 Hazardous Sites, 1 Helipad, 4 Public Gathering Centers, 9 Water/Wastewater Facilities.
City of Iola	10 Closed Wells, 2 Communication Facilities, 5 Dams, 13 Energy Facilities, 2 Fire Stations, 4 Government Buildings, 5 Hazardous Sites, 2 Helipads, 5 Public Gathering Centers, 2 Schools, 10 Water/Wastewater Facilities.
City of Navasota	1 Airport, 2 Care Facilities, 2 Closed Wells, 2 Commercial Facilities, 8 Communication Facilities, 6 Energy Facilities, 1 Fire Station, 6 Government Buildings, 12 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 5 Medical Facilities, 1 Police Station, 17 Public Gathering Centers, 3 Railroads, 7 Schools, 15 Water/Wastewater Facilities.
City of Plantersville	1 Commercial Facility, 4 Communication Facilities, 1 Dam, 2 Fire Stations, 1 Hazardous Site, 1 Manufacturing Facility, 1 Police Station, 4 Public Gathering Centers, 4 Water/Wastewater Facilities.
City of Todd Mission	1 Communication Facility, 1 Energy Facility, 1 Fire Station, 1 Police Station, 2 Public Gathering Centers, 1 Water/Wastewater Facility.



The average loss estimate of property and crop is \$2,246,157 (in 2022 dollars), having an approximate annual loss estimate of \$33,032 (Table 11-9). Based on historic loss and damages, the impact of tornado on the Grimes County planning area, including all participating jurisdictions, can be considered "Limited." It should be noted that not all tornado events are reported in the NCEI database and damage is most likely underreported.

**Table 11-9. Potential Annualized Losses for Grimes County**

Jurisdiction	Property & Crop Loss	Annualized Loss Estimate
Grimes County	\$2,246,157	\$33,032

## 11.8 ASSESSMENT OF IMPACTS

Tornadoes have the potential to pose a significant risk to the population and can create dangerous situations. Often, providing and preserving public health and safety is difficult. The impact of climate change could produce larger, more severe tornado events, exacerbating the current tornado impacts. More destructive tornado conditions can be frequently associated with a variety of impacts, including:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Manufactured homes may suffer substantial damage as they would be more vulnerable than typical site-built structures.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- Tornadoes often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages can result in an increase in structure fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Tornadoes can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders must enter the damage area shortly after the tornado passes to begin rescue operations and to organize cleanup and assessments efforts, therefore they are exposed to downed power lines, unstable and unusual 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, loss of communications, and damaged emergency vehicles and equipment.
- City or county departments may be damaged or destroyed, delaying response and recovery efforts for the entire community.
- Private-sector entities that the City and its residents rely on, such as utility providers, financial institutions, and medical-care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the tornado may be negatively impacted while roads and utilities are being restored, 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 normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures destroyed by a tornado may not be rebuilt for years, reducing the tax base for the community.
- Large or intense tornadoes may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities may be unavailable, and tourism can be unappealing for years following a large tornado, devastating directly related local businesses.

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



## 12.0 HAIL

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### 12.1 HAZARD DESCRIPTION

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

### 12.2 LOCATION

Hailstorms are an extension of severe thunderstorms that can cause severe damage. Hailstorms are not confined to any specific geographic location and can vary greatly in size, location, intensity, and duration. Therefore, the Grimes County planning area, including all participating jurisdictions, are equally at risk to the hazard of hail.

### 12.3 EXTENT

The NWS classifies a storm as "severe" when there is hail three-quarters of an inch in diameter (approximately the size of a penny) or greater, based on radar intensity or as seen by observers. The intensity category of a hailstorm depends on hail size and the potential damage it could cause, as depicted in the NCEI Intensity Scale in Table 12-1.

**Table 12-1. Hail Intensity and Magnitude**

Size Code	Intensity Category	Size (diameter inches)	Descriptive Term	Typical Damage
H0	Hard Hail	Up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33–0.60	Marble	Slight damage to plants and crops
H2	Potentially Damaging	0.60–0.80	Dime	Significant damage to plants and crops
H3	Severe	0.80–1.20	Nickel	Severe damage to plants and crops
H4	Severe	1.2–1.6	Quarter	Widespread glass and auto damage
H5	Destructive	1.6–2.0	Half Dollar	Widespread destruction of glass, roofs, and risk of injuries
H6	Destructive	2.0–2.4	Ping-Pong Ball	Aircraft bodywork dented and brick wall pitted

Size Code	Intensity Category	Size (diameter inches)	Descriptive Term	Typical Damage
H7	Very Destructive	2.4–3.0	Golf Ball	Severe roof damage and risk of serious injuries
H8	Very Destructive	3.0–3.5	Hen Egg	Severe damage to all structures
H9	Super Hailstorm	3.5–4.0	Tennis Ball	Extensive structural damage, could cause fatal injuries
H10	Super Hailstorm	4.0+	Baseball	Extensive structural damage, could cause fatal injuries

Note: NCEI Intensity Scale, based on the TORRO Hailstorm Intensity Scale.

The intensity scale in Table 12-1 ranges from H0 to H10, with increments of intensity or damage potential in relation to hail size (distribution and maximum), texture, fall speed, speed of storm translation, and strength of the accompanying wind. Based on available data regarding the previous occurrences for the area, the Grimes County planning area, including all participating jurisdictions, may experience hailstorms ranging from an H0 to an H7. The largest hail event in the Grimes County planning area resulted in hail measuring 2.75 inches in diameter, or a H7, very destructive hail event.

## 12.4 HISTORICAL OCCURRENCES

Historical evidence shown in Figure 12-1 demonstrates that the planning area is vulnerable to hail events overall, which typically results from severe thunderstorm activity. Historical events with reported damages, injuries, or fatalities are shown in Table 12-2. A total of 64 reported historical hail events impacted the Grimes County planning area between 1958 through 2021 (Summary Table 12-3). These events were reported to NCEI and NOAA databases and may not represent all hail events to have occurred during the past 64 years. Only those events for the Grimes County planning area with latitude and longitude available were plotted (Figure 12-1).

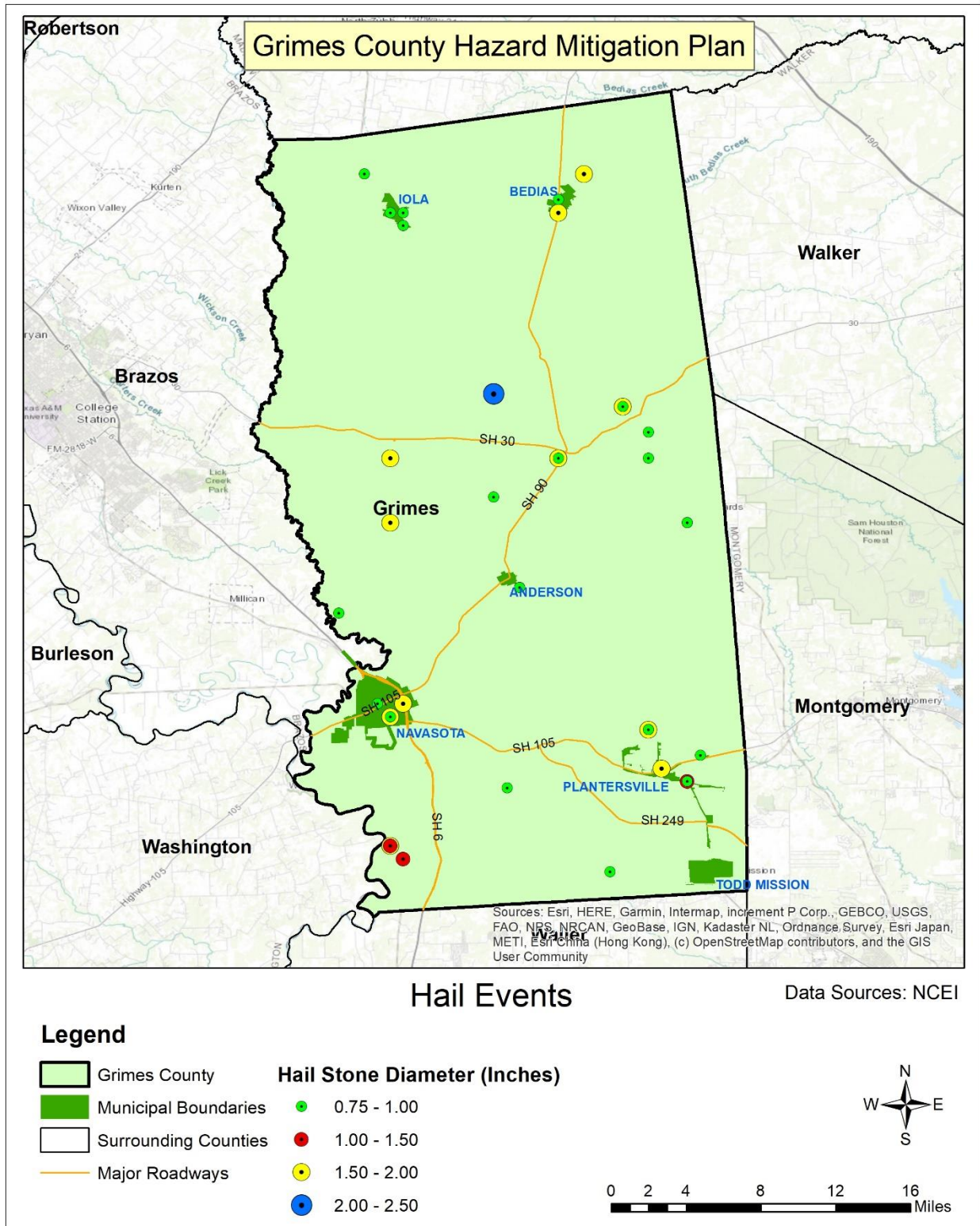


Figure 12-1. Spatial Historical Hail Events, 1958-2021

**Table 12-2. Historical Hail Events, 1958-2021**

Location	Date	Magnitude	Deaths	Injuries	Property Damage <sup>a</sup>	Crop Damage
Grimes Co.	4/27/1958	1.75	0	0	0	0
Grimes Co.	3/7/1969	1.5	0	0	0	0
Grimes Co.	2/10/1981	2.5	0	0	0	0
Grimes Co.	5/20/1983	1	0	0	0	0
Grimes Co.	3/23/1984	0.75	0	0	0	0
Grimes Co.	5/13/1989	0.75	0	0	0	0
Grimes Co.	2/9/1990	1.5	0	0	0	0
Grimes Co.	5/27/1992	0.75	0	0	0	0
Grimes Co.	9/3/1992	1	0	0	0	0
Grimes Co.	9/3/1992	1.5	0	0	0	0
Grimes Co.	4/15/1994	0.75	0	0	0	0
Grimes Co.	4/15/1994	0.75	0	0	0	0
Grimes Co.	4/15/1994	1.5	0	0	0	0
Grimes Co.	4/15/1994	1.5	0	0	0	0
Anderson	3/30/2002	1	0	0	48,508	0
Anderson	12/18/1995	1.5	0	0	18,834	0
Bedias	1/22/1999	1.75	0	0	26,394	0
Bedias	5/16/2003	0.88	0	0	4,727	0
Bedias	8/3/2005	1.75	0	0	14,720	0
Bedias	8/26/2009	0.88	0	0	0	0
Bedias	5/2/1994	0.75	0	0	9,800	0
Carlos	3/8/1999	1.75	0	0	26,283	0
Erwin	3/18/2018	0.75	0	0	0	0
Iola	4/5/2005	0.88	0	0	4,457	0
Iola	4/4/2008	0.75	0	0	0	0
Iola	5/7/2019	1	0	0	0	0
Iola	5/2/1994	1.75	0	0	9,800	0
Navasota	12/23/1997	1.75	0	0	17,924	0
Navasota	6/5/1998	1.75	0	0	17,736	0
Navasota	5/4/2000	1	0	0	42,144	0
Navasota	4/4/2008	0.75	0	0	0	0
Navasota	4/24/2020	1.75	0	0	0	0
Plantersville	4/26/1997	0.75	0	0	9,023	0
Plantersville	3/18/2018	0.88	0	0	0	0
Plantersville	4/24/2020	2	0	0	4,510	0
Plantersville	8/2/2020	1	0	0	0	0

Location	Date	Magnitude	Deaths	Injuries	Property Damage <sup>a</sup>	Crop Damage
Richards	1/21/1998	1	0	0	5,367	0
Roans Prairie	1/21/1998	1.75	0	0	17,890	0
Roans Prairie	5/31/2001	0.75	0	0	3,254	0
Roans Prairie	4/10/2004	0.75	0	0	7,689	0
Roans Prairie	5/13/2004	0.75	0	0	1,529	0
Shiro	1/21/1998	1.75	0	0	17,890	0
Shiro	5/4/2000	0.75	0	0	16,858	0
Stoneham	4/5/1996	1.75	0	0	18,497	0
Stoneham	6/17/1997	0.75	0	0	9,018	0
Stoneham	1/11/1998	0.75	0	0	5,367	0
Stoneham	5/4/2000	0.75	0	0	16,858	0
Singleton	5/28/1995	1	0	0	3,800	0
Singleton	5/28/1995	1	0	0	3,800	0

<sup>a</sup> Damage in 2022 Dollar Value.

**Table 12-3. Historical Hail Events Summary, 1958-2021**

Jurisdiction	Number of Events	Highest Magnitude	Death	Injuries	Property Damage	Crop Damage
Grimes County	49	2.5	0	0	397,175	0
Town of Anderson	2	1.5	0	0	67,342	0
City of Bedias	5	1.75	0	0	55,641	0
City of Iola	4	1.75	0	0	14,257	0
City of Navasota	5	1.75	0	0	77,804	0
City of Plantersville	4	2.00	0	0	13,533	0

Based on the list of historical hail events for the Grimes County planning area (listed above), including all participating jurisdictions, seven of the events have occurred since the 2013 Hazard Mitigation Plan.

## 12.5 SIGNIFICANT EVENTS

Recorded significant events for hail are included below for April 2020 and April 1996.

### April 24, 2020, Plantersville

Areas of the County experienced large hail and wind damage with evening severe thunderstorms. Lime-sized hail damaged cars and equipment in Plantersville.

**April 21, 1996, Grimes County**

Severe thunderstorms formed during the afternoon along a low-pressure trough moving eastward out of the Texas panhandle and a warm front moving northward toward the Red River. Hail as large as baseballs was reported.

**12.6 PROBABILITY OF FUTURE EVENTS**

Based on available records of historic events, 49 events in a 64-year reporting period for Grimes County provides a probability of one event per year. This frequency supports a highly likely probability of future events for the Grimes County planning area including all participating jurisdictions. Furthermore, the link between climate change and increases in the frequency and severity of extreme precipitation events indicates hailstorms may increase in frequency and magnitude within Grimes County as well.<sup>8</sup>

**12.7 VULNERABILITY AND IMPACT**

Damage from hail approaches \$1 billion in the United States each year. Much of the damage inflicted by hail is to crops. Even relatively small hail can quickly destroy crops. Vehicles, roofs of buildings and homes, and landscaping are other examples most damaged by hail.

Utility systems on roofs at school districts and critical facilities are particularly vulnerable. Hail can cause a significant threat to people as they can be struck by hail and falling trees and branches. Outdoor activities and events may elevate the risk to residents and visitors when a hailstorm strikes with little warning. Portable buildings typically utilized by schools and commercial sites such as construction areas would be more vulnerable to hail events than the typical site-built structures.

The Grimes County planning area features mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to hail events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area, including in unincorporated areas of the county, which would also be more vulnerable. U.S. Census data indicate a total of 348 manufactured homes located in the Grimes County planning area (3.1%) (Table 12-4). It should be noted that the Town of Anderson, Plantersville, and Todd Mission currently does not feature any manufactured homes. In addition, 35.7 percent (approximately 3,898 structures) of the SFR structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant hail events.

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<sup>8</sup> <https://www.c2es.org/content/extreme-precipitation-and-climate-change/>

**Table 12-4. Structures at Greater Risk by Jurisdiction**

Jurisdiction	Manufactured Homes	Structures Built Before 1980
Grimes County	348	3,898
Town of Anderson	0	67
City of Bédias	9	97
City of Iola	6	74
City of Navasota <sup>a</sup>	31	1,431
City of Plantersville	0	73
City of Todd Mission	0	53

Source: U.S. Census Bureau.

<sup>a</sup> The housing unit counts for Navasota includes units located in neighboring Brazos County. These housing units are not included in the Grimes County total.

While all citizens are at risk to the impacts of hail, forced relocation and disaster recovery drastically impact low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 17 percent of the planning area population live below the poverty level (Table 12-5).

**Table 12-5. Populations at Greatest Risk by Jurisdiction**

Jurisdiction	Population Below Poverty Level
Grimes County	4,134 (17%)
Town of Anderson	50 (19.5%)
City of Bédias	82 (21.9%)
City of Iola	17 (8.1%)
City of Navasota <sup>a</sup>	1,060 (14.6%)
City of Plantersville	169 (39.2%)
City of Todd Mission	2 (6.9%)

Source: U.S. Census Bureau.

<sup>a</sup> The population counts for Navasota includes units located in neighboring Brazos County. Note: These population counts are not included in the Grimes County total.

The following critical facilities would be vulnerable to hail events in each participating jurisdiction:



**Table 12-6. Critical Facilities at Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Critical Facility</b>
Grimes County	1 Airport, 18 Closed Well, 4 Commercial Facilities, 33 Communication Facilities, 64 Dams, 54 Energy Facilities, 9 Fire Stations, 20 Government Buildings, 38 Hazardous Sites, 7 Helipads, 5 Manufacturing Facilities, 5 Medical Facilities, 3 Police Stations, 2 Prisons, 39 Public Gathering Centers, 5 Railroads, 12 Schools, 48 Water/Wastewater Facilities.
Town of Anderson	4 Closed Wells, 1 Commercial Facility, 11 Communication Facilities, 29 Energy Facilities, 1 Fire Station, 10 Government Buildings, 11 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 1 Police Station, 7 Public Gathering Centers, 2 Schools, 8 Water/Wastewater Facilities.
City of Bedias	1 Closed Well, 4 Communication Facilities, 4 Energy Facilities, 1 Fire Station, 3 Hazardous Sites, 1 Helipad, 4 Public Gathering Centers, 9 Water/Wastewater Facilities.
City of Iola	10 Closed Wells, 2 Communication Facilities, 13 Energy Facilities, 2 Fire Stations, 4 Government Buildings, 5 Hazardous Sites, 2 Helipads, 5 Public Gathering Centers, 2 Schools, 10 Water/Wastewater Facilities.
City of Navasota	1 Airport, 2 Care Facilities, 2 Closed Wells, 2 Commercial Facilities, 8 Communication Facilities, 6 Energy Facilities, 1 Fire Station, 6 Government Buildings, 12 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 5 Medical Facilities, 1 Police Station, 17 Public Gathering Centers, 3 Railroads, 7 Schools, 15 Water/Wastewater Facilities.
City of Plantersville	1 Commercial Facility, 4 Communication Facilities, 1 Dam, 2 Fire Stations, 1 Hazardous Site, 1 Manufacturing Facility, 1 Police Station, 4 Public Gathering Centers, 4 Water/Wastewater Facilities.
City of Todd Mission	1 Communication Facility, 1 Energy Facility, 1 Fire Station, 1 Police Station, 2 Public Gathering Centers, 1 Water/Wastewater Facility.

Hail has been known to cause injury to humans and occasionally has been fatal. Overall, the average loss estimate of property and crops (in 2022 dollars) is \$397,175 having an approximate annual loss estimate of \$6,205. Based on historic loss and damages, the impact of hail damages on the Grimes County planning area, including all participating jurisdictions, can be considered “Minor” severity of impact, meaning very few injuries, only minor property damage, and minimal disruption on quality of life and temporary shutdown of critical facilities. It should be noted that not all hail events are reported in NCEI database, and the damage is most likely underreported.

**Table 12-7. Potential Annualized Losses for Grimes County**

<b>Jurisdiction</b>	<b>Property &amp; Crop Loss</b>	<b>Annualized Loss Estimate</b>
Grimes County	\$397,175	\$6,205



## 12.8 ASSESSMENT OF IMPACTS

Hail events have the potential to pose a significant risk to people and can create dangerous situations. The impact of climate change could produce larger, more severe hail events, exacerbating the impact. Worsening hail conditions can be frequently associated with a variety of impacts, including:

- Hail may create hazardous road conditions during and immediately following an event, delaying first responders from providing for or preserving public health and safety.
- Individuals and first responders who are exposed to the storm may be struck by hail, falling branches, or downed trees resulting in injuries or possible fatalities.
- Residential structures can be damaged by falling trees, which can result in physical harm to occupants.
- Large hail events will likely cause extensive roof damage to residential structures along with siding damage and broken windows, creating a spike in insurance claims and a rise in premiums.
- Automobile damage may be extensive depending on the size of the hail and length of the storm.
- Hail events can result in power outages over widespread areas increasing the risk to more vulnerable portions of the population who rely on power for health, life and/or safety.
- Extended power outages can result in an increase in structure fires and/or carbon monoxide poisoning, as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, damaged structures, hazardous spills, and debris that often accompany hail events, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Downed power lines and large debris, such as downed trees, can result in the inability of emergency response vehicles to access areas of the community.
- Hazardous road conditions may prevent critical staff from reporting for duty, limiting response capabilities.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by the hail event may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency-response capabilities.
- Depending on the severity and scale of damage caused by large hail events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A significant hail event could significantly damage agricultural crops, resulting in extensive economic losses for the community and surrounding area.

- Hail events may injure or kill livestock and wildlife.
- A large hail event could impact the accessibility of recreational areas and parks due to extended power outages or debris-clogged access roads.

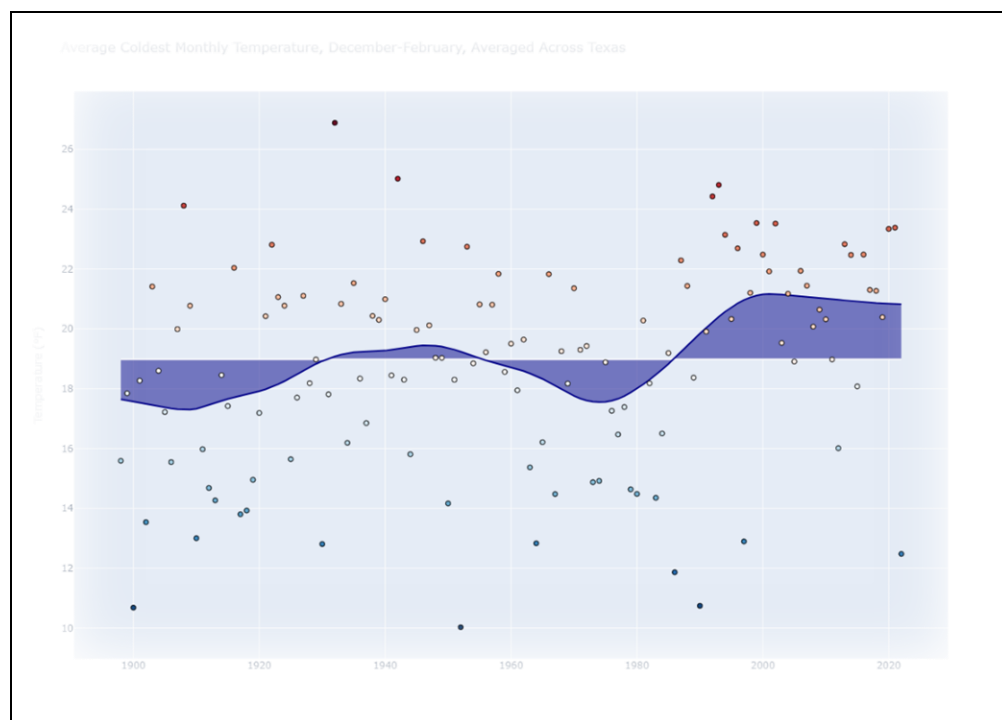
The economic and financial impacts of hail will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning conducted by the community, local businesses, and citizens will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

## 13.0 WINTER STORM

### 13.1 HAZARD DESCRIPTION

A severe winter storm event is identified as a storm with snow, ice, and/or freezing rain. This type of storm can cause significant problems for area residents. Winter storms are associated with freezing or frozen precipitation such as freezing rain, sleet, snow, and the combined effects of winter precipitation and strong winds. Wind chill is a function of temperature and wind.

Winter storms that threaten the Grimes County planning area usually begin as powerful cold fronts that push south from central Canada. Although the county is at risk of ice hazards, extremely cold temperatures, and snow, the effects and frequencies of winter storm events are generally mild and short-lived. January is the coldest month in Grimes County. Figure 13-1 shows the average coldest monthly temperature from December to February across Texas. Temperatures fall in January in Grimes County to between 35°F and 40°F, but several days are expected to be under 32°F during winter. Table 13-1 describes the types of winter storms that are likely to occur within Grimes County, including all participating jurisdictions.



Source: Office of the Texas State Climatologist.

**Figure 13-1. Average Coldest Monthly Temperature, December–February**

**Table 13-1. Types of Winter Storms**

Type of Winter Storm	Description
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 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 combined cooling power of the wind and temperature on exposed flesh is called the wind-chill factor.

## 13.2 LOCATION

Winter storm events are not confined to specific geographic boundaries. Therefore, all existing and future buildings, facilities, and populations in the Grimes County planning area, including all participating jurisdictions, are considered to be exposed to a winter storm hazard and could potentially be impacted.

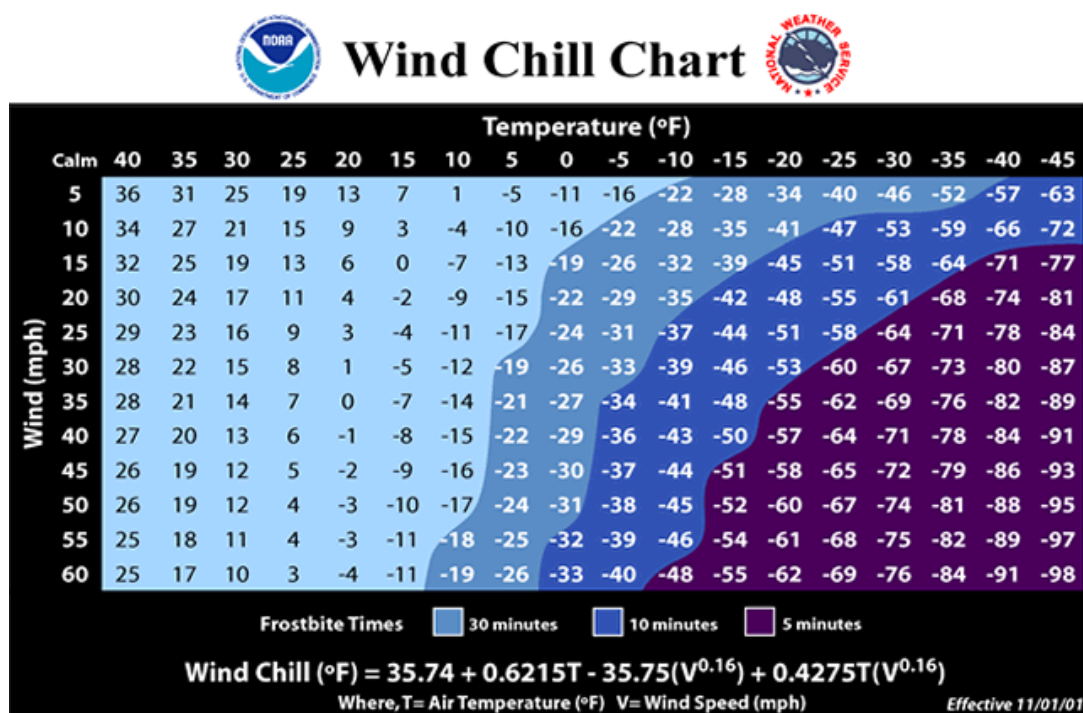
## 13.3 EXTENT

The extent or magnitude of a severe winter storm is measured in intensity based on the temperature and level of accumulations as shown in Table 13-2. Table 13-2 should be read in conjunction with the wind-chill factor described in Figure 13-2 to determine the intensity of a winter storm. The chart is not applicable when temperatures are over 50°F or when winds are calm. This is an index developed by the NWS.

Wind chill temperature is a measure of 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°F temperatures. The Grimes County planning area, including all participating jurisdictions, has never experienced a blizzard, but based on 11 previous occurrences recorded from 1997 through 2021, it has been subject to winter storm watches, ice storms, heavy snow events, and wind chill.

**Table 13-2. Magnitude of Severe Winter Storms**

Intensity	Temperature Range (degrees 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 to 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 and 30 mph), and sleet or ice up to 5 millimeters in diameter.
Severe	Below 40	Winds of 35 mph or more and snow and sleet greater than 4 inches.

**Figure 13-2. Wind Chill Chart**

The average number of cold days is similar for the entire planning area, including all participating jurisdictions. There is no historical data available for the average number of cold days in Grimes County, but the data is available for the closest metropolitan area, Houston, which is about 80 miles south from the center of Grimes County. Table 13-3 shows number of days expected to be colder than 32°F based on City of Houston data compiled between 1969 and 2018. On average, Houston anticipated about 15 cold days below 32°F, and similar data is expected for Grimes County. Therefore, the intensity or extent of a winter storm event to be mitigated for the area ranges from mild to

significant, according to the definitions in Table 13-2. The Grimes County planning area, including all participating jurisdictions, can expect anywhere from 0.1 to 4.0 inches of ice and snow during a winter storm event and temperatures between 25°F and 50°F, with winds ranging from 0 to 20 mph.

**Table 13-3. Days Colder than 32°F**

Station	Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Houston, Texas	1969–2018	6	3	1	0	0	0	0	0	0	0	1	4	15

## 13.4 HISTORICAL OCCURRENCES

Table 13-4 shows historical occurrences for Grimes County from 1997 through 2021 as provided by the NCEI database. There have been 11 recorded winter storm events in Grimes County, including all participating jurisdictions. Historical winter storm information, as provided by the NCEI, identifies winter storm activity across a multi-county forecast area for each event. The appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical winter storm data for the county and all participating jurisdictions are provided on a county-wide basis per the NCEI database. Table 13-4 shows historical incident information for the planning area.

**Table 13-4. Historical Winter Storm Events, 1997–2021**

Jurisdiction	Event Type	Date	Deaths	Injuries	Property Damage (\$)	Crop Damage (\$)
Grimes County	Ice Storm	1/12/1997	0	0	0	0
Grimes County	Winter Storm	12/23/1998	0	0	26,459	0
Grimes County	Ice Storm	12/13/2000	0	0	83,077	0
Grimes County	Ice Storm	1/16/2007	0	0	1,428	0
Grimes County	Heavy Snow	12/10/2008	0	0	0	0
Grimes County	Heavy Snow	2/23/2010	0	0	0	0
Grimes County	Winter Storm	2/3/2011	0	0	0	0
Grimes County	Winter Storm	1/23/2014	0	0	0	0
Grimes County	Winter Storm	1/10/2021	0	0	0	0
Grimes County	Winter Storm	2/14/2021	0	0	0	0
Grimes County	Extreme Cold/ Wind Chill	2/15/2021	0	0	59,357	0
Total		25 Years	0	0	170,321	0

Note: Values are in 2022 dollars.

Based on the list of historical winter storm events for the Grimes County planning area (shown above), including all participating jurisdictions, four of the events have occurred since the 2013 Hazard Mitigation Plan. In 2021, Texas and Grimes County experienced record-breaking winter storms for the area that indicate the need for additional preparations and mitigation to combat the effects of another such event.

### 13.5 PROBABILITY OF FUTURE EVENTS

According to historical records, the planning area experiences approximately one winter storm event every 2 or 3 years. Fortunately, large-scale property damages and/or threats to human life and safety are rare with these events. The probability of a future winter storm event affecting the Grimes County planning area, including all participating jurisdictions, is likely. Furthermore, climate change is expected to increase the frequency and severity of precipitation events across the United States. While current climate models indicate global average temperatures may rise between 4.7 to 8.6 degrees by the end of the century, the increased rate of precipitation events will likely cause an increase in the frequency and severity of winter storms impacting Grimes County in the future.<sup>9</sup>

### 13.6 VULNERABILITY AND IMPACT

During periods of extreme cold and freezing temperatures, water pipes can freeze and crack, and ice can build up on power lines, causing them to break under the weight; ice also accumulates on tree limbs, which fall on power lines, causing them to break. These events can disrupt electric service for extended periods of time.

An economic impact may occur due to increased consumption of heating fuel, which can lead to energy shortages and higher prices. House fires and resulting deaths tend to occur more frequently from increased and improper use of alternative heating sources and generators. Fires during winter storms also present a greater danger because water supplies may freeze and impede firefighting efforts.

All populations, buildings, critical facilities, and infrastructure in the entire Grimes County planning area, including all participating jurisdictions, are vulnerable to severe winter events. Table 13-5 lists critical facilities that would be vulnerable to winter storm events in each participating jurisdiction.

People and animals are subject to health risks from extended exposure to cold air. Elderly people are at greater risk of death from hypothermia during these events, especially in the rural areas of the county where populations are sparse, icy roads may impede travel, and with fewer neighbors to check on the elderly. According to the CDC, every year hypothermia kills about 600 Americans, half of whom are 65 years of age or older. In addition, populations living below the poverty level may not be able to afford heating costs on a regular basis.

The population age over 65 in the Grimes County planning area is estimated at 5.5 percent of the total population and children under the age of 5 are estimated at 16.9 percent, for an estimated total of 6,271 potentially vulnerable residents in the planning area based on age. In addition, an estimated 17 percent of the planning area population live below the poverty level (Table 13-6).

Historic loss, in 2022 dollars, is estimated at \$170,321 in damages over the 25-year recording period, for an approximate loss of \$6,813 in damages annually (Table 13-7). The potential severity of impact for the Grimes County planning area, including all participating jurisdictions, is "Critical," meaning multiple deaths/injuries possible, more than 25 percent of property can be affected, and complete shutdown of critical facilities is possible for more than 1 week due to pipe bursts and electricity outages.

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<sup>9</sup> <https://www.c2es.org/content/climate-impacts/>

**Table 13-5. Critical Facilities by Jurisdiction**

<b>Jurisdiction</b>	<b>Critical Facility</b>
Grimes County	1 Airport, 18 Closed Well, 4 Commercial Facilities, 33 Communication Facilities, 66 Dams, 54 Energy Facilities, 9 Fire Stations, 20 Government Buildings, 38 Hazardous Sites, 7 Helipads, 5 Manufacturing Facilities, 5 Medical Facilities, 3 Police Stations, 2 Prisons, 39 Public Gathering Centers, 5 Railroads, 12 Schools, 48 Water/Wastewater Facilities.
Town of Anderson	4 Closed Wells, 1 Commercial Facility, 11 Communication Facilities, 29 Dams, 29 Energy Facilities, 1 Fire Station, 10 Government Buildings, 11 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 1 Police Station, 7 Public Gathering Centers, 2 Schools, 8 Water/Wastewater Facilities.
City of Bédias	1 Closed Well, 4 Communication Facilities, 10 Dams, 4 Energy Facilities, 1 Fire Station, 3 Hazardous Sites, 1 Helipad, 4 Public Gathering Centers, 9 Water/Wastewater Facilities.
City of Iola	10 Closed Wells, 2 Communication Facilities, 5 Dams, 13 Energy Facilities, 2 Fire Stations, 4 Government Buildings, 5 Hazardous Sites, 2 Helipads, 5 Public Gathering Centers, 2 Schools, 10 Water/Wastewater Facilities.
City of Navasota	1 Airport, 2 Care Facilities, 2 Closed Wells, 2 Commercial Facilities, 8 Communication Facilities, 18 Dams, 6 Energy Facilities, 1 Fire Station, 6 Government Buildings, 12 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities, 5 Medical Facilities, 1 Police Station, 2 Prisons, 17 Public Gathering Centers, 3 Railroads, 7 Schools, 15 Water/Wastewater Facilities.
City of Plantersville	1 Commercial Facility, 4 Communication Facilities, 2 Dams, 2 Fire Stations, 1 Hazardous Site, 1 Manufacturing Facility, 1 Police Station, 4 Public Gathering Centers, 4 Water/Wastewater Facilities.
City of Todd Mission	1 Communication Facility, 1 Energy Facility, 1 Fire Station, 1 Police Station, 2 Public Gathering Centers, 1 Water/Wastewater Facility.

**Table 13-6. Populations at Greater Risk by Jurisdiction**

<b>Jurisdiction</b>	<b>Population 65 Years and Older</b>	<b>Population Under 5 Years Old</b>	<b>Population Below Poverty Level</b>
Grimes County	1,530 (5.46%)	4,741(16.94%)	4,134 (17%)
Town of Anderson	11 (4.3%)	49 (9.1%)	50 (19.5%)
City of Bédias	44 (11.8%)	98 (26.2%)	82 (21.9%)
City of Iola	0 (0.0%)	35 (16.7%)	17(8.1%)
City of Navasota*	506 (6.7%)	982 (13.0%)	1,060 (14.6%)
City of Plantersville	0 (0.0%)	117 (27.1%)	169 (39.2%)
City of Todd Mission	2 (6.9%)	1 (3.4%)	2 (6.9%)

Source: United States Census Bureau, 2015–2019 American Community Survey 5-Year Estimates.

\* The population counts for Navasota include units located in neighboring Brazos County. These population counts are not included in the Grimes County total.



**Table 13-7. Potential Annualized Losses for Grimes County**

Jurisdiction	Property & Crop Loss	Annualized Loss Estimates
Grimes County	\$170,321	\$6,813

## 13.7 ASSESSMENT OF IMPACTS

The greatest risk from a winter storm hazard is to public health and safety. The impact of climate change could produce longer, more-intense winter storm events, exacerbating the current winter storm impacts. Worsening winter storm conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly and children under age 5, can face serious or life-threatening health problems from exposure to extreme cold, including hypothermia and frostbite.
- Loss of electric power or other heat sources can lead to increased risk of fire injuries or carbon monoxide poisoning from residents' use of candles for light or fires and generators to stay warm.
- Response personnel, including utility workers, public works personnel, debris-removal staff, tow-truck operators, and other first responders are subject to injury or illness resulting from exposure to extreme cold temperatures.
- Response personnel would be required to travel in potentially hazardous conditions, elevating the life safety risk due to accidents and potential contact with downed power lines.
- Operations or service delivery may experience impacts from electricity blackouts due to winter storms.
- Power outages are possible throughout the planning area due to downed trees and power lines and/or rolling blackouts.
- Critical facilities without emergency backup power may not be operational during power outages.
- Emergency response and service operations may be impacted by limitations on access and mobility if roadways are closed, unsafe, or obstructed.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by ice and snow events, damage to transmission lines and transformers along with distribution infrastructure can require days or weeks to repair.
- A winter storm event could lead to tree, shrub, and plant damage and death.
- Severe cold and ice could significantly damage agricultural crops.
- Schools may be forced to close early due to treacherous driving conditions.

- Exposed water pipes may be damaged by severe or late-season winter storms at both residential and commercial structures, causing significant damage.

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

## **14.0 WILDFIRE**

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### **14.1 HAZARD DESCRIPTION**

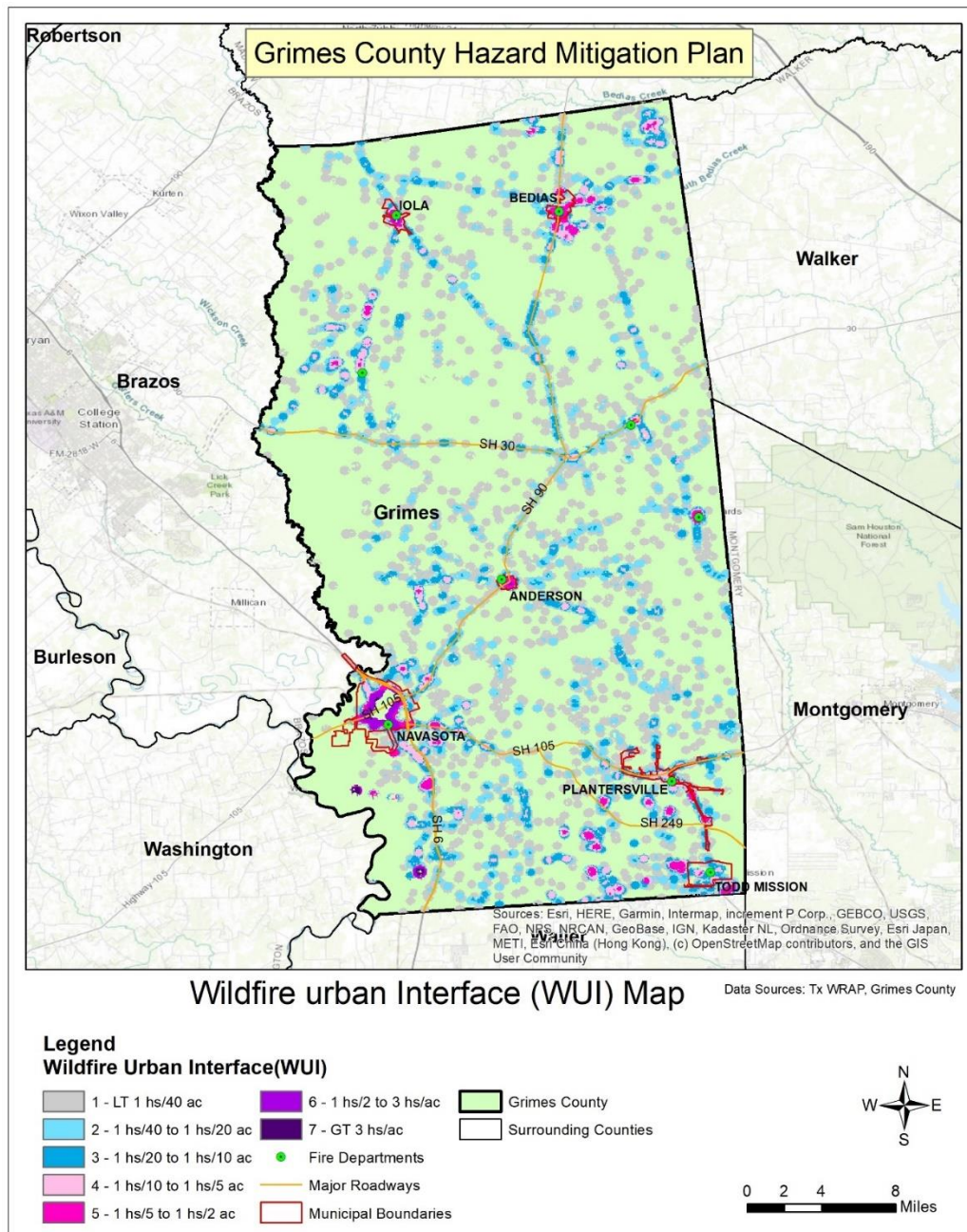
A wildfire event can rapidly spread out of control and occurs most often in the summer when the brush and grass is dry, and flames can move unchecked through a highly vegetative area. Wildfires can start as a slow burning fire along the forest floor, killing and damaging trees. The fires often spread more rapidly as they reach the tops of trees with wind carrying the flames from tree to tree. Usually, dense smoke is the first indication of a wildfire.

A wildfire event often begins unnoticed and spreads quickly, lighting brush, trees, and homes on fire. For example, a wildfire may be started by a campfire that was not extinguished properly, a tossed cigarette, burning debris, or arson.

Texas has seen a significant increase in the number of wildfires in the past 30 years, which included wildland, interface, or intermix fires. Wildland 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 fuel.

### **14.2 LOCATION**

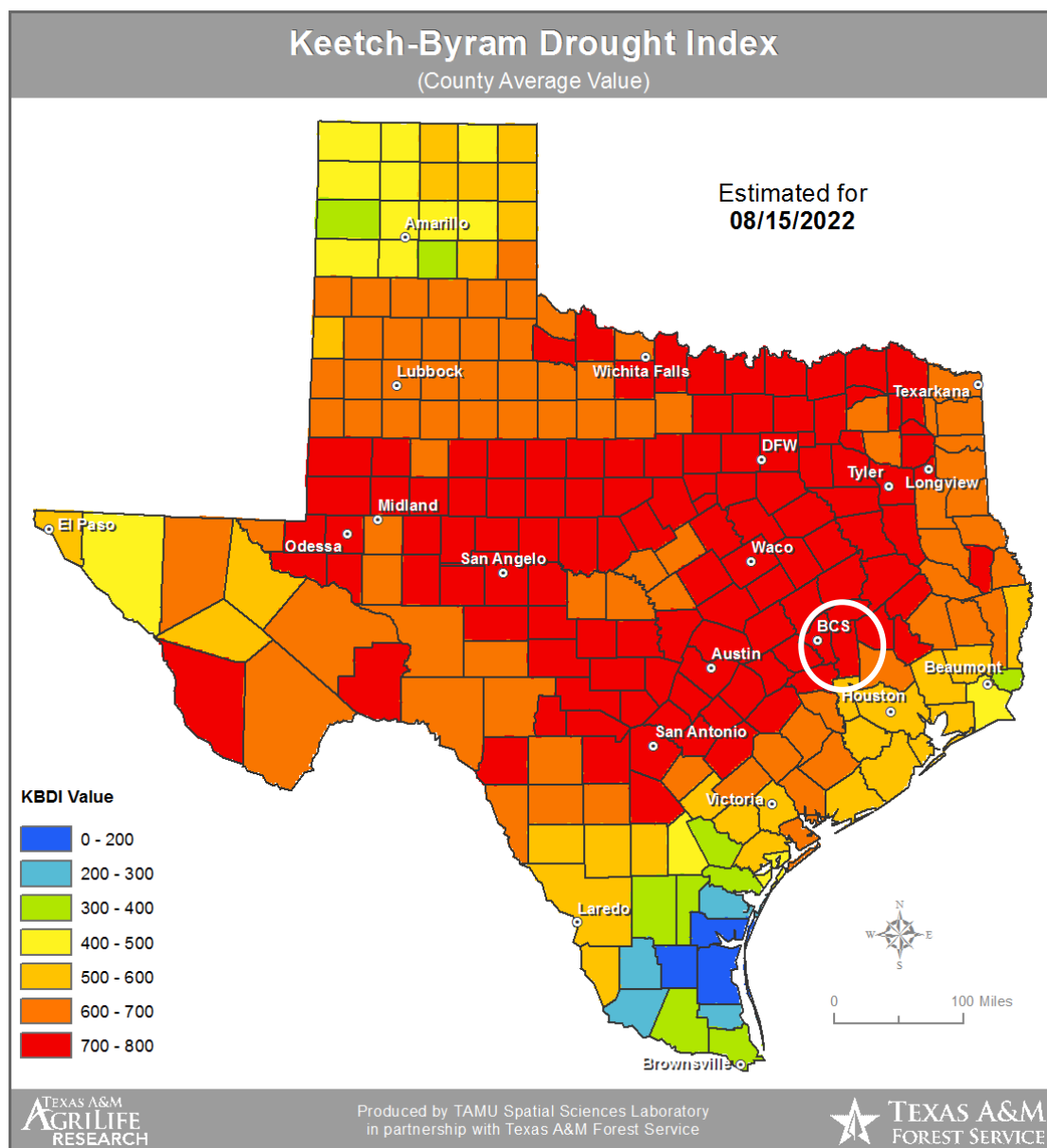
A wildfire event can be a potentially damaging consequence of drought. Wildfires can vary greatly in terms of size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in open grasslands. The threat to people and property from a wildfire event is greater in the fringe areas where developed areas meet open grass lands, such as the Wildland Urban Interface (WUI), as seen in Figure 14-1. The WUI is the zone of transition between unoccupied land and human development. It is the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Figure 14-1 is presented as one house per number of acres that is in wildfire risk. It is estimated that 35 percent of the total population in Grimes County live within the WUI. However, the entire Grimes County planning area is at risk for wildfires. About 55 percent of Navasota, 98.6 percent of Anderson, 75.7 percent of Bedias, 79 percent of Todd Mission, 64.6 percent of Iola and 48.9 percent of Plantersville are estimated to be in risk of wildfire.



**Figure 14-1. Wildland Urban Interface Map – Grimes County**

### 14.3 EXTENT

Risk for a wildfire event is measured in terms of magnitude and intensity using the Keetch-Byram Drought Index (KBDI), a mathematical system for relating current and recent weather conditions to potential or expected fire behavior. The KBDI determines forest fire potential based on a daily water balance, derived by balancing a drought factor with precipitation and soil moisture (assumed to have a maximum storage capacity of 8 inches), and is expressed in hundredths of an inch of soil moisture depletion. The KBDI for Texas is shown in Figure 14-2, with Grimes County depicted in the white circle.



Source: Keetch-Byram Drought Index, wfas.net.

**Figure 14-2. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2022**

Fire behavior can be categorized at four distinct levels on the KBDI:

**0–200:** Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.

**200–400:** Fires more readily burn and will carry across an area with no gaps. Heavier fuels will not readily ignite and burn. Expect smoldering and the resulting smoke to carry into and possibly through the night.

**400–600:** Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.

**600–800:** Fires will burn to mineral soil. Stumps will burn to the end of underground roots, and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

The KBDI is a good measure of the readiness of fuels for a wildfire event. It should be referenced as the area experiences changes in precipitation and soil moisture, while caution should be exercised in dryer, hotter conditions.

The range of intensity for the Grimes County planning area in a wildfire event is within 519 to 789. The average extent to be mitigated for the Grimes County planning area, including all participating jurisdictions, is a KBDI of 702. At this most extreme level, fire will burn to mineral soil, stumps will burn to the end of underground roots and spotting will be problematic. Fire will burn through the night, and heavier fuels will actively burn and contribute to fire intensity.

The Texas Forest Service's Fire Intensity Scale identifies areas where significant fuel hazards and associated dangerous fire-behavior potential exist based on weighted average of four percentile weather categories. Grimes County is between a potential low-to-high wildfire intensity. Figures 14-3 identifies the wildfire intensity for the Grimes County planning area.

## 14.4 HISTORICAL OCCURRENCES

The Texas A&M Forest Service reported 2,046 wildfire events between 2005 and 2020 in Grimes County. NOAA's NCEI has only one reported event from 1996 through 2021 – the September 5, 2011, fire, which resulted in about \$9 million in damages (2022 dollars). Due to a lack of recorded data for wildfire events prior to 2005 and after 2020, frequency calculations are based on a 16-year period using only data from recorded years. Figure 14-4 below shows approximate locations of known wildfires, which can be grass or brushfires of any size. Tables 14-1 and 14-2 identify the number of wildfires by jurisdiction and total acreage burned.



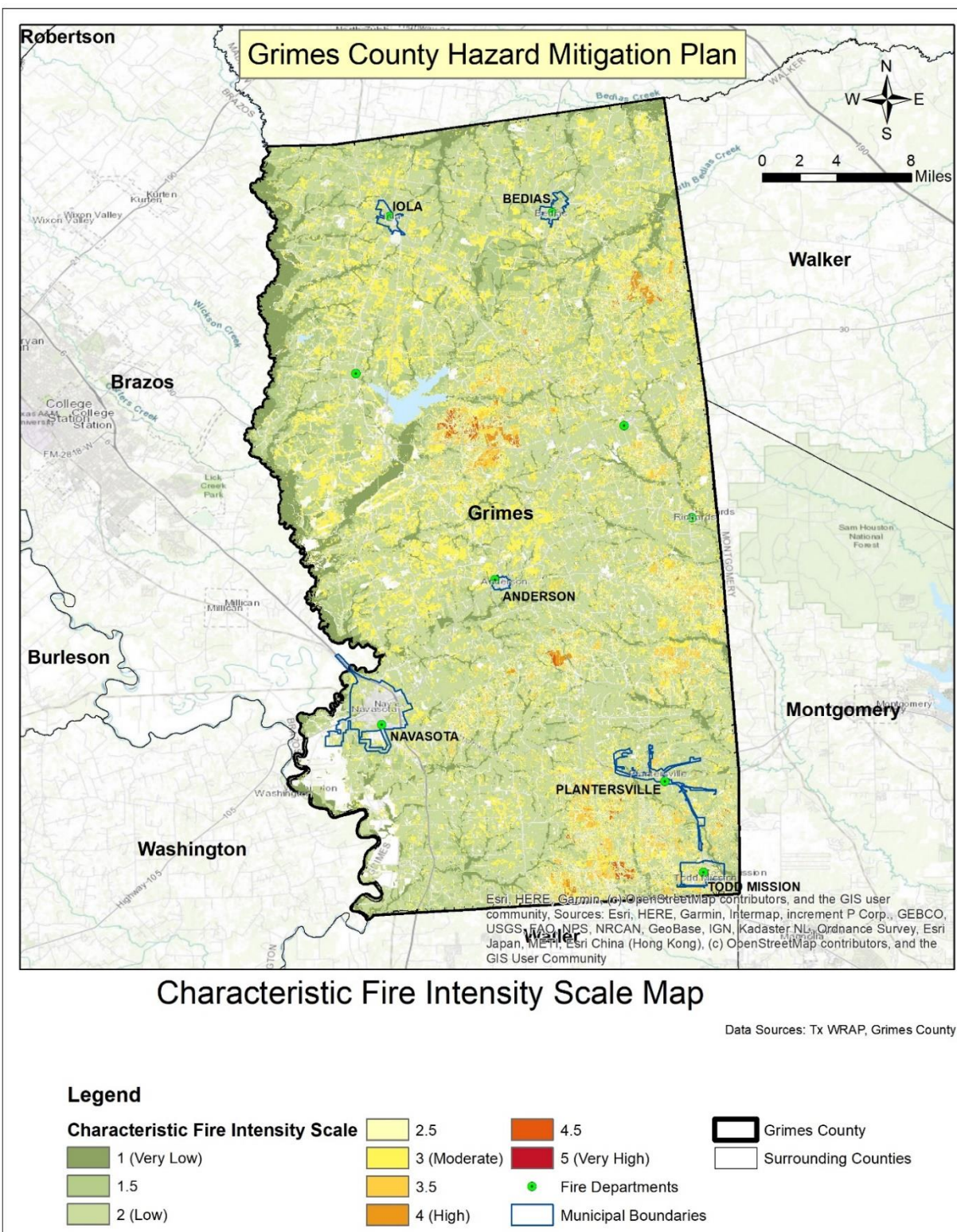
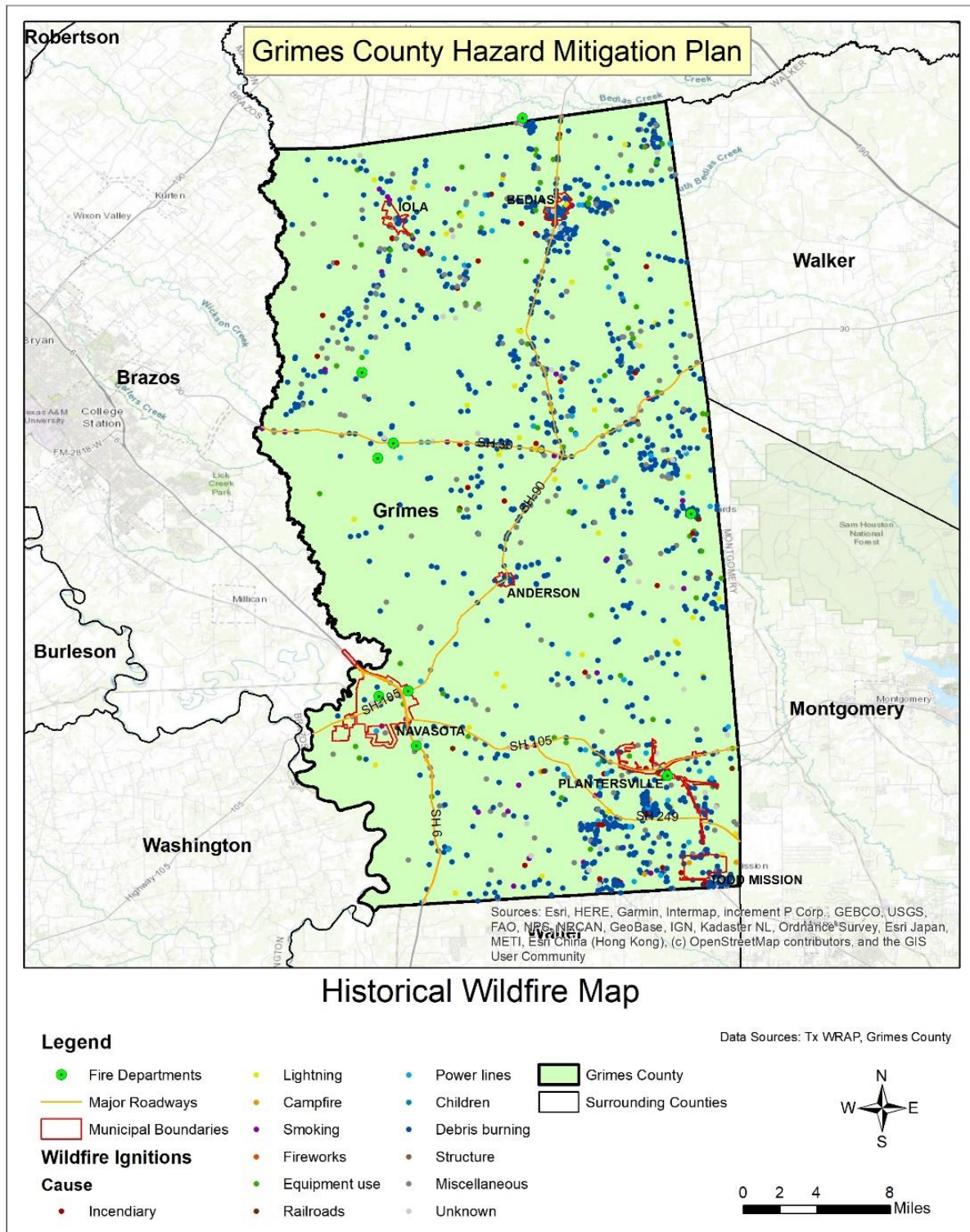


Figure 14-3. Fire Intensity Scale Map – Grimes County





**Figure 14-4. Location and Historic Wildfire Events for Grimes County Planning Area**



**Table 14-1. Historical Wildfire Events Summary**

Jurisdiction	Number of Events	Acres Burned
Grimes County	2,046	37,310

**Table 14-2. Grimes County Acreage of Suppressed Wildfire by Year**

Year	Acreage
2005	2,684
2006	1,156
2007	351
2008	942
2009	442
2010	324
2011	26,241
2012	219
2013	626
2014	94
2015	204
2016	768
2017	1,135
2018	1,167
2019	353
2020	605

Based on the list of historical wildfire events for the Grimes County planning area (see Figure 14-4), including all participating jurisdictions, 1,001 of the events have occurred between 2013 and 2020.

## **14.5 SIGNIFICANT EVENTS**

There is only one reported event in the NOAA NCEI database: September 5, 2011. Gusty winds and dry air on the northwest flank of Tropical Storm Lee helped to ignite the Riley Road fire, which burned around 19,000 acres of Waller, Grimes, and Montgomery counties. Twenty-three structures were damaged and 76 were destroyed. Texas A&M Forest Service later reported that the fire was started by lightning strike and burned over a period of 28 days. This Tri-County wildfire is reported as the largest in East Texas history.

## **14.6 PROBABILITY OF FUTURE EVENTS**

Wildfires can occur at any time of the year and as the jurisdictions within the county move into wildland, the potential area of occurrence of wildfire increases. For example, highly developed areas

are less susceptible unless they are located near the urban-wildland boundary, or the zone of transition between unoccupied land and human development.<sup>10</sup> The risk will also vary due to assets. Areas in the urban-wildland interface will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas.

The likelihood of wildfires also increases during drought cycles and abnormally dry conditions. Fires are likely to stay small in size but could increase due to local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel could create conditions for a large fire that spreads quickly as previously occurred. Table 14.2 indicates that a large amount of acreage has been suppressed almost annually as well. It should also be noted that some areas do vary somewhat in risk. With 2,046 events (Table 14.1) in a 16-year period, an event within Grimes County, including all participating jurisdictions, is highly likely, meaning multiple events is probable within the next year.

Additionally, the impacts of climate change will increase the probability of future wildfire for several reasons. Research reported by the Center for Climate and Energy Solutions found that the Southeastern United States will have increased wildfire risk and a prolonged fire season due to changing average temperatures. Furthermore, this climate modelling projects a 30% increase in total area burned by wildfire between 2011 and 2060.<sup>11</sup>

## 14.7 VULNERABILITY AND IMPACT

Periods of drought, dry conditions, high temperatures, and low humidity are factors that contribute to the occurrence of a wildfire event. Areas along railroads and people whose homes are in woodland settings have an increased risk of being affected by wildfire.

Areas within the WUI in the unincorporated areas of Grimes County and participating jurisdictions are vulnerable to wildfire, including rural areas. Unoccupied buildings and open spaces that have not been maintained have the greatest vulnerability to wildfire. Figure 14-5 illustrate the areas that are the most vulnerable to wildfire throughout the planning area.

Table 14-3 shows critical facilities located in the WUI and are more susceptible to wildfire in each participating jurisdiction.

**Table 14-3. Critical Facilities Located in WUI by Jurisdiction**

Jurisdiction	Critical Facility
Grimes County	5 Care Facilities, 4 Closed Well, 24 Communication Facilities, 12 Dams, 26 Energy Facilities, 7 Fire Stations, 15 Government Buildings, 24 Hazardous Sites, 7 Helipads, 7 Historical Monuments, 4 Manufacturing Facilities, 3 Medical Facilities, 2 Police Stations, 1 Prisons, 35 Public Gathering Centers, 2 Railroads, 8 Schools, 2 Water/Wastewater Facilities.
Town of Anderson	3 Care Facilities, 10 Communication Facilities, 9 Energy Facilities, 1 Fire Station, 10 Government Buildings, 7 Hazardous Sites, 2 Helipads, 2 Manufacturing Facilities,

<sup>10</sup> <https://www.usfa.fema.gov/wui/what-is-the-wui.html#:~:text=The%20WUI%20is%20the%20zone,undeveloped%20wildland%20or%20vegetative%20fuels.>

<sup>11</sup> <https://www.c2es.org/content/wildfires-and-climate-change/>

	1 Police Station, 7 Public Gathering Centers, 2 Schools, 8 Water/Wastewater Facilities.
City of Bédias	1 Closed Well, 3 Communication Facilities, 3 Energy Facilities, 1 Fire Station, 3 Hazardous Sites, 1 Helipad, 4 Public Gathering Centers, 9 Water/Wastewater Facilities.
City of Iola	3 Closed Wells, 1 Communication Facilities, 8 Energy Facilities, 2 Fire Stations, 4 Government Buildings, 2 Hazardous Sites, 2 Helipads, 4 Public Gathering Centers, 2 Schools, 7 Water/Wastewater Facilities.
City of Navasota	2 Care Facilities, 2 Commercial Facilities, 6 Communication Facilities, 6 Energy Facilities, 1 Fire Station, 1 Government Building, 9 Hazardous Sites, 2 Helipads, 1 Manufacturing Facility, 3 Medical Facilities, 15 Public Gathering Centers, 2 Railroads, 4 Schools, 13 Water/Wastewater Facilities.
City of Plantersville	1 Commercial Facility, 4 Communication Facilities, 1 Dam, 2 Fire Stations, 1 Hazardous Site, 1 Manufacturing Facility, 1 Police Station, 4 Public Gathering Centers, 4 Water/Wastewater Facilities.
City of Todd Mission	1 Communication Facility, 1 Energy Facility, 1 Fire Station, 1 Police Station, 2 Public Gathering Centers, 1 Water/Wastewater Facility.

Within Grimes County, a total of 2,046 fire events were reported from 2005 to 2020. All these events were suspected wildfires. Historic loss and annualized estimates due to wildfires are presented in Table 14-4 below. The frequency is approximately 128 events every year.

**Table 14-4. Potential Annualized Losses, Grimes County**

Jurisdiction	Acres Burned	Annual Acre Losses
Grimes County	37,310	2,332

Wildfire Ignition Density is the likelihood of a wildfire starting based on historical ignition patterns. Occurrence is derived by modeling historic wildfire ignition locations to create an average ignition rate map. The ignition rate is measured in the number of fires per year per 1,000 acres. Figure 14-5 shows Grimes County and the threat of wildfire to the county and all participating jurisdictions.

Table 14-5 shows the estimated exposure of property parcels and improved value of buildings that are inside wildfire risk zone according to the WUI.

**Table 14-5. Estimated Property Exposure Inside WUI by Jurisdiction**

Location	Approx. Number of Parcels	Parcel Value	Approx. Number of Buildings	Improved Value of Buildings
Anderson	266	29,598,244	232	17,394,613
Bédias	354	26,913,711	264	16,081,861
Iola	299	20,930,844	284	12,781,804
Navasota	4,273	607,773,298	2,206	420,124,333
Plantersville	423	139,052,681	373	36,368,539
Todd Mission	395	39,000,196	194	15,709,926
Grimes County	20,703	4,824,652,110	14,904	1,403,648,663

Diminished air quality is an environmental impact that can result from a wildfire event and pose a potential health risk. The smoke plumes from wildfires can contain potentially inhalable carcinogenic matter. Fine particles of invisible soot and ash that are too small for the respiratory system to filter can cause immediate and possibly long-term health effects. The elderly or those individuals with compromised respiratory systems may be more vulnerable to the effects of diminished air quality after a wildfire event.

Climatic conditions such as severe freezes and drought can significantly increase the intensity of wildfires since these conditions kill vegetation, creating a prime fuel source for wildfires. The intensity and rate at which wildfires spread are directly related to wind speed, temperature, and relative humidity.

The severity of impact from major wildfire events can be substantial. Such events can cause multiple deaths, shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. Severity of impact is gauged by acreage burned, homes and structures lost, and the number of resulting injuries and fatalities.

For the Grimes County planning area, the impact from a wildfire event can be considered "Critical," meaning multiple deaths/injuries possible, more than 25 percent of property in affected area damaged or destroyed and critical facilities can be closed for more than 1 week.

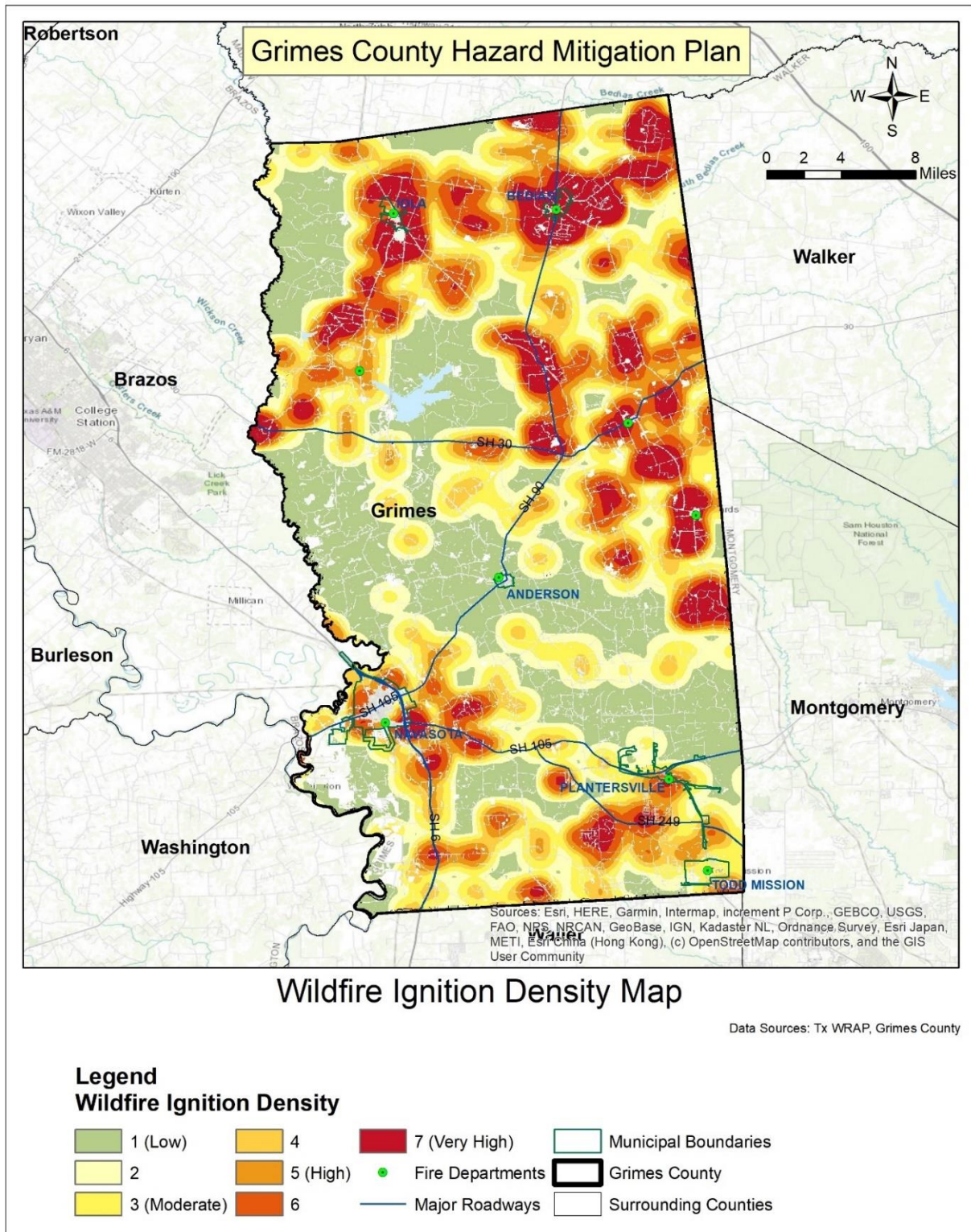
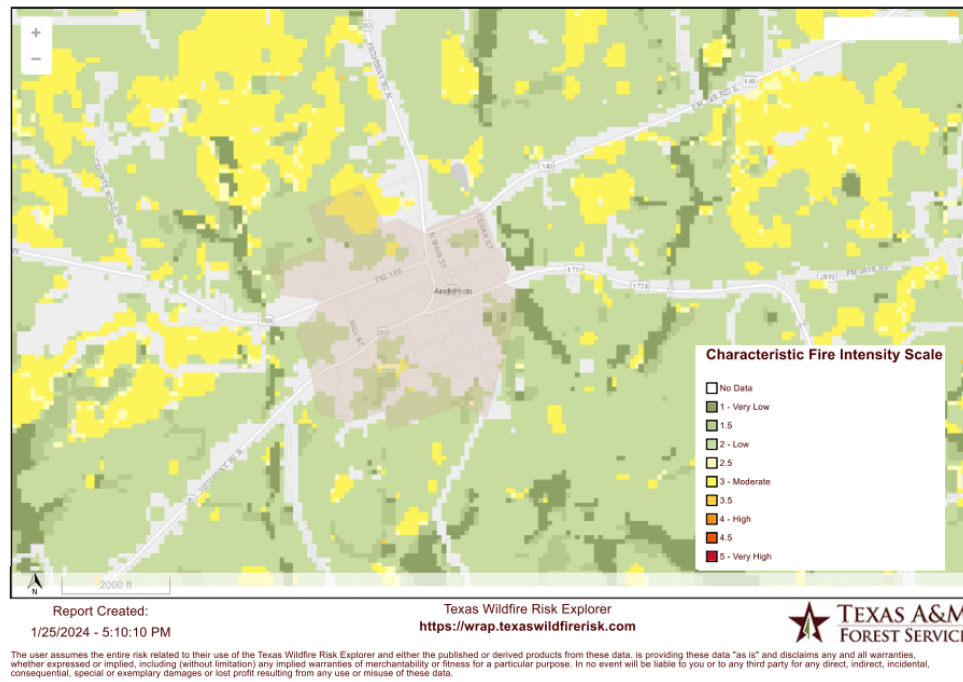
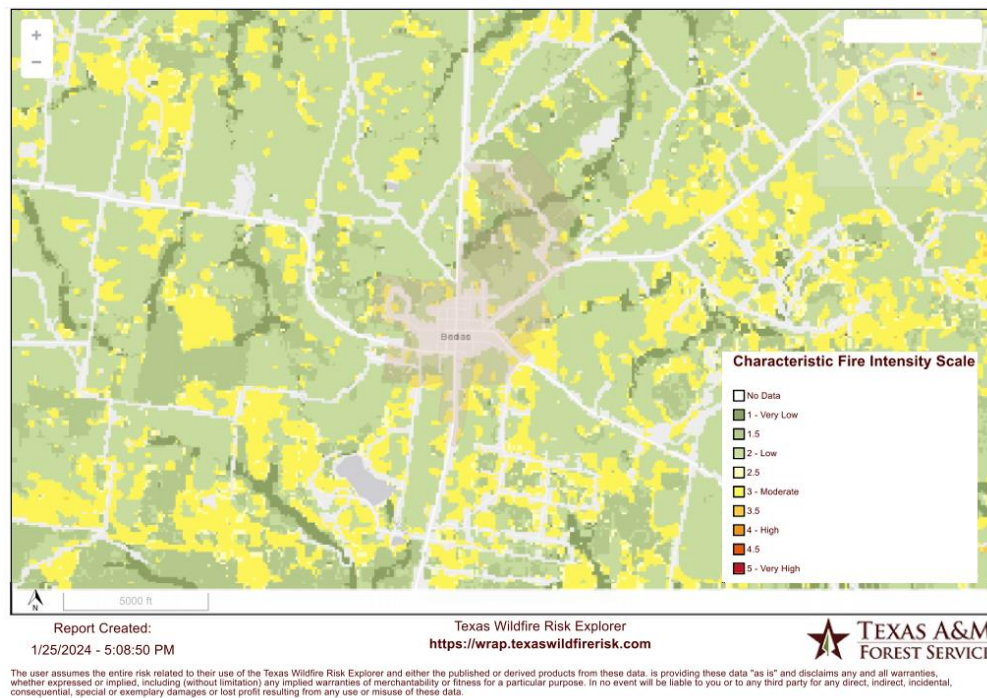
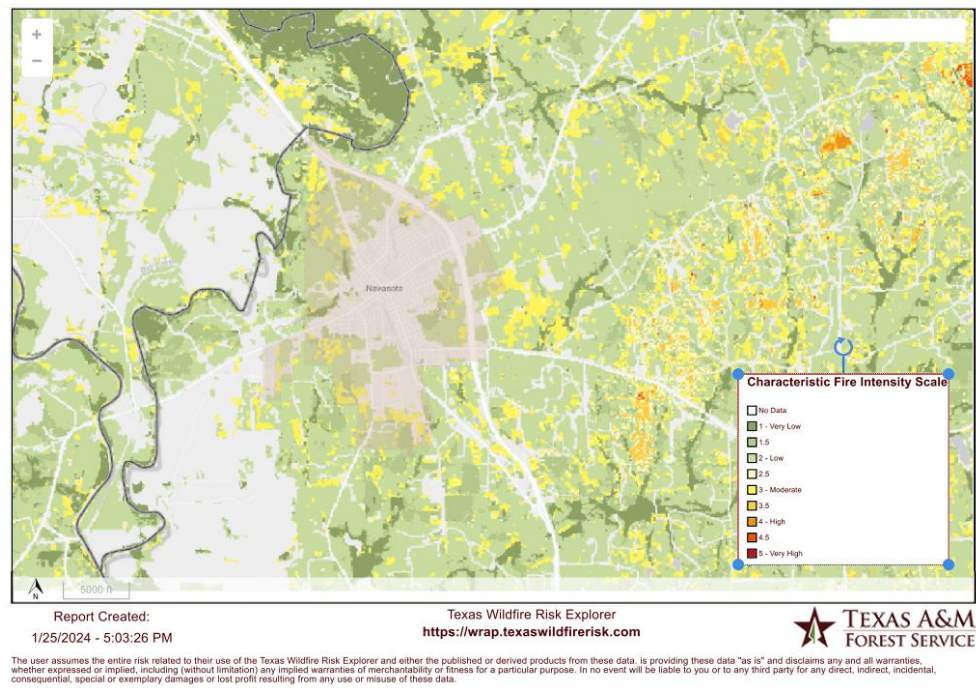


Figure 14-5. Wildfire Ignition Density – Grimes County

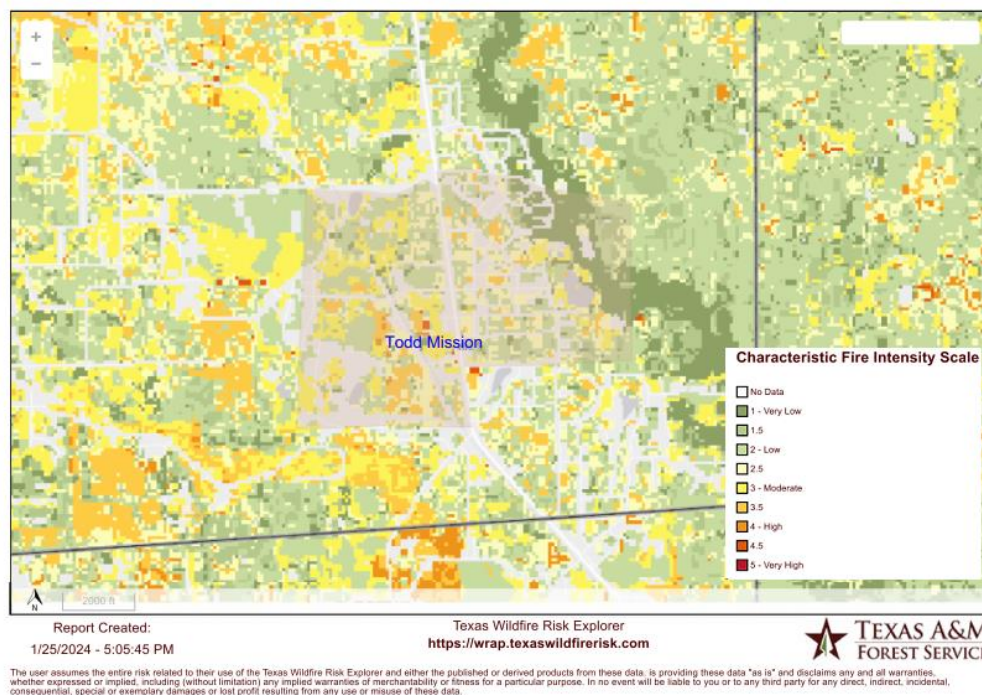


**Town of Anderson - Wildfire Risk****Figure 14-6. Risk to Wildfire – Town of Anderson****City of Bedias - Wildfire Risk****Figure 14-7. Risk to Wildfire – City of Bedias**

**City of Iola - Wildfire Risk****Figure 14-8. Risk to Wildfire – City of Iola****City of Navasota- Wildfire Risk****Figure 14-9. Risk to Wildfire – City of Navasota**



## City of Todd Mission - Wildfire Risk



**Figure 14-10. Risk to Wildfire – City of Todd Mission**

## 14.8 ASSESSMENT OF IMPACTS

A wildfire event poses a potentially significant risk to public health and safety, particularly if the wildfire is initially unnoticed and spreads quickly. The impacts associated with a wildfire are not limited to the direct damages. The impact of climate change could produce larger, more widespread wildfire events, exacerbating the current wildfire impacts. More extreme wildfire conditions can be frequently associated with a variety of impacts, including:

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



- Non-critical businesses may be directly damaged, suffer loss of utility services, or be otherwise inaccessible, delaying normal operations and slowing the recovery process.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility.
- Older homes are generally exempt from modern building-code requirements, which may require fire suppression equipment in the structure.
- Some high-density neighborhoods feature small lots with structures close together, increasing the potential for fire to spread rapidly.
- Air pollution from smoke may exacerbate respiratory problems of vulnerable residents.
- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- 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 provided by the community due to short- and long-term loss in revenue.
- Fire suppression costs can be substantial, exhausting the financial resources of the community.
- Residential structures lost in a wildfire may not be rebuilt for years, reducing the tax base for the community.
- Area lakes such as Gibbons Creek, Brazos Riverbank and Navasota Riverbank recreation and tourism can be unappealing for years following a large wildfire, devastating related businesses.
- Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground delivery lines, and soil erosion or debris deposits into waterways after the fire.

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

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## **15.0 DAM AND LEVEE FAILURE**

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### **15.1 HAZARD DESCRIPTION**

#### **15.1.1 DAMS**

Dams are water storage, control, or diversion structures that impound water upstream in reservoirs. Dam failure can take several forms, including a collapse of, or breach, in the structure.

While most dams have storage volumes small enough that failures have few or no repercussions, high-capacity dams can cause significant flooding downstream. Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which cause most failures;
- Inadequate spillway capacity, resulting in excess overtopping of the embankment;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, or maintain gates, valves, and other operational components;
- Improper design or use of improper construction materials;
- Failure of upstream dams in the same drainage basin;
- High winds, which can cause significant wave action and result in substantial erosion;
- Destructive acts of terrorism; or
- Earthquakes, which typically cause longitudinal cracks at the tops of the embankments, leading to structural failure.

Benefits provided by dams include water supplies for drinking; irrigation and industrial uses; flood control; hydroelectric power; recreation; and navigation. At the same time, dams also represent a risk to public safety. Dams require ongoing maintenance, monitoring, safety inspections, and sometimes even rehabilitation to continue safe service.

In the event of a dam failure, the energy of the water stored behind the dam can cause rapid and unexpected flooding downstream, resulting in loss of life and substantial property damage. A devastating effect on water supply and power generation could be expected as well. The terrorist attacks of September 11, 2001, generated increased focus on protecting the country's infrastructure, including ensuring the safety of dams.

One major issue with the safety of dams is their age. The average age of America's 84,000 dams is 52 years. According to statistics released in 2009 by the Association of State Dam Safety Officials (ASDSO), more than 2,000 dams near population centers need repair. In addition to the continual aging of dams, there have not been significant increases in the number of safety inspectors, resulting in haphazard maintenance and inspection.

The Association of State Dam Safety Officials estimate that \$16 billion will be needed to repair all high-hazard dams, but the total for all state dam-safety budgets is less than \$60 million.<sup>12</sup> The current maintenance budget does not match the scale of America's long-term modifications of its watersheds. Worse still, more people are moving into risky areas. As the American population grows, dams that once could have failed without major repercussions are now upstream of cities and new development.

### **15.1.2 LEVEE**

A levee is simply a man-made embankment built to keep a river from overflowing its banks or to prevent ocean waves from washing into undesired areas. A levee is typically little more than a mound of less permeable soil, like clay, wider at the base and narrower at the top. These mounds run in a long strip of varying height, sometimes for many miles, along a river, lake, or ocean. There is no set height for levees. Their measurements vary according to the storms the area receives. There are no levees of significance in Grimes County.

## **15.2 LOCATION**

The state of Texas has 7,413 dams, all regulated by the TCEQ. The National Dam Safety Review Board (in coordination with FEMA) and the National Inventory of Dams lists a total of 64 dams or levees in the Grimes County planning area, including all participating jurisdictions. Each of these dams was analyzed individually by location, volume, elevation, and condition (where available) when determining the risk, if any, for each dam. Each dam or levee site was further analyzed for potential risks utilizing FEMA's National Flood Hazard Layer (where available) to map locations and fully understand development near the dam or levee and topographical variations that may increase risk. Most of the dams listed were embankments for typically dry detention drainage areas, irrigation reservoirs, or shored up stream embankments. These types of structures are utilized for flood control and irrigation and do not pose a dam or levee failure risk. Other dams in the planning area feature such limited storage capacity that they pose no risk to structures, infrastructure, or citizens. Dams that were deemed to pose no past, current, or future risk to the planning area are not profiled in the plan as no loss of life or impact to critical facilities or infrastructure is expected in the event of a breach.

The TCEQ has a Dam Safety Program, which monitors and regulates both private and public dams in Texas. The program periodically inspects dams that pose a high or significant hazard and makes recommendations and reports to dam owners to help them maintain safe facilities. TCEQ divides dams into three categories based on their hazard potential – High, Significant and Low. As part of the Dam Safety Program, TCEQ maintains an inventory of dams throughout the state. TCEQ's database contains a total of 70 dams in their inventory; 5 are considered "excluded due to size," leaving 65 that are state regulated. Table 15-1 shows the definition of dams based on their hazard potential.

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<sup>12</sup> Association of State Dam Safety Officials, Journal of Dam Safety, [www.damsafety.org](http://www.damsafety.org).

**Table 15-1. Definition of Dams based on Hazard Potential**

<b>Dam Hazard Potential</b>	<b>Definition</b>
Low	<ul style="list-style-type: none"> <li>No loss of human life expected.</li> <li>Minimal economic loss, located primarily in rural area.</li> </ul>
Significant	<ul style="list-style-type: none"> <li>Loss of human life possible (one to six lives or one or two habitable structures in the breach inundation area).</li> <li>Appreciable economic loss, located primarily in rural area.</li> <li>Damage to isolated homes, secondary highway, minor railroads or interruption of service or use of public utilities.</li> </ul>
High	<ul style="list-style-type: none"> <li>Loss of human life expected (seven or more lives or three or more habitable structures in the breach inundation area).</li> <li>Excessive economic loss, located primarily in or near urban areas.</li> <li>Damage to public, agricultural, industrial, or commercial facilities, public utilities, main highways, and railroad used as a major transportation system.</li> </ul>

Based on this detailed analysis and TCEQ data, the planning team was able to determine that some of the 65 dams pose a high risk to the planning area. These dams, listed in Table 15-2, are profiled in detail in the Extent section of this hazard profile. Figure 15-1 illustrates the general location for the critical dams in the planning area.

While inundation maps are not available for the profiled dams, an estimated inundation radius has been included on the location map for each profiled dam or levee (indicated by the red circle in Figure 15-1). These dams are located in the county and not within a city/community having jurisdiction. In addition, the dam-failure-risk area is described for each profiled dam under extent. Two of the High-hazard dams, Gibbons Creek Reservoir Dam and TMPA Gibbons Creek Mine Dam-50, are located within a mile of each other. Gibbons Creek Reservoir Dam has a storage area of 81,874 acre-ft, and everything within a 3-mile radius can be inundated after a dam failure. TMPA Gibbons Creek Mine Dam-50 has a storage area of 7,379 acre-ft, and everything within a 1-mile radius can be inundated after a dam failure. These two dams are located between Navasota and Shiro. Yarboro Dam is located between the cities of Navasota and Plantersville and has a storage capacity of 1,440 acre-ft, and everything within 1-mile radius can be inundated after a dam failure.

**Table 15-2. Grimes County High-Risk Dams**

<b>Jurisdiction</b>	<b>Dam or Levee Name</b>	<b>Height (ft)</b>	<b>Storage (acre-ft)</b>
Grimes County	Gibbons Creek Reservoir Dam	50	81,874
Grimes County	TMPA Gibbons Creek Mine Dam-50	37	7,379
Grimes County	Yarboro Dam	39	1,440

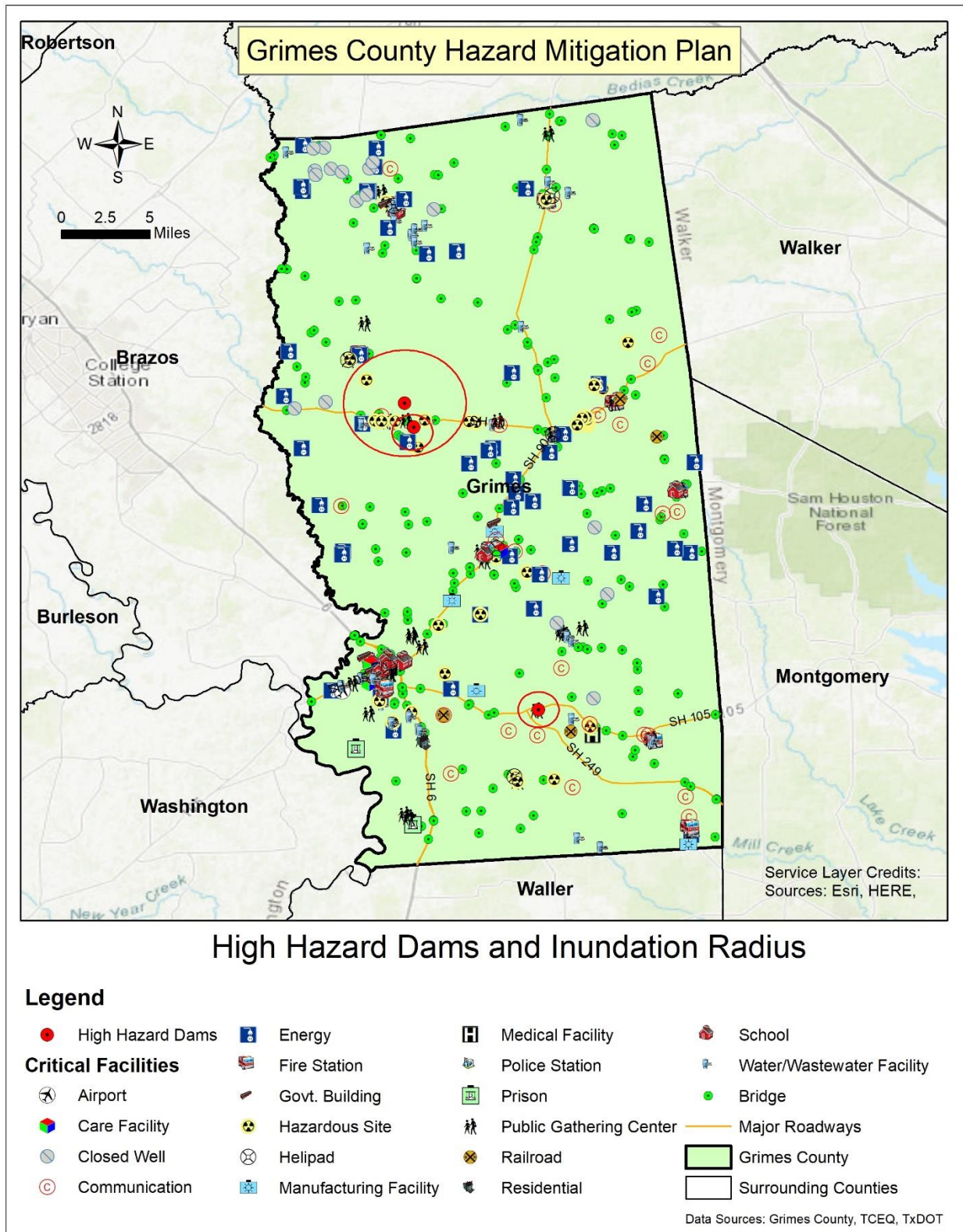


Figure 15-1. Grimes County Critical Dam Locations



The extent or magnitude of a dam or levee failure event is described in terms of the classification of damages that could result from a dam's failure, not the probability of failure. For dams with a maximum storage capacity of 100,000 acre-feet or more, all census blocks within 5 miles are considered to be at risk to potential dam or levee failure hazards. For dams with a maximum storage capacity between 10,000 and 100,000 acre-feet, all census blocks within 3 miles are considered to be at risk to potential dam or levee failure hazards. For dams with a maximum storage capacity of less than 10,000 acre-feet, all census blocks within 1 mile are considered to be at risk to potential dam or levee failure hazards.

#### **Gibbons Creek Dam and TMPA Gibbons Creek Mine Dam-50**

Gibbons Creek dam and TMPA Gibbons Creek Mine Dam-50 are in unincorporated Grimes County inside the Navasota River basin. Gibbons Creek Dam was constructed in 1981 and TMPA Gibbons Creek Mine Dam was constructed in 1995. Gibbons Creek Dam is used as a power-plant cooling reservoir and for recreational purposes. TMPA Gibbons Creek Mine Dam-50 is used as a mine tailings dam. Both dams are owned by the TMPA. The area located nearby is semi-rural with limited development within a 3-mile radius. A breach should follow the path of the creek, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the river for approximately 3 miles for the Gibbon Creek Dam and 1 mile for the TMPA Gibbons Creek Mine Dam-50. Approximately 374 structures, two energy facilities, two water/wastewater facilities, one communication facility, seven hazardous sites, one commercial facility, one campground and one church could be impacted by a breach. A dam failure could cause moderate infrastructure damage, potentially extensive power outages, and utility systems disruptions. TCEQ considers these two dams to be in "Good" condition and they consider both to be hydraulically adequate.

#### **Yarboro Dam**

Yarboro Lake Dam is in unincorporated Grimes County between Navasota and Plantersville. The dam was constructed in 1900 and is used for recreational purposes. It is owned by the Union Pacific Railroad Company. The area located near the dam is semi-rural with limited development within a 1-mile radius. The dam is next to Highway 105 and near Highway 249. The Union Pacific railroad tracks go over the dam; therefore, a breach will result in traffic closure for a significant amount of time and poses a risk to shipping and logistics. Approximately 38 structures and two public gathering centers could be impacted by a breach. A dam failure could cause moderate infrastructure damage, potentially significant damage to transportation infrastructure. TCEQ considers this dam to be in "Poor" condition and states this dam is not hydraulically adequate.

### **15.3 EXTENT**

The extent of a major dam failure in Grimes County is that millions of gallons of water could be released at a sudden and unexpected rate. Since the high hazard dams within Grimes County are in the greater county area rather than in a specific jurisdiction, the participating cities of Anderson, Navasota, Bedias, Iola Plantersville, and Todd Mission are not at immediate risk to dam failure. The extend of dam failure within Grimes County is provided in Table XX below, which is adapted from the prior HMP.



**Table 15-3. Extent of Dam Failure in Grimes**

Location	Dam or Levee Name	Hazard Classification	People Impacted	Structure Impacted	Estimated Water Depth
Grimes County	Gibbons Creek Reservoir Dam	High	2	4	14 feet deep nearest to the dam
Grimes County	TMPA Gibbons Creek Mine Dam-50	High	4	12	8 feet deep nearest to the dam
Grimes County	Yarboro Dam	High	1	2	4 feet deep nearest to the dam

## 15.4 HISTORICAL OCCURRENCES

The state of Texas has not experienced loss of life or extensive economic damage due to a dam or levee failure since the first half of the twentieth century. There has not been a recorded dam or levee failure event for any of the participating jurisdictions in the Grimes County planning area. However, there may be many incidents that are not reported, and, therefore, the actual number of incidents is likely to be greater.

Regarding climate change, the Center for Climate and Energy Solutions states that dams only exacerbate the effects of climate change. Unfortunately, dams can increase the release of greenhouse gases because of the breakdown of vegetation in the reservoir and create stress both upstream and downstream disturbing the habitat of wildlife in the area.

## 15.5 PROBABILITY OF FUTURE EVENTS

No historical events of dam or levee failure have been recorded in the Grimes County planning area, although the risk of dam or levee failure is monitored closely. Due to the lack of historical occurrences, the probability of a future event is “Possible” for those jurisdictions profiling dam or levee failure as a hazard, meaning an event is possible in the next 10 years.

## 15.6 VULNERABILITY AND IMPACT

There are 65 dams and/or levees in or near the Grimes County planning area, according to TCEQ data. All dams or levees were evaluated in-depth to determine the risk, if any, associated with each dam. This analysis indicated that there are dams in the planning area that present a risk to structures or infrastructure. The exact number and classification of these dams is considered confidential by the Dam Safety Section of TCEQ.

Flooding is the most prominent effect of dam or levee failure. If the dam or levee failure is extensive, a large amount of water would enter the downstream waterways forcing them out of their banks. There may be significant environmental effects, resulting in flooding that could disperse debris and hazardous materials downstream that can damage local ecosystems. If the event is severe, debris carried downstream can block traffic flow, cause power outages, and disrupt local utilities, such as water and wastewater, which could result in school closures. For specific vulnerability, please refer to the narrative for each dam or levee under the Extent section of this profile.

Annualized loss estimates for dam failures are not available since there has not been a recorded dam or levee failure event for any of the participating jurisdictions in the Grimes County planning area. There is no breakdown of potential dollar losses for critical facilities, infrastructure and lifelines, or hazardous-materials facilities. If a significant dam should fail, the severity of impact for the planning area could likely be “Critical” or even “Catastrophic.” This event could result in multiple deaths/injuries with more than 25 percent of property in the affected area damaged or destroyed, resulting in a complete shutdown of critical facilities for more than 1 week. For these reasons, creating mitigation actions to remove or protect people and structures from the path of destruction is necessary to minimize impact from dam failure.

## **15.7 ASSESSMENT OF IMPACTS**

Any individual dam or levee has a very specific area that will be impacted by a catastrophic failure. Dams identified as high or significant hazard can directly threaten the lives of individuals living or working in the inundation zone below the dam. The impact from any catastrophic failure would be comparable to a flash flood. The impact of climate change could produce greater risk of dam or levee failures due to larger more frequent floods, exacerbating the current dam or levee failure impacts. Increased dam or levee failure threats can be associated with a variety of impacts, including:

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

- Historical or cultural resources may be damaged or destroyed.
- Recreational activities and tourism may be temporarily unavailable or unappealing, slowing economic recovery.

The economic and financial impacts of dam or levee failure on the area will depend entirely on the location of the dam, scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any dam or levee failure event.

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## 16.0 VULNERABILITY ASSESSMENT

### 16.1 HAZARD EXTENT

In Chapters 5 through 15, detailed analysis was mentioned about each probable hazard that can affect Grimes County, historical occurrences, and the probability of occurrence in future. Table 16-1 describes the extent of each natural hazard identified for Grimes County. The extent of a hazard is identified as its severity or magnitude, as it relates to the planning area.

**Table 16-1. Extent of Grimes County Hazards**

Event	Description
Drought	Drought extent is defined by U.S. Drought Monitor classifications, which include None, Abnormal, Moderate, Severe, Extreme, Exceptional classifications. According to these classifications, the most severe drought condition is Exceptional. Grimes County has experienced at least Severe ranking 7 times over the 20-year reporting period.
Dam Failure	There are no dam failure data recorded for Grimes County. Dam failure loss extent can be estimated from assessing the "Hazard Potential Classification." According to TCEQ data, Among the 65 total dams in Grimes County, 3 are classified as high hazard potential.
Earthquake	Earthquake extent can be measured by the Richter Scale and the Modified Mercalli Intensity (MMI) scale and the distance of the epicenter from Grimes County. According to data provided by the University of Texas, the only earthquake recorded in Grimes County happened in 12/30/1914. It was a 3.3 magnitude earthquake, and the epicenter was Anderson.
Extreme Heat	The extent of extreme heat can be defined by the maximum temperature reached. According to NOAA Storm Event Database, the highest temperature recorded in nearby College Station (about 20 miles west of Grimes County) is 112 °F (reported most recently on September 4, 2000).
Wildfire	<p>Wildfire data was provided by the Texas Wildfire Risk Assessment Portal and is reported annually by county from 2005-2020. Analyzing the data indicates the following wildfire hazard extent for the county.</p> <ul style="list-style-type: none"><li>• The greatest number of fires to occur in any year was 222 in 2005.</li><li>• The greatest number of acres to burn in a single year occurred in 2011 when 26,241 acres were burned.</li></ul> <p>Although this data lists the extent that has occurred, larger and more frequent wildfires are possible throughout the county.</p>

Event	Description			
Flooding	Flood extent can be measured by flood height and velocity. Flood depth and discharge is recorded at the only USGS stream gage located inside Grimes County at the Navasota River near College Station, TX (USGS station 08111010). The peak flow reached about 29,000 cfs in October 1984, whereas the normal flow is about 595 cfs. The maximum streamflow elevation recorded for the Navasota River near this location is 21.89 feet, whereas the normal flow depth is about 4 feet. Readings and gage heights are in the table below.			
	Location	Date	Peak Discharge (cfs)	Gage Height (ft)
	Navasota River near College Station, Texas	10/29/1984	29,000	21.89
Hail	Hail extent can be defined by the size of the hail stone. The largest hail stone reported in Grimes County was 2.5 inches (reported on February 10, 1981). It should be noted that future events may exceed this.			
Hurricane	Hurricane extent is defined by the Saffir-Simpson Scale which classifies hurricanes into Category 1 through Category 5. The greatest classification of hurricane/tropical storm within 75 miles of Grimes County was Hurricane Carmen on August 29, 1974, and Unnamed storm on August 12, 1932, both reached a maximum wind speed of 130 knots as a Category 4 hurricane.			
Thunderstorm–Wind	Thunderstorm extent is defined by the number of thunder events and wind speeds reported. The strongest recorded wind event in Grimes County was reported on April 27, 2015, and September 3, 2009, at 70 knots (approximately 81 mph).			
Thunderstorm–Lightning	According to the Vaisala flash density map, Grimes County is located in an area that experiences 12 to 20 lightning flashes per square mile per year.			
Tornado	Tornado hazard extent is measured by tornado occurrences in the US provided by FEMA as well as the Fujita/Enhanced Fujita Scale. The greatest magnitude reported in Grimes County was an EF2 (reported on May 26, 2016).			
Winter Storm	The extent of winter storms can be measured by the amount of snowfall received (in inches). The greatest 24-hour snowfall reported in the county was 5.0 inches on December 10, 2008, and February 23, 2010. Due to unpredictable variations in snowfall throughout the county, extent totals will vary for each participating jurisdiction and reliable data on snowfall totals is not abundantly available.			

## 16.2 CRITICAL FACILITIES VULNERABILITY

Critical facilities are the most important infrastructure for a county, and damage or temporary closure to a critical facility can cause significant negative impacts. Critical facility vulnerability for each hazard was discussed in Chapter 5 through 15. Table 16-2 shows the vulnerability of each critical facilities in Grimes County for each Hazard – Drought, Dam Failure, Earthquake, Extreme Heat, Wildfire, Flooding-100 Year, Hail, Hurricane, Thunderstorm, Tornado and Winter Storm.

## 16.3 PRIORITY RISK INDEX EVALUATION

The PRI scale was described in Chapter 4. The conclusions drawn from the hazard profiling process for Grimes County, including the PRI results and input from the Hazard Mitigation Planning Team,

resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (see Table 16-2). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all of Grimes County. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future plan updates.

**Table 16-2. Conclusions on  
Hazard Risks for Grimes County**

Level	Event
High Risk	Flood Drought Wildfire
Moderate Risk	Extreme Heat Hurricane Hail Thunderstorm Tornado
Low Risk	Dam Failure Earthquake Severe Winter Storm

## 16.4 PRIORITY RISK INDEX EVALUATION

The PRI scale is described in Chapter 4. The conclusions drawn from the hazard profiling process for Grimes County, including the PRI results and input from the Hazard Mitigation Planning Team, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk as depicted in Table 16-3. For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all of Grimes County. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases, and their assigned classification will continue to be evaluated during future plan updates.



Table 16-3. At-Risk Critical Facilities

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Airport – Navasota	2001 Fairway Dr	Airport	X		X	X			X	X	X	X	X
Bonnie's Sunshine Kids - Child Care - Anderson	219 E Buffington Ave	Care Facility	X		X	X	X		X	X	X	X	X
Bonnie's Sunshine Kids - Child Care - Anderson	223 E Buffington Ave	Care Facility	X		X	X	X		X	X	X	X	X
Ronnie McGinty Day Care - Child Care - Navasota	818 Millican St	Care Facility	X		X	X			X	X	X	X	X
Progressive Center - Navasota	615 W Virginia	Care Facility	X		X	X			X	X	X	X	X
Sunshine Center - Anderson	129 S Main St	Care Facility	X		X	X			X	X	X	X	X
Navasota Nursing & Rehab - Navasota	1405 E Washington	Care Facility	X		X	X			X	X	X	X	X
Golden Creek Nursing & Rehab - Navasota	2100 Dove Crossing	Care Facility	X		X	X			X	X	X	X	X
Season on Water Street - Navasota	1103 Water St	Care Facility	X		X	X			X	X	X	X	X
U.S. Post Office - Anderson	15538 State Highway 30	Communication Facility	X		X	X	X		X	X	X	X	X
U.S. Post Office - Anderson	1035 State Highway 90 N	Communication Facility	X		X	X			X	X	X	X	X
U.S. Post Office - Bédias	3681 Main St	Communication Facility	X		X	X	X		X	X	X	X	X
U.S. Post Office - Iola	23329 FM 39	Communication Facility	X		X	X	X		X	X	X	X	X
U.S. Post Office - Navasota	115 Farquhar St	Communication Facility	X		X	X		X	X	X	X	X	X
U.S. Post Office - Plantersville	8625 Post Office Rd	Communication Facility	X		X	X	X		X	X	X	X	X
U.S. Post Office - Richards	11002 FM 149 E	Communication Facility	X		X	X	X		X	X	X	X	X
U.S. Post Office - Shiro	19431 State Highway 30	Communication Facility	X		X	X	X		X	X	X	X	X
Tower - Iola	1966 FM 1696	Communication Facility	X		X	X	X		X	X	X	X	X
Radio Tower - Navasota	9679 FM 2445	Communication Facility	X		X	X	X		X	X	X	X	X
Crown Tower - Anderson	10563 FM 244	Communication Facility	X	X	X	X	X		X	X	X	X	X
Crown Tower - Bédias	22692 FM 2620	Communication Facility	X		X	X	X		X	X	X	X	X
Crown Tower - Anderson	3646 FM 1774	Communication Facility	X		X	X	X		X	X	X	X	X
Crown Tower - Bédias	12018 FM 2620	Communication Facility	X		X	X	X		X	X	X	X	X
Commercial Tower - Plantersville	10812 Oakwood Dr	Communication Facility	X		X	X	X		X	X	X	X	X
Crown Tower - Anderson	5562 FM 1486	Communication Facility	X		X	X	X		X	X	X	X	X

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Commercial Tower/Radio – Ft. Bend Broadcasting - Navasota	13634 County Road 318	Communication Facility	X		X	X	X		X	X	X	X	X
Commercial Tower - Navasota	11554 FM 362	Communication Facility	X	X	X	X	X		X	X	X	X	X
Aquila Southwest Tower - Navasota	4972 Long Shadows Rd	Communication Facility	X	X	X	X	X		X	X	X	X	X
Communication Tower - Navasota	4932 County Road 416	Communication Facility	X		X	X	X		X	X	X	X	X
Communication Tower - Navasota	10604 Spur 234	Communication Facility	X		X	X	X		X	X	X	X	X
American Tower - Richards	8788 County Road 261	Communication Facility	X		X	X	X		X	X	X	X	X
Burlington Northern Santa Fa Tower - Navasota	3274 County Road 306	Communication Facility	X		X	X	X		X	X	X	X	X
Crown Tower - Richards	8862 County Road 235	Communication Facility	X		X	X	X		X	X	X	X	X
Voice Stream Tower - Anderson	1620 State Highway 90 N	Communication Facility	X		X	X	X		X	X	X	X	X
Tower - Plantersville	14944 State Highway 105 E	Communication Facility	X		X	X	X		X	X	X	X	X
SpectraSite Tower - Plantersville	19864 FM 1774	Communication Facility	X		X	X			X	X	X	X	X
SpectraSite Tower - Anderson	1550 FM 1774	Communication Facility	X		X	X	X		X	X	X	X	X
SpectraSite Tower - Anderson	12852 State Highway 30	Communication Facility	X		X	X	X		X	X	X	X	X
SpectraSite Tower - Bédias	13602 County Road 228	Communication Facility	X		X	X			X	X	X	X	X
SpectraSite Tower - Anderson	9798 FM 2819	Communication Facility	X		X	X	X		X	X	X	X	X
Landte Tower - Anderson	5116 County Road 190	Communication Facility	X	X	X	X		X	X	X	X	X	X
Shaffer Communication Tower - Anderson	386 FM 149 W	Communication Facility	X		X	X	X		X	X	X	X	X
TMPA - Iola	12921 Roese Rd	Energy	X		X	X			X	X	X	X	X
TMPA - Iola	12918 Roese Rd	Energy	X		X	X			X	X	X	X	X
Mid-South Electric Coop - Iola	14334 FM 244	Energy	X		X	X	X		X	X	X	X	X
Brazos Electric - Bédias	21511 County Road 115	Energy	X		X	X	X		X	X	X	X	X
Gas Tec Propane Depot - Hazard	1205 FM 1696	Energy	X		X	X	X		X	X	X	X	X
Electrical Substation - Navasota	9380 County Road 410	Energy	X		X	X	X		X	X	X	X	X
Brazos Electric Substation - Iola	9858 County Road 175	Energy	X		X	X	X		X	X	X	X	X
Brazos Electric Substation - Anderson	8130 County Road 192	Energy	X	X	X	X	X		X	X	X	X	X
Brazos Electric Substation - Iola	5081 County Road 127	Energy	X		X	X	X		X	X	X	X	X
Txv Pipeline - Plantersville	22076 FM 1774	Energy	X	X	X	X	X		X	X	X	X	X

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Snyder Oil Production Site - Iola	8143 County Road 107	Energy	X		X	X			X	X	X	X	X
Lone Star Gas Plant - Iola	8153 County Road 107	Energy	X		X	X	X		X	X	X	X	X
Texas Pipe Distributors - Navasota	9444 County Road 418/Industrial Dr	Energy	X		X	X	X		X	X	X	X	X
Navasota LP Tank & Storage - Navasota	3235 State Highway 105 W	Energy	X		X	X	X		X	X	X	X	X
Aquila Pipeline - Anderson	6287 County Road 180	Energy	X		X	X	X		X	X	X	X	X
Entergy Substation - Navasota	5425 County Road 405	Energy	X		X	X	X		X	X	X	X	X
Aquila Gas Plant - Navasota	11386 County Road 419/Interstate D	Energy	X		X	X	X		X	X	X	X	X
Southwest Gas Processing Plant - Anderson	2810 County Road 215	Energy	X		X	X			X	X	X	X	X
Entergy Power Plant - Bédias	5429 County Road 239	Energy	X		X	X	X		X	X	X	X	X
Mid-South Substation - Shiro	8212 FM 2562	Energy	X	X	X	X			X	X	X	X	X
Chesapeake Well Site - Anderson	8823 County Road 401	Energy	X		X	X			X	X	X	X	X
Marathon Oil Gas Well - Anderson	6553 County Road 214	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Apaci – Giddings - Tier 2 - Bédias	3969 County Road 176	Energy	X		X	X			X	X	X	X	X
Gas Well-Atinum E&P Inc-Marlin#2-Tier2 - Anderson	4048 County Road 212	Energy	X		X	X			X	X	X	X	X
Gas Well-Atinum E&P-Walkoviack-Tier2 - Anderson	8236 FM 2819	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Atinum E&P-Marlin#2-Tier2 - Anderson	3221 County Road 212	Energy	X		X	X			X	X	X	X	X
Gas Well-Atmos Energy-Iola Comp-Tier 2 - Iola	8153 County Road 107	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Atmos Energy-Dorothy-Tier 2 - Anderson	4799 FM 2562	Energy	X		X	X			X	X	X	X	X
Gas Well-Cml Exp-Knotts #1-Tier 2 - Iola	171380 Rrc	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Cml Exp-Knotts Yeager-Tier 2 - Iola	10484 County Road 106	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Cml Exp-White Springer-Tier 2 - Iola	10506 County Road 102	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Cml Exp-Ra#1-Tier 2 - Iola	11298 County Road 112	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Copano-Tier 2 - Iola	21787 FM 244	Energy	X		X	X			X	X	X	X	X
Gas Well-Crimson-Powledge-Tier 2 - Iola	6386 County Road 122	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Crimson-Hassier-Tier 2 - Bédias	3671 County Road 126	Energy	X		X	X	X		X	X	X	X	X
Gas Well-DCP Midstream-Cowboy-Tier 2 - Anderson	8865 County Road 401	Energy	X		X	X			X	X	X	X	X
Gas Well-Energy Tran-Ashorn-Tier 2 - Anderson	4432 FM 2819	Energy	X		X	X			X	X	X	X	X

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Gas Well-Energy Tr-Holland Creek-Tier 2 - Anderson	3556 FM 1774	Energy	X		X	X			X	X	X	X	X
Gas Well-Energy Tr-Moody-Tier 2 - Anderson	10114 Lands End Lane	Energy	X	X	X	X	X		X	X	X	X	X
Gas Well-Energy Tr-Anderson-Tier 2 - Anderson	2810 County Road 215	Energy	X		X	X			X	X	X	X	X
Transfer-Energy Tr-Oasis-Tier 2 - Anderson	4080 County Road 180	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Energy Tr-Walkoviak-Tier 2 - Anderson	4795 FM 2562	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Energy Tr-Atmos-Tier 2 - Anderson	2825 County Road 180	Energy	X		X	X			X	X	X	X	X
Gas Well-Energy-TMPA-Setps W - Anderson	9043 County Road 190	Energy	X	X	X	X	X		X	X	X	X	X
Gas Well-Exxon-Bracewell-Tier 2 - Anderson	7558 State Highway 30	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Exxon-Mooring Johnson-Tier 2 - Anderson	4969 State Highway 30	Energy	X		X	X			X	X	X	X	X
Gas Wll-Exxon-Ward-Tier 2 - Anderson	4496 State Highway 30	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Milagro Exp. Giddings-Venoco - Anderson	4750 Kimich Lane	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Southern Bay-Hutto Unit No 1-H - Richards	6119 County Road 216	Energy	X		X	X			X	X	X	X	X
Gas Well-Southern Bay-Brown, W.S. Unit 1h - Richards	8282 FM 149 E	Energy	X		X	X			X	X	X	X	X
Gas Well-Southern Bay-Freeman Unit 1h - Anderson	1550 FM 1774	Energy	X		X	X	X		X	X	X	X	X
Gas Well-Southern Bay-Wehmeyer - Anderson	4858 County Road 222	Energy	X		X	X			X	X	X	X	X
Gas Well-Southern Bay-Carlos - Anderson	8581 FM 244	Energy	X	X	X	X			X	X	X	X	X
Gas Well-Southern Bay-Gordon Edge - Anderson	2269 E Marl Lane	Energy	X		X	X			X	X	X	X	X
Plantersville Fire Department - Plantersville	15985 FM 1774	Fire Station	X	X	X	X	X		X	X	X	X	X
Iola Fire Department - Keith Station	14386 FM 244	Fire Station	X		X	X	X		X	X	X	X	X
Bedias Fire Department - Bedias	3601 Main St	Fire Station	X		X	X	X		X	X	X	X	X
Iola Fire Department - Iola	23574 Brazos Ave	Fire Station	X		X	X	X		X	X	X	X	X
Richards Fire Department - Richards	11136 FM 149 E	Fire Station	X		X	X	X		X	X	X	X	X
Shiro Fire Department - Shiro	9563 Volunteer Ave	Fire Station	X		X	X	X		X	X	X	X	X
Anderson Fire Department - Anderson	414 Hill St	Fire Station	X		X	X			X	X	X	X	X
Navasota Fire Department - Navasota	1500 S. Lasalle	Fire Station	X		X	X		X	X	X	X	X	X
Todd Mission Fire Department - Todd Mission	10280 Greenbriar Dr	Fire Station	X		X	X			X	X	X	X	X
Vacant County Clerk's Office - Anderson	101 S Main St	Govt. Building	X		X	X	X		X	X	X	X	X
Grimes County Courthouse - Anderson	100 N Main St	Govt. Building	X		X	X	X		X	X	X	X	X

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Maintenance Dept - Anderson	112 S Main St	Govt. Building	X		X	X	X		X	X	X	X	X
Courthouse Annex - Anderson	114 W Buffington Ave	Govt. Building	X		X	X	X		X	X	X	X	X
Sign Shop - Anderson	257 W Buffington Ave	Govt. Building	X		X	X	X		X	X	X	X	X
Voter Reg Storage - Anderson	305 W Buffington Ave	Govt. Building	X		X	X	X		X	X	X	X	X
Storage North County Barn - Iola	7470 Hillsboro St	Govt. Building	X		X	X	X		X	X	X	X	X
Iola Annex - Iola	23467 FM 39	Govt. Building	X		X	X	X		X	X	X	X	X
Vacant Old Pct 1 County Offices - Iola	7460 Hillsboro St	Govt. Building	X		X	X	X		X	X	X	X	X
Vacant District Attorney's Office - Anderson	1022 State Highway 90 S	Govt. Building	X		X	X	X		X	X	X	X	X
Grimes County Trash Dump - Anderson	2075 FM 244	Govt. Building	X		X	X	X		X	X	X	X	X
Grimes County Annex Building - Anderson	1010 State Highway 90 S	Govt. Building	X		X	X	X		X	X	X	X	X
Grimes County Appraisal Office - Anderson	360 Hill St	Govt. Building	X		X	X	X		X	X	X	X	X
County Dump Site - Iola	7476 Hillsboro St	Govt. Building	X		X	X			X	X	X	X	X
City Maintenance and Vehicle Services - Navasota	520 Malcolm	Govt. Building	X		X	X	X		X	X	X	X	X
TxDOT Office - Navasota	1560 N LaSalle	Govt. Building	X		X	X			X	X	X	X	X
MHMR Authority Brazos Valley - Navasota	702 S Lasalle	Govt. Building	X		X	X	X		X	X	X	X	X
Navasota Grimes County Chamber of Commerce – Navasota	117 S Lasalle	Govt. Building	X		X	X	X	X	X	X	X	X	X
Texas Department of Human Services - Navasota	425 N Lasalle	Govt. Building	X		X	X	X		X	X	X	X	X
Rock Quarry - Navasota	4123 County Road 409	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Sewer Plant - Iola	22994 FM 39	Hazardous Site	X		X	X	X		X	X	X	X	X
Feed Storage Silos - Navasota	9029 S Business 6	Hazardous Site	X		X	X	X	X	X	X	X	X	X
Old Cotton Gin - Navasota	14278 FM 362	Hazardous Site	X		X	X			X	X	X	X	X
Whitehall Dumpsite - Navasota	14540 FM 362	Hazardous Site	X		X	X	X		X	X	X	X	X
TMPA - Lafarge Corp - Anderson	12824 FM 244	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Tex Fab Inc - Navasota	6612 County Road 421/Link Dr	Hazardous Site	X		X	X	X		X	X	X	X	X
B & K Lumber – Stoneham	10681 Spur 234	Hazardous Site	X		X	X	X		X	X	X	X	X
Stoneham Trash Site - Stoneham	10810 Spur 234	Hazardous Site	X		X	X	X		X	X	X	X	X
Tenaska Production Site - Hazard - Richards	4927 County Road 242A	Hazardous Site	X	X	X	X	X		X	X	X	X	X

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Tenaska - Richards	5003 County Road 242A	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Gravel Pit - Richards	8367 County Road 242	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Gte - Richards	8491 County Road 242	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Gravel Pit - Richards	8637 County Road 242	Hazardous Site	X		X	X	X		X	X	X	X	X
Tenaska - Richards	17332 State Highway 30	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Aquila Pipeline - Anderson	2277 County Road 246	Hazardous Site	X		X	X	X		X	X	X	X	X
Tenaska - Bédias	11515 County Road 229	Hazardous Site	X		X	X	X		X	X	X	X	X
Mobil Pipeline Compressor Station - Navasota	5427 County Road 405	Hazardous Site	X		X	X			X	X	X	X	X
Bédias Trash Site - Bédias	3590 Plum St	Hazardous Site	X		X	X	X		X	X	X	X	X
Iola Dumpsite - Iola	7505 Hillsboro St	Hazardous Site	X		X	X			X	X	X	X	X
Road And Bridge Equipment Yard - Iola	7480 Hillsboro St	Hazardous Site	X		X	X			X	X	X	X	X
TMPA - Hazard - Anderson	8081 FM 244	Hazardous Site	X	X	X	X	X		X	X	X	X	X
TMPA - Hazard - Anderson	7945 FM 244	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Tank Farm - Hazard - Anderson	7722 State Highway 30	Hazardous Site	X	X	X	X	X		X	X	X	X	X
TMPA - Anderson	11382 State Highway 30	Hazardous Site	X	X	X	X			X	X	X	X	X
TMPA - Anderson	11676 State Highway 30	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Navasota Mining - Anderson	7413 County Road 192	Hazardous Site	X	X	X	X	X		X	X	X	X	X
TMPA - Anderson	7056 State Highway 30	Hazardous Site	X	X	X	X			X	X	X	X	X
TMPA - Anderson	11349 State Highway 30	Hazardous Site	X	X	X	X	X		X	X	X	X	X
TMPA - Anderson	9173 State Highway 30	Hazardous Site	X	X	X	X	X		X	X	X	X	X
Tenaska Water Pipeline Valve - Bédias	13570 FM 2620	Hazardous Site	X		X	X	X		X	X	X	X	X
Aquilla Metering Station - Navasota	4117 County Road 305	Hazardous Site	X	X	X	X	X		X	X	X	X	X
TXU Measuring Station - Navasota	11752 State Highway 6	Hazardous Site	X		X	X	X		X	X	X	X	X
Keith Dump Site - Iola	8714 County Road 172	Hazardous Site	X		X	X	X		X	X	X	X	X
Ellwood Texas Forge - Navasota	10910 County Road 419	Hazardous Site	X		X	X	X		X	X	X	X	X
Town of Anderson Sewage Plant - Anderson	529 W Johnson Ave	Hazardous Site	X		X	X	X		X	X	X	X	X
Transfer-Entergy-Grimes-Tier 2 - Bédias	5429 County Road 239	Hazardous Site	X		X	X	X		X	X	X	X	X
Transfer-Enterprise-Roans Prairie-Tier 2 - Richards	16838 State Highway 30	Hazardous Site	X	X	X	X			X	X	X	X	X

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Explorer Pipeline - Rectifier	15230 County Road 446	Hazardous Site	X		X	X			X	X	X	X	X
Helipad - Iola	23415 FM 39	Helipad	X		X	X	X		X	X	X	X	X
St Joseph's Helipad Site - Navasota	1229 Leake St	Helipad	X		X	X	X		X	X	X	X	X
Helipad Site Near Keith Community Center - Iola	8787 County Road 172	Helipad	X		X	X			X	X	X	X	X
Roans Prairie Helipad - Anderson	8388 Railroad Ave	Helipad	X		X	X			X	X	X	X	X
Anderson Helipad - White Gym	154 FM 149 W	Helipad	X		X	X			X	X	X	X	X
White Hall Helipad - White Hall Fire Station	2264 FM 2988	Helipad	X		X	X			X	X	X	X	X
Bedias - Helipad - Sewage Facility	22383 Life Flight Ln	Helipad	X		X	X			X	X	X	X	X
Production Site - Anderson	4581 FM 1774	Manufacturing Facility	X		X	X	X		X	X	X	X	X
Production Site - Anderson	2107 State Highway 90 N	Manufacturing Facility	X		X	X	X		X	X	X	X	X
Production Site - Navasota	13493 County Road 407	Manufacturing Facility	X		X	X	X	X	X	X	X	X	X
Production Site - Plantersville	10621 County Road 303	Manufacturing Facility	X		X	X	X		X	X	X	X	X
St Josephs - Navasota - Medical - Plantersville	11323 County Road 304	Medical Facility	X		X	X	X		X	X	X	X	X
St. Joseph Health Grimes Medical Center - Navasota	210 Judson St	Medical Facility	X		X	X			X	X	X	X	X
Health Point Healthcare – Navasota	8310 Highway 6	Medical Facility	X		X	X			X	X	X	X	X
Scott & White Health Clinic – Navasota	8264 Highway 6	Medical Facility	X		X	X			X	X	X	X	X
Grimes County Sherriff's Office - Anderson	382 FM 149 W	Police Station	X		X	X	X		X	X	X	X	X
Todd Mission Police - Plantersville	21778 FM 1774	Police Station	X	X	X	X	X		X	X	X	X	X
City Hall - Navasota	200 E McAlpine	Police Station	X		X	X		X	X	X	X	X	X
O. L. Luther Prison Unit - Navasota	1800 Luther Dr	Prison	X		X	X	X		X	X	X	X	X
Wallace Pack Prison Unit - Navasota	2400 Wallace Pack Rd	Prison	X		X	X	X	X	X	X	X	X	X
Burlington Northern Railroad - Richards	9862 FM 1486	Railroad	X		X	X	X		X	X	X	X	X
Burlington Northern Railroad - Navasota	4957 County Road 306	Railroad	X		X	X			X	X	X	X	X
UPRR Railroad Building - Navasota	10600 Spur 234	Railroad	X		X	X	X		X	X	X	X	X
Burlington Northern Railroad - Shiro	12786 FM 1486	Railroad	X		X	X	X		X	X	X	X	X
UPRR Railroad Building - Navasota	4930 County Road 416	Railroad	X		X	X	X		X	X	X	X	X
Anderson-Shiro ISD Maint Building - Anderson	399 Hill St	School	X		X	X	X		X	X	X	X	X
Iola ISD High School - Iola	23011 FM 39	School	X		X	X	X		X	X	X	X	X



Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Iola ISD Elementary School - Iola	7125 Ft Worth St	School	X		X	X	X		X	X	X	X	X
Navasota Jr. High School - Navasota	9038 State Highway 90 S	School	X		X	X	X		X	X	X	X	X
Navasota High School - Navasota	9238 State Highway 90 S	School	X		X	X			X	X	X	X	X
Richards School - Richards	9465 Panther Dr	School	X		X	X	X		X	X	X	X	X
John C. Webb Elementary School - Navasota	1605 Neal St	School	X		X	X			X	X	X	X	X
Navasota FFA Barns - Navasota	521 Laredo St	School	X		X	X	X		X	X	X	X	X
Carver Learning Center - Navasota	1602 S Lasalle	School	X		X	X		X	X	X	X	X	X
Navasota Intermediate - Navasota	203 Brosig Ave	School	X		X	X			X	X	X	X	X
W.B. Bizzell Academy – Navasota	1604 Stacey St	School	X		X	X			X	X	X	X	X
Navasota Head Start – Navasota	1604 Stacey St	School	X		X	X			X	X	X	X	X
Navasota High Point Elementary – Navasota	11937 State Highway 105 E	School	X		X	X			X	X	X	X	X
Navasota ISD Administration – Navasota	705 E Washington	School	X		X	X			X	X	X	X	X
Brosig Performing Arts Center – Navasota	105 Brosig Ave	School	X		X	X		X	X	X	X	X	X
Anderson-Shiro Jr/Sr. High School	1345 FM 149 W	School	X		X	X			X	X	X	X	X
Carlos Water - Iola	14184 FM 244	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Anderson Water Well - Anderson	180 Fanthorp St	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Iola Water Company - Iola	23776 FM 39	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
D.P. Water - Navasota	10323 County Road 308	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Water Treatment Plant - Navasota	5833 Bluebonnet Dr	Water/Wastewater Facility	X	X	X	X	X		X	X	X	X	X
Carlos Water - Iola	5919 County Road 110	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Water Treatment Plant - Navasota	5312 Pawnee St	Water/Wastewater Facility	X	X	X	X			X	X	X	X	X
Water And Sheds - Bédias	9959 Edward Ave	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Water Company - Anderson	1212 Becker Ln	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Wastewater Treatment Plant - Anderson	1140 FM 149 W	Water/Wastewater Facility	X		X	X			X	X	X	X	X
Water Well Site - Wickson Creek - Waller	6548 Carlton Speed Ranch Rd	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Anderson Water-Roans Prairie Water Well - Anderson	8427 Railroad Ave	Water/Wastewater Facility	X		X	X			X	X	X	X	X
City of Navasota Water Well #5- Navasota	9880 County Road 418/Industrial Dr.	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
City of Navasota Water Well #4- Navasota	6559 FM 421/Link Dr.	Water/Wastewater Facility	X	X	X	X	X	X	X	X	X	X	X
Water Well - Bedias	1196 Shannon Loop	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
D P Water Supply Well - Plantersville	15905 FM 1774	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
D P Water Supply Office - Plantersville	8842 Phillips Rd.	Water/Wastewater Facility	X	X	X	X	X		X	X	X	X	X
Mill Creek Water Well #1 - Plantersville	11048 Oak Forest Dr.	Water/Wastewater Facility	X	X	X	X	X		X	X	X	X	X
Anderson Water - Bedias	6970 Bailey St.	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Carlos Water Supply Well #6f - Iola	5796 County Road 169	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
B & J Water Company Well - Bedias	11690 FM 1696	Water/Wastewater Facility	X		X	X			X	X	X	X	X
B & J Water Well & Storage Tanks - Bedias	21363 County Road 141	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Carlos Water - Bedias	14774 State Highway 90 N	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
B & J Water Company Plant - Bedias	3761 Plum St	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Carlos Water Well #5e - Iola	6049 County Road 168	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Iola Water Company Well - Iola	7139 Main St.	Water/Wastewater Facility	X		X	X			X	X	X	X	X
Iola ISD Water Well - Iola	7281 Ft Worth St.	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Carlos Water Well - Anderson	9336 State Highway 30	Water/Wastewater Facility	X	X	X	X	X		X	X	X	X	X
Carlos Water - Anderson	12572 State Highway 30	Water/Wastewater Facility	X		X	X			X	X	X	X	X
Grassy Creek - Navasota	4647 Falkenbury Loop	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Duke Entergy - Anderson	8132 County Road 192	Water/Wastewater Facility	X	X	X	X	X		X	X	X	X	X
Tenaska Irrigation Pumping Station - Water - Bedias	5565 County Road 239	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Well House - Water - Waller - Navasota	17194 Lakeshore Dr.	Water/Wastewater Facility	X	X	X	X	X		X	X	X	X	X
Renfaire Water Company - Plantersville	10857 Renfaire Dr.	Water/Wastewater Facility	X	X	X	X	X		X	X	X	X	X
Anderson Water Well Site #2 - Anderson	1220 Becker Ln.	Water/Wastewater Facility	X		X	X			X	X	X	X	X
Lift Station - Navasota	4710 Old Bridge Rd.	Water/Wastewater Facility	X	X	X	X		X	X	X	X	X	X
Navasota City Water Well #7- Navasota	11167 County Road 451	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Navasota City Water Well #6- Navasota	10860 S Business 6	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Navasota City Lift Station - Navasota	10906 County Road 419/Interstate D	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Wickson Creek Well - Iola	5186 Pump Station Rd	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X

Facility Name	Address	Facility Type	Drought	Dam Failure	Earthquake	Extreme Heat	Wildfire	Flooding-100 Year	Hail	Hurricane	Thunderstorm	Tornado	Winter Storm
Actual Location of Navasota City Well #7- Navasota	Actual Location of City Water Well #7	Water/Wastewater Facility	X		X	X			X	X	X	X	X
City of Navasota Wastewater Treatment Plant – Tier 2 - Navasota	108 Peeples Street	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Water Treatment - Tier 2 - Navasota	510 Malcom Street	Water/Wastewater Facility	X		X	X			X	X	X	X	X
Water Well-Cml Exp-Mcduffie-Tier 2 - North Zulch	12211 County Road 102	Water/Wastewater Facility	X		X	X			X	X	X	X	X
Water Well-Eml Exp-Frazier-Tier 2 - Anderson	2935 FM 149 W	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Water Well-Cml Exp-Davis, Ozelle-Tier 2 - Iola	22242 FM 244	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Water Well-Cml Exp-Wright-Tier 2 - Iola	9323 County Road 109	Water/Wastewater Facility	X		X	X	X		X	X	X	X	X
Water Well # 6 - River Haven Sub - Navasota	7443 River Haven Dr	Water/Wastewater Facility	X		X	X			X	X	X	X	X

Source: Grimes County GIS Dataset

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## **17.0 CAPABILITY ASSESSMENT**

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This section of the Plan discusses the capability of the jurisdictions in Grimes County to implement hazard mitigation activities. It consists of the following four subsections:

- What is a Capability Assessment?
- Conducting the Capability Assessment
- Capability Assessment Findings
- Conclusions on Local Capability

### **17.1 WHAT IS A CAPABILITY ASSESSMENT?**

The purpose of conducting a capability assessment is to determine the ability of a local jurisdiction to implement a comprehensive mitigation strategy and to identify potential opportunities for establishing or enhancing specific mitigation policies, programs, or projects. As in any planning process, it is important to try to establish which goals, objectives, and/or actions are feasible based on an understanding of the organizational capacity of those agencies or departments tasked with their implementation. A capability assessment helps to determine which mitigation actions are practical, and likely to be implemented over time, given a local government's planning and regulatory framework, level of administrative and technical support, amount of fiscal resources, and current political climate.

A capability assessment has two primary components: 1) an inventory of a local jurisdiction's relevant plans, ordinances, or programs already in place and 2) an analysis of its capacity to carry them out. Careful examination of local capabilities will detect any existing gaps, shortfalls, or weaknesses with ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. A capability assessment also highlights the positive mitigation measures already in place or being implemented at the local government level, which should continue to be supported and enhanced through future mitigation efforts.

The capability assessment completed for Grimes County and its municipalities serves as a critical planning step and an integral part of the foundation for designing an effective hazard mitigation strategy. Coupled with the Risk Assessment, the Capability Assessment helps identify and target meaningful mitigation actions for incorporation in the Mitigation Strategy portion of the HMP. It not only helps establish the goals and objectives for the county to pursue under this Plan, but it also ensures that those goals and objectives are realistically achievable under given local conditions.

### **17.2 CONDUCTING THE CAPABILITY ASSESSMENT**

In order to facilitate the inventory and analysis of local government capabilities for Grimes County and its municipalities, a detailed Capability Assessment Survey was completed for each of the participating jurisdictions based on the information found in the existing HMP and local government websites, and then distributed to the participating jurisdictions for review and update. The survey questionnaire compiled information on a variety of "capability indicators" such as existing local plans, policies, programs, or ordinances that contribute to and/or hinder the jurisdictions' ability to implement hazard mitigation actions. Other indicators included information related to the communities' fiscal, administrative, and technical capabilities, such as access to local budgetary and

personnel resources for mitigation purposes. The current political climate, an important consideration for any local planning or decision-making process, was also evaluated with respect to hazard mitigation.

At a minimum, survey results provide an extensive inventory of existing local plans, ordinances, programs, and resources that are in place or under development in addition to their overall effect on hazard loss reduction. However, the survey instrument can also serve to identify gaps, weaknesses, or conflicts that the county and local jurisdictions can recast as opportunities for specific actions to be proposed as part of the hazard mitigation strategy.

The information collected in the survey questionnaire was incorporated into a database for further analysis. A general scoring methodology<sup>13</sup> was then applied to quantify each jurisdiction's overall capability. According to the scoring system, each capability indicator was assigned a point value based on its relevance to hazard mitigation.

Using this scoring methodology, a total score and an overall capability rating of "high," "moderate," or "limited" was determined according to the total number of points received. These classifications are designed to provide a basic, general assessment of local government capability and are used to inform an effective and meaningful mitigation strategy.

### **17.3 CAPABILITY ASSESSMENT FINDINGS**

The findings of the capability assessment are summarized in this Plan to provide insight into the relevant capacity of the jurisdictions in Grimes County to implement hazard mitigation activities. All information is based upon the review of the existing HMP and local government websites through the Capability Assessment Survey and input provided by local government officials during meetings of the Grimes County Hazard Mitigation Planning Team.

#### **17.3.1 Planning and Regulatory Capability**

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate a local jurisdiction's commitment to guiding and managing growth, development, and redevelopment in a responsible manner while maintaining the general welfare of the community. It includes emergency response and mitigation planning, comprehensive land use planning, and transportation planning; the enforcement of zoning or subdivision ordinances and building codes that regulate how land is developed and structures are built; as well as protecting environmental, historic, and cultural resources in the community. Although some conflicts can arise, these planning initiatives generally present significant opportunities to integrate hazard mitigation principles and practices into the local decision-making process. This assessment is designed to provide a general overview of the key planning and regulatory tools and programs that are in place or under development for the jurisdictions in Grimes County along with their potential effect on loss reduction. This information will help identify opportunities to address existing gaps, weaknesses, or conflicts with other initiatives in addition to integrating the implementation of this Plan with existing planning mechanisms where appropriate.

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<sup>13</sup> The scoring methodology used to quantify and rank the jurisdictions' capability can be found in Appendix B.

Table 17-1 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for the jurisdictions in Grimes County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (\*) indicates that the given item is currently being developed for future implementation. A dagger (†) indicates that the given item is administered for that municipality by the county. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the Grimes County Hazard Mitigation Plan.

**Table 17-1. Relevant plans, Ordinances, and Programs for Grimes County**

Planning/Regulatory Tool	Grimes County	Anderson	Bedias*	Iola	Navasota	Plantersville	Todd Mission
Hazard Mitigation Plan	✓	†	†	†	†	†	†
Comprehensive Land Use Plan		✓			✓		*
Floodplain Management Plan	✓	†	†	†	✓	†	†
Open Space Management Plan (Parks & Rec/Greenway Plan)					✓		*
Stormwater Management Plan/Ordinance					✓		*
Natural Resources Protection Plan							
Flood Response Plan	✓				✓		
Emergency Operations Plan	✓	†		✓	✓	†	✓
Continuity of Operations Plan		*			✓		*
Evacuation Plan	✓			✓	✓		*
Disaster Recovery Plan	*	*			✓		*
Capital Improvement Plan	*	*			✓		*
Economic Development Plan	*	*			✓		*
Historic Preservation Plan	✓	*			✓		*
Floodplain Ordinance or Flood Damage Prevention Ordinance	✓	†		†	✓	†	†
Zoning Ordinance		✓			✓		✓
Subdivision Ordinance	✓	✓	✓	✓	✓		✓
Unified Development Ordinance	✓				✓		*
Post-Disaster Redevelopment Ordinance							
Building Code	✓	✓			✓		✓
Fire Code					✓		
National Flood Insurance Program	✓		✓		✓		✓
NFIP Community Rating System (CRS)					*		



A more-detailed discussion on the county's planning and regulatory capability follows.

### 17.3.2 Emergency Management

Hazard mitigation is widely recognized as one of the five mission areas of emergency management. The other four phases include prevention, protection, response, and recovery. In reality, each phase is interconnected with hazard mitigation as Figure 17-1 suggests. Opportunities to reduce potential losses through mitigation practices are most often implemented before disaster strikes, such as the elevation of flood prone structures or the continuous enforcement of policies that prevent and regulate development that is vulnerable to hazards due to its location, design, or other characteristics. Mitigation opportunities will also be presented during immediate preparedness or response activities, such as installing storm shutters in advance of a hurricane, and certainly during the long-term recovery and redevelopment process following a hazard event.



Source: FEMA.

**Figure 17-1. Five Missions Areas of Emergency Management**

Planning for each mission area is a critical part of a comprehensive emergency management program and a key to the successful implementation of hazard mitigation actions. As a result, the Capability Assessment Survey asked several questions across a range of emergency management plans in order to assess the participating jurisdictions' willingness to plan and their level of technical planning proficiency.

**Hazard Mitigation Plan:** An HMP represents a community's blueprint for how it intends to reduce the impact of natural and human-caused hazards on people and the built environment. The essential elements of an HMP include a risk assessment, capability assessment, and mitigation strategy.

- Grimes County has previously adopted an HMP. Each participating municipality was included in the county's plan.

**Disaster Recovery Plan:** A disaster recovery plan serves to guide the physical, social, environmental, and economic recovery and reconstruction process following a disaster. In many instances, hazard mitigation principles and practices are incorporated into local disaster recovery plans with the intent of capitalizing on opportunities to break the cycle of repetitive disaster losses. Disaster recovery plans can also lead to the preparation of disaster redevelopment policies and ordinances to be enacted following a hazard event.

- Grimes County is developing a recovery framework plan that serves as the county's disaster recovery plan. This recovery framework pertains to all participating municipalities and each community acts as an integral part of the framework.

**Emergency Operations Plan:** An emergency operations plan outlines responsibilities and the means by which resources are deployed during and following an emergency or disaster.

- Grimes County maintains an emergency operations plan through the County Emergency Management Department.
- The Town of Anderson has an interlocal agreement in place with Grimes County to be part of the County's plan in lieu of a municipal plan. All other participating municipalities have also adopted a municipal-level emergency operations plan.

**Continuity of Operations Plan:** A continuity of operations plan establishes a chain of command, line of succession, and plans for backup or alternate emergency facilities in case of an extreme emergency or disaster event.

- The Town of Anderson and the City of Todd Mission have developed community-specific continuity of operations plans.
- Grimes County and several of the municipalities within Grimes County are in the process of developing a continuity of government and/or continuity of operations plan for their jurisdiction.

**Flood Response Plan:** A flood response plan establishes procedures for responding to a flood emergency including coordinating and facilitating resources to minimize the impacts of flood.

- Grimes County and the cities of Navasota and Todd Mission currently have a flood response plan in place.

### 17.3.3 General Planning

The implementation of hazard mitigation activities often involves agencies and individuals beyond the emergency management profession. Stakeholders may include local planners, public works officials, economic development specialists, and others. In many instances, concurrent local planning efforts will help to achieve or complement hazard mitigation goals, even though they are not designed as such. Therefore, the Capability Assessment Survey also asked questions regarding general planning capabilities and the degree to which hazard mitigation is integrated into other ongoing planning efforts in Grimes County.

**Comprehensive Land Use Plan:** A comprehensive land use plan establishes the overall vision for what a community wants to be and serves as a guide for future governmental decision making. Typically, a comprehensive plan contains sections on demographic conditions, land use, transportation elements, and community facilities. Given the broad nature of the plan and its regulatory standing in many communities, the integration of hazard mitigation measures into the comprehensive plan can enhance the likelihood of achieving risk reduction goals, objectives, and actions.

- Grimes County has not adopted a county comprehensive plan.
- The Town of Anderson and the City of Navasota have adopted municipal land use plans.
- The City of Todd Mission is planning to develop a municipal land use plan.

**Capital Improvements Plan:** A CIP guides the scheduling of spending on public improvements. A capital improvements plan can serve as an important mechanism for guiding future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

- The City of Navasota has a capital improvement plan in place.
- Grimes County, the Town of Anderson, and the City of Todd Mission are in the process of developing capital improvement plans.

**Historic Preservation Plan:** A historic preservation plan is intended to preserve historic structures or districts within a community. An often-overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards and the identification of ways to reduce future damages. This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards or are within a historic district that cannot easily be relocated out of harm's way.

- Grimes County and the City of Navasota have a Historic Preservation Plan in place.
- The Town of Anderson is planning to develop a Historic Preservation Plan.
- None of the remaining participating municipalities have adopted a historic preservation plan.

**Zoning Ordinance:** Zoning represents the primary means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health, safety, and welfare of those in a given jurisdiction that maintains zoning authority. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, a zoning ordinance can serve as a powerful tool when applied in identified hazard areas.

- The City of Navasota has adopted a zoning ordinance.
- The Town of Anderson and the City of Todd Mission are in the process of developing zoning ordinances.
- None of the remaining participating municipalities (including Grimes County) have adopted a zoning ordinance.

**Subdivision Ordinance:** A subdivision ordinance is intended to regulate the development of residential, commercial, industrial, or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Subdivision design that accounts for natural hazards can dramatically reduce the exposure of future development.

- Grimes County, the Town of Anderson, and the cities of Bedias, Iola, Navasota, and Todd Mission have adopted subdivision ordinances. Grimes County has established a subdivision coordinator office that oversees enforcement of the county ordinance.

**Building Codes, Permitting, and Inspections:** Building codes regulate construction standards. In many communities, permits and inspections are required for new construction. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community.

- Texas has a state compulsory building code, which applies throughout the state; however, jurisdictions may adopt codes if approved as providing adequate minimum standards.
- The Town of Anderson and the Cities of Navasota and Todd Mission have adopted building codes.

The adoption and enforcement of building codes by local jurisdictions is routinely assessed through the Building Code Effectiveness Grading Schedule (BCEGS) program developed by the Insurance Services Office, Inc. (ISO)<sup>14</sup>. In Texas, the Texas Department of Insurance assesses the building codes in effect in a particular community and how the community enforces its building codes with special emphasis on mitigation of losses from natural hazards. The results of BCEGS assessments are routinely provided to ISO's member private insurance companies, which in turn may offer ratings credits for new buildings constructed in communities with strong BCEGS classifications. The concept is that communities with well-enforced, up-to-date codes should experience fewer disaster-related losses and, as a result, should have lower insurance rates.

In conducting the assessment, ISO collects information related to personnel qualification and continuing education as well as the number of inspections performed per day. This type of information combined with local building codes is used to determine a grade for that jurisdiction. The grades range from 1 to 10 with a BCEGS grade of 1 representing exemplary commitment to building code enforcement and a grade of 10 indicating less than minimum recognized protection.

Specific BCEGS rating for the participating jurisdictions can be obtained by contacting the department for building inspections within that jurisdiction.

### 17.3.4 Floodplain Management

Flooding represents the greatest natural hazard facing the nation. At the same time, the tools available to reduce the impacts associated with flooding are among the most developed when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards such as education, outreach, and the training of local officials, the NFIP contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments; however, program participation is strongly encouraged by FEMA as a first step for implementing and

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<sup>14</sup> Participation in BCEGS is voluntary and may be declined by local governments if they do not wish to have their local building codes evaluated.

sustaining an effective hazard mitigation program. It is therefore used as part of this assessment as a key indicator for measuring local capability.

For a county or municipality to participate in the NFIP, they must adopt a local flood damage prevention ordinance that requires jurisdictions to follow established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by a 100-year flood event and that new development in the floodplain will not exacerbate existing flood problems or increase damage to other properties.

A key service provided by the NFIP is the mapping of identified flood hazard areas. Once completed, the FIRMs are used to assess flood hazard risk, regulate construction practices, and set flood insurance rates. FIRMs are an important source of information to educate residents, government officials, and the private sector about the likelihood of flooding in their community.

Table 17-2 provides NFIP policy and claim information for each participating jurisdiction in Grimes County.

**Table 17-2. NFIP Policy and Claim Information for Grimes County**

Jurisdiction	Date Joined NFIP	Map Panel Effective Date	NFIP Policies In Force	Insurance In Force	Closed Claims <sup>^</sup>	Total Payments to Date <sup>^</sup>
Grimes County <sup>†</sup>	8/1/1988	4/3/2012	91	\$32,274,000	32	\$716,641
Anderson	N/A	N/A	N/A	N/A	N/A	N/A
Bedias*	N/A	4/3/2012	N/A	N/A	N/A	N/A
Iola	N/A	N/A	N/A	N/A	N/A	N/A
Navasota	2/4/1988	4/3/2012	65	\$22,963,000	50	\$524,302
Plantersville	N/A	N/A	N/A	N/A	N/A	N/A
Todd Mission*	N/A	4/3/2012	N/A	N/A	N/A	N/A

Source: NFIP Community Status information as of 3/08/2023; NFIP claims and policy information as of 5/2/2023.

<sup>^</sup>Data provided for Non-Mitigated NFIP Repetitive Loss Non-Mitigated NFIP Severe Repetitive Loss combined.

<sup>†</sup>Includes unincorporated areas of county only.

\*Communities that are sanctioned and have chosen not to participate in the NFIP.

**Community Rating System:** An additional indicator of floodplain management capability is the active participation of local jurisdictions in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP by adding extra local measures to provide protection from flooding. All of the 18 creditable CRS mitigation activities are assigned a range of point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class rating. Class ratings, which range from 10 to 1, are tied to flood insurance premium reductions as shown in Table 17-3. As class rating improves (the lower the number the better), the percent reduction in flood insurance premiums for NFIP policyholders in that community increases.

**Table 17-3. CRS Premium Discounts, by Class**

CRS Class	Premium Reduction	CRS Class	Premium Reduction
1	45%	6	20%
2	40%	7	15%
3	35%	8	10%
4	30%	9	5%
5	25%	10	0

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been greatly simplified over the past several years based on community comments. Changes were made with the intent to make the CRS more user-friendly and make extensive technical assistance available for communities who request it.

- Neither Grimes County nor any city within the county are in the CRS program.

**Flood Damage Prevention Ordinance:** A flood damage prevention ordinance establishes minimum building standards in the floodplain with the intent to minimize public and private losses due to flood conditions.

- All communities participating in the NFIP are required to adopt a local flood damage prevention ordinance. Grimes County and Navasota participate in the NFIP, and they all have adopted flood damage prevention regulations.

**Floodplain Management Plan:** A Floodplain Management Plan (FMP, or flood mitigation plan) provides a framework for action regarding corrective and preventative measures to reduce flood-related impacts.

- Grimes County and the Cities of Navasota and Plantersville have adopted FMPs.
- The City of Todd Mission is planning to develop an FMP.

**Open Space Management Plan:** An open space management plan is designed to preserve, protect, and restore largely undeveloped lands in their natural state and to expand or connect areas in the public domain such as parks, greenways, and other outdoor recreation areas. In many instances, open space management practices are consistent with the goals of reducing hazard losses, such as the preservation of wetlands or other flood-prone areas in their natural state in perpetuity.

- Only the City of Navasota has adopted a parks, recreation, greenways, and/or open space plan.
- The City of Todd Mission is currently in the process of developing an open space management plan.

**Stormwater Management Plan:** A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

- The City of Navasota is the only jurisdiction that has adopted a stormwater management plan.
- The City of Todd Mission has a stormwater management plan under development.

### 17.3.5 Administrative and Technical Capability

The ability of a local government to develop and implement mitigation projects, policies, and programs is directly tied to its ability to direct staff time and resources for that purpose. Administrative capability can be evaluated by determining how mitigation-related activities are assigned to local departments and if there are adequate personnel resources to complete these activities. The degree of intergovernmental coordination among departments will also affect administrative capability for the implementation and success of proposed mitigation activities. Technical capability can generally be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in using GIS to analyze and assess community hazard vulnerability. The Capability Assessment Survey was used to capture information on administrative and technical capability through the identification of available staff and personnel resources. Table 17-4 provides a summary of the capability assessment results for Grimes County regarding relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill. A dagger (†) indicates a county-level staff member(s) provides the specified knowledge or skill to that municipality.

**Table 17-4. Relevant Staff/Personnel Resources**

Relevant Staff/ Personnel Resources	Grimes County	Anderson	Bedias	Iola	Navasota	Plantersville	Todd Mission
Planners with knowledge of land development/land management practices					✓		
Engineers or professionals trained in construction practices related to buildings and/or infrastructure	✓		†		✓		
Planners or engineers with an understanding of natural and/or human-caused hazards	✓	†			✓		
Emergency Manager	✓	†	†	†	✓	†	†
Floodplain Manager	✓	†	†	†	✓	†	†
Land Surveyors							
Scientists familiar with the hazards of the community							
Staff with education or expertise to assess the community's vulnerability to hazards	✓	✓	✓	✓	✓		✓
Personnel skilled in GIS and/or Hazus	✓	†	†	†	✓	†	✓
Resource development staff or grant writers	✓	✓	✓		✓		✓



Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing HMP's planning committee.

### 17.3.6 Fiscal Capability

The ability of a local government to take action is often closely associated with the amount of money available to implement policies and projects. This may take the form of outside grant funding awards or locally based revenue and financing. The costs associated with mitigation policy and project implementation vary widely. In some cases, policies are tied primarily to staff time or administrative costs associated with the creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project, such as the acquisition of flood-prone homes, which can require a substantial commitment from local, state, and federal funding sources.

The Capability Assessment Survey was used to capture information on the county's fiscal capability through the identification of locally available financial resources.

Table 17-5 provides a summary of the results for Grimes County with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds).

**Table 17-5. Relevant Fiscal Resources**

Relevant Staff/ Personnel Resources	Gri	And	Bed	Iola	Nav	Pla	Tod
Capital Improvement Programming	✓				✓		✓
Community Development Block Grants	✓	✓	✓	✓	✓	✓	✓
Special Purpose Taxes (or taxing districts)	✓	✓			✓		
Gas/Electric Utility Fees		✓			✓		
Water/Sewer Fees	✓	✓	✓		✓		
Stormwater Utility Fees					✓		
Development Impact Fees	✓						
General Obligation, Revenue, and/or Special Tax Bonds					✓		
Partnering Arrangements or Intergovernmental Agreements	✓	✓	✓	✓	✓	✓	✓
Other: PDM, FMA, HMGP, PA, SBA, other Federal, state, and non-governmental funding sources, etc.	✓	✓	✓	✓	✓	✓	✓

### 17.3.7 Political Capability

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future hazard events. Hazard mitigation may not be a local priority or may conflict with or be seen as an impediment to other goals of the community, such as growth and economic development. Therefore, the local political climate must be considered in designing mitigation strategies as it could be the most difficult hurdle to overcome in accomplishing their adoption and implementation.

The Capability Assessment Survey was used to capture information on political capability of Grimes County. The previous HMP was reviewed for general examples of local political capability, such as guiding development away from identified hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (i.e., building codes, floodplain management, etc.).

- The previous local HMP identified existing ordinances that address natural hazards or are related to hazard mitigation such as flood damage prevention, watershed protection, soil erosion and sediment control, stormwater management, zoning, and subdivision.
- Most Grimes County residents are quite knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Because of this fact, coupled with Grimes County's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## 17.4 CONCLUSION AND LOCAL CAPABILITY

In order to form meaningful conclusions on the assessment of local capability, a quantitative scoring methodology was designed and applied to results of the Capability Assessment Survey. This methodology, further described in Appendix B, attempts to assess the overall level of capability of Grimes County to implement hazard mitigation actions.

The overall capability to implement hazard mitigation actions varies among the participating jurisdictions. For planning and regulatory capability, the majority of the jurisdictions are in the moderate range. There is also some variation in the administrative and technical capability among the jurisdictions with larger jurisdictions generally having greater staff and technical resources. All of jurisdictions are in the limited range for fiscal capability.

Table 17-6 shows the results of the capability assessment using the designed scoring methodology. The capability score is based on the information found in the existing HMP and readily available on the jurisdictions' government websites. This information was reviewed by all jurisdictions and each jurisdiction provided feedback on the information included in the capability assessment. Local government input was vital to identifying capabilities. According to the assessment, the average local capability score for all jurisdictions is 33.57, which falls into the moderate capability ranking and is still removed from reaching the 50-point threshold for high capability.

**Table 17-6. Capability Assessment Results**

<b>Jurisdiction</b>	<b>Overall Total Score</b>	<b>Overall Capability Score</b>
Grimes County	49	Moderate
Anderson	32	Moderate
Bedias	19	Limited
Iola	20	Limited
Navasota	64	High
Plantersville	16	Limited
Todd Mission	35	Moderate

As previously discussed, one of the reasons for conducting a Capability Assessment is to examine local capabilities to detect any existing gaps or weaknesses within ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. These gaps or weaknesses have been identified for each jurisdiction in the tables found throughout this section. The participating jurisdictions used the Capability Assessment as part of the basis for the Mitigation Actions that are identified in Section 19; therefore, each jurisdiction addresses their ability to expand on and improve their existing capabilities through the identification of their Mitigation Actions.

The conclusions of the Risk Assessment and Capability Assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the Hazard Mitigation Planning Team considered not only each jurisdiction's level of hazard risk, but also their existing capability to minimize or eliminate that risk.

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## **18.0 MITIGATION STRATEGY**

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This section of the Plan provides the blueprint for the participating jurisdictions in Grimes County to follow to become less vulnerable to the identified hazards. It is based on the consensus of the Grimes County Hazard Mitigation Planning Team and the findings and conclusions of the Capability Assessment and Risk Assessment. It consists of the following five subsections:

- Introduction
- Mitigation Goals
- Identification and Analysis of Mitigation Techniques
- Selection of Mitigation Techniques for Grimes County
- Plan Update Requirement

### **18.1 INTRODUCTION**

The intent of the Mitigation Strategy is to provide Grimes County with the goals that will serve as guiding principles for future mitigation policy and project administration, along with an analysis of mitigation techniques available to meet those goals and reduce the impact of identified hazards. It is designed to be comprehensive, strategic, and functional in nature:

- In being comprehensive, the development of the strategy includes a thorough review of all hazards and identifies extensive mitigation measures intended to not only reduce the future impacts of high-risk hazards, but also to help the region achieve compatible economic, environmental, and social goals.
- In being strategic, the development of the strategy ensures that all policies and projects proposed for implementation are consistent with pre-identified, long-term planning goals.
- In being functional, each proposed mitigation action is linked to established priorities and assigned to specific departments or individuals responsible for their implementation with target completion deadlines. When necessary, funding sources are identified that can be used to assist in project implementation.

The first step in designing the Mitigation Strategy includes the identification of mitigation goals. Mitigation goals represent broad statements that are achieved through the implementation of more specific mitigation actions. These actions include both hazard mitigation policies (such as the regulation of land in known hazard areas through a local ordinance) and hazard mitigation projects that seek to address specifically targeted hazard risks (such as the acquisition and relocation of a repetitive loss structure).

The second step involves the identification, consideration, and analysis of available mitigation measures to help achieve the identified mitigation goals. This is a long-term, continuous process sustained through the development and maintenance of this Plan. Alternative mitigation measures will continue to be considered as future mitigation opportunities are identified, as data and technology improve, as mitigation funding becomes available, and as this Plan is maintained over time.

The third and last step in designing the Mitigation Strategy is the selection and prioritization of specific mitigation actions for Grimes County and its municipalities (provided separately in Section 19: Mitigation Action Plan). The county and each participating jurisdiction have its own Mitigation Action Plan (MAP) that reflects the needs and concerns of that jurisdiction. The MAP represents an unambiguous and functional plan for action and is considered to be the most essential outcome of the mitigation planning process.

The MAP includes a prioritized listing of proposed hazard mitigation actions (policies and projects) for Grimes County and its municipalities to complete. Each action has accompanying information, such as those departments or individuals assigned responsibility for implementation, potential funding sources, and an estimated target date for completion. The MAP provides those departments or individuals responsible for implementing mitigation actions with a clear roadmap that also serves as an important tool for monitoring success or progress over time. The cohesive collection of actions listed in the MAP can also serve as an easily understood menu of mitigation policies and projects for those local decision makers who want to quickly review the recommendations and proposed actions of the HMP.

In preparing each Mitigation Action Plan for Grimes County, officials considered the overall hazard risk and capability to mitigate the effects of hazards as recorded through the risk and capability assessment process, in addition to meeting the adopted mitigation goals and unique needs of the community.

### 18.1.1 Mitigation Action Prioritization

Prioritization of the proposed mitigation actions was based on the following six factors:

- Effect on overall risk to life and property
- Ease of implementation
- Political and community support
- A general economic cost/benefit review<sup>15</sup>
- Funding availability
- Continued compliance with the NFIP

The point of contact for each jurisdiction helped coordinate the prioritization process by reviewing each action and working with the lead agency/department responsible to determine a priority for each action using the six factors listed above.

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<sup>15</sup> A general economic cost/benefit review was considered by the Hazard Mitigation Planning Team through the process of selecting and prioritizing mitigation actions as recommended by FEMA guidance. Mitigation actions with “high” priority were determined to be the most cost effective and most compatible with the participating jurisdictions’ unique needs. Actions with a “moderate” priority were determined to be cost-effective and compatible with jurisdictional needs but may be more challenging to complete administratively or fiscally than “high” priority actions. Actions with a “low” priority were determined to be important community needs, but the community likely identified several potential challenges in terms of implementation (e.g. lack of funding, technical obstacles). A more detailed cost/benefit analysis will be applied to particular projects prior to the application for or obligation of funding, as appropriate.

Using these criteria, actions were classified as high, moderate, or low priority by the participating jurisdiction officials.

## 18.2 MITIGATION GOALS

44 CFR Requirement
<b>44 CFR Part 201.6(c)(3)(i):</b> The mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

One of the primary goals of all local governments is generally to promote the public health, safety, and welfare of its citizens. In keeping with this standard, Grimes County and the participating municipalities have developed four goal statements for local hazard mitigation planning in the county. In developing these goals, the previous HMP was reviewed to determine whether the goals remained applicable. The existing goals were presented, reviewed, voted on, and accepted by the Hazard Mitigation Planning Team (all of the goals remain unchanged). Each goal, purposefully broad in nature, serves to establish parameters that were used in developing mitigation actions. The Grimes County Mitigation Goals are presented in Table 18.1. Consistent implementation of actions over time will ensure that community goals are achieved.

**Table 18-1. Conclusions on  
Hazard Risks for Grimes County**

Goal	Objective	Description
<b>Goal 1: Build the capability for carrying out hazard mitigation activities.</b>		
<b>1</b>	1.1	Encourage education and training for personnel involved in hazard mitigation to develop high levels of expertise.
	1.2	Ensure, to the extent feasible, adequate levels of staffing for hazard mitigation activities.
	1.3	Create and foster partnerships to help communities reduce their exposure to hazards.
	1.4	Focus on identifying and obtaining federal, state, and private-sector funds available for hazard mitigation.
	1.5	Upgrade operational systems and facilities that support hazard mitigation.
<b>Goal 2: Heighten public awareness and support for hazard mitigation.</b>		
<b>2</b>	2.1	Ensure that communication between disaster personnel and the public in advance of and during hazard events is adequate in content and coverage.
	2.2	Inform area citizens about the full range of natural and man-made hazards they face, and the need for guarding against injury and loss of life caused by those hazards.
	2.3	Devise programs to educate the public about how to prevent or reduce the loss of life or property from all hazards, including specific actions that can be taken.
<b>Goal 3: Increase awareness of public officials, community, and business leaders of the need for hazard mitigation, and support actions to protect public health and safety.</b>		
<b>3</b>	3.1	Encourage the adoption of appropriate hazard mitigation measures by local governments, businesses, institutions, and individuals, and communicate information about specific, effective actions they can take.



Goal	Objective	Description
	3.2	Ensure that communication among disaster personnel and public officials in advance of and during hazard events is adequate in content and coverage.
	3.3	Focus on protecting particularly vulnerable areas during hazard events (e.g., hospitals, nuclear power plants, areas crossed by fuel transmission lines).
<b>Goal 4: Promote resource-sharing and increase coordination and cooperation among governmental entities in conducting hazard-mitigation activities.</b>		
<b>4</b>	4.1	Improve and expand communication and coordination within and among federal, state, and local governments and the Brazos Valley Council of Governments in mitigating hazards.
	4.2	Identify and map critical facilities and take action to ensure that critical facilities and services can continue to operate in disaster situations.
	4.3	Create hazard-specific and general hazard-mitigation partnerships among valley counties, cities, the Brazos Valley Council of Governments, and other stakeholders.
<b>Goal 5: Mitigate damage to and losses of new and existing real property.</b>		
<b>5</b>	5.1	Protect public infrastructure and private buildings from known hazards.
	5.2	Support methods, codes, and ordinances that reduce threats to existing and new development and ensure that citizens are not unnecessarily exposed to potential hazards.
	5.3	Reduce repetitive losses to the National Flood Insurance Program.
	5.4	Protect against financial losses caused by hazard events through liberal application of insurance coverage.
<b>Goal 6: Promote sustainable growth.</b>		
<b>6</b>	6.1	Promote beneficial uses of hazardous areas while expanding open space and recreational opportunities.
	6.2	Incorporate hazard mitigation into long-range planning, budgeting, and development activities.
	6.3	Prevent creation of future hazards to life and property.

### 18.3 IDENTIFICATION AND ANALYSIS OF MITIGATION TECHNIQUES

44 CFR Requirement
<b>44 CFR Part 201.6(c)(3)(ii):</b> The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effect of each hazard, with particular emphasis on new and existing buildings and infrastructure.

In formulating the Mitigation Strategy for Grimes County, a wide range of activities were considered in order to help achieve the established mitigation goals, in addition to addressing any specific hazard concerns. These activities were discussed during the Grimes County Hazard Mitigation Planning Team meetings. In general, all activities considered by the Hazard Mitigation Planning Team can be classified under one of the following six broad categories of mitigation techniques: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, and Public Awareness and Education. These are discussed in detail below.

### **18.3.1 Prevention**

Preventive activities are intended to keep hazard problems from getting worse and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred, or capital improvements have not been substantial. Examples of preventive activities include:

- Planning and zoning
- Building codes
- Open space preservation
- Floodplain regulations
- Stormwater management regulations
- Drainage system maintenance
- Capital improvements programming
- Riverine/fault zone setbacks

### **18.3.2 Property Protection**

Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Retrofitting (e.g., wind proofing, floodproofing, seismic design techniques, etc.)
- Safe rooms, shutters, shatter-resistant glass
- Insurance

### **18.3.3 Natural Resource Protection**

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their protective functions. Such areas include floodplains, wetlands, steep slopes, and sand dunes. Parks, recreation, or conservation agencies and organizations often implement these protective measures. Examples include:

- Floodplain protection
- Watershed management
- Riparian buffers
- Forest and vegetation management (e.g., fire resistant landscaping, fuel breaks, etc.)
- Erosion and sediment control
- Wetland preservation and restoration

- Habitat preservation
- Slope stabilization

#### **18.3.4 Structural Projects**

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event through construction. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs
- Dams/levees/dikes/floodwalls
- Diversions/detention/retention
- Channel modification
- Storm sewers

#### **18.3.5 Emergency Services**

Although not typically considered a “mitigation” technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Evacuation planning and management
- Emergency response training and exercises
- Sandbagging for flood protection
- Installing temporary shutters for wind protection

#### **18.3.6 Public Education and Awareness**

Public education and awareness activities are used to advise residents, elected officials, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series/demonstration events
- Hazard map information
- Real estate disclosure
- Library materials
- School children’s educational programs
- Hazard expositions

## **18.4 SELECTION OF MITIGATION TECHNIQUES FOR GRIMES COUNTY**

To determine the most appropriate mitigation techniques for the communities in Grimes County, the Hazard Mitigation Planning Team thoroughly reviewed and considered the findings of the Capability Assessment and Risk Assessment to determine the best activities for their respective communities. Other considerations included the effect of each mitigation action on overall risk to life and property, its ease of implementation, its degree of political and community support, its general cost-effectiveness, and funding availability (if necessary).

## **18.5 PLAN UPDATE REQUIREMENT**

In keeping with FEMA requirements for plan updates, the Mitigation Actions identified in the previous plans were evaluated to determine their 2023 implementation status. Updates on the implementation status of each action are provided. The mitigation actions provided in Section 19: Mitigation Action Plan include the mitigation actions from the previous plans, as well as any new mitigation actions proposed through the 2023 planning process.

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## 19.0 MITIGATION ACTIONS

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### 19.1 OVERVIEW

As discussed in Section 2, the planning team and stakeholders met at the mitigation workshop to develop mitigation actions for each of the natural hazards included in the Plan Update. Each of the actions in this section were prioritized based on FEMA’s Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLE[E]) criteria necessary for the implementation of each action.

As part of the economic evaluation of the STAPLE(E) analysis, jurisdictions analyzed each action in terms of the overall costs, measuring whether the potential benefit to be gained from the action outweighed costs associated with it. As a result of this exercise, priority was assigned to each mitigation action by marking them as High (H), Moderate (M), or Low (L). An action that is ranked as “High” indicates that the action will be implemented as soon as funding is received. A “Moderate” action is one that may not be implemented right away depending on the cost and number of citizens served by the action. Actions ranked as “Low” indicate that they will not be implemented without first seeking grant funding and after “High” and “Moderate” actions have been completed.

All mitigation actions created by Planning Team members are presented in this section in the form of a MAP matrix. More than one hazard is sometimes listed for an action, if appropriate. Actions presented in this section represent a comprehensive range of mitigation actions per current State and FEMA Guidelines, including two actions, per hazard, and of two different types for each participating jurisdiction. The term county-wide action refers to Grimes County and all participating jurisdictions.

The Mitigation Action Plan is organized by mitigation strategy category (Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, or Public Education and Awareness). The following are the key elements described in the Mitigation Action Plan:

- Hazard(s) Addressed—Hazard which the action addresses.
- Relative Priority—High, moderate, or low priority as assigned by the jurisdiction.
- Lead Agency/Department—Department responsible for undertaking the action.
- Potential Funding Sources—Local, State, or Federal sources of funds are noted here, where applicable.
- Implementation Schedule—Date by which the action should be completed. More information is provided when possible.
- Implementation Status (2023)—Indication of completion, progress, deferment, or no change since the previous plan. If the action is new, that will be noted here.

### 19.2 MITIGATION ACTION PLAN

The mitigation actions proposed by each of the participating jurisdictions are listed in 14 individual MAPs on the following pages. Table 19-1 shows the location of each jurisdiction’s MAP within this section as well as the number of mitigation actions proposed by each jurisdiction. Table 19-2 outlines

the mitigation actions for Grimes County. Table 19-3 provides the MAP for the Town of Anderson. The City of Bédias mitigation action plan is provided in Table 19-4. The City of Iola's mitigation actions are delineated in Table 19-5. The mitigation actions for the City of Navasota are located in Table 19-6. The City of Plantersville's mitigation actions are outlined in Table 19-7 and the mitigation actions for the City of Todd Mission are in Table 19-8.

**Table 19-1. Individual MAP Locations**

Location	Page	Number of Mitigation Actions
Grimes County	19:3	18
Anderson	19:6	14
Bédias	19:9	26
Iola	19:13	15
Navasota	19:16	41
Plantersville	19:24	13
Todd Mission	19:26	17



Table 19-2. Grimes County Mitigation Action Plan

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Prevention</b>							
P-1	Prohibit building any new structures located downstream of high hazard dams.	Dam Failure	Low	Grimes County Emergency Management	Local funds	2023-2028	Action not carried forward into update.
P-2	Enforce burn bans as needed due to environmental conditions.	Wildfire	High	Grimes County Emergency Management	Local funds	2023-2028	Deferred Ongoing effort and continual monitoring of situations that would trigger issuing a burn ban.
<b>Property Protection</b>							
PP-1	Coordinate with cities and Water Districts to facilitate access to additional water sources for potable water and fire flow.	Drought / Wildfire	Moderate	Grimes County Emergency Management	Grants and Local Funds	2023-2028	Deferred Ongoing coordination with public water suppliers and Water Districts.
PP-2	Develop and implement emergency tree and limb removal procedures for areas around roads and public right-of-way.	Winter Storm, Hurricane, Thunderstorm, Tornadoes	Low	Grimes County Emergency Management	Grants and Local Funds	2023-2028	Deferred This mitigation action is an ongoing effort.
PP-3	Prohibit the building of any new structures located down-stream of high hazard dams.	Dam Failure, Flood	Moderate	Grimes County Emergency Management	Local funds	2023-2028	Action not carried forward into update.
PP-4	Buyout structures located down-stream of high hazard dams. Particular areas include: <ul style="list-style-type: none"> <li>Structures within the SFHA</li> <li>Structures adjacent to Gibbons Creek</li> </ul>	Dam Failure, Flood	High	Grimes County Emergency Management	HMA Grants	2023-2028	Action not carried forward into update.
PP-5	Buyout structures located in high flood-prone areas.	Flood, Hurricane	High	Grimes County Emergency Management	HMA Grants	2028	New

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PP-6	Retrofit and harden critical facilities.	Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane, Drought, Earthquake	Moderate	Grimes County Emergency Management	Grant and Local Funds	2023-2028	Deferred This mitigation action is an ongoing effort.
PP-7	Locate and install “quick-connect” for emergency generator hook-ups for critical facilities.	Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane,	High	Grimes County Emergency Management	HMA Grants	2023-2028	Deferred This mitigation action is an ongoing effort.
PP-8	Construct dual-use Community Safe Rooms.	Tornados, Hailstorm, Thunderstorm, Hurricane	High	Grimes County Emergency Management	HMA Grants	2023 - 2028	Deferred This mitigation action is an ongoing effort.
PP-9	Document and develop hazard history for lightning to understand the extent for each participating community.	Lightning	High	Grimes County Emergency Management	HMA Grants	2023 - 2028	New
<b>Natural Resource Protection</b>							
NRP-1	Develop a process for creating defensible space by removing fuel loads (i.e., dry or dead brush).	Wildfire	Moderate	Grimes County Emergency Management	Texas Forest Service Grant	2023 - 2028	Deferred This is an ongoing effort to manage potential vegetative fire fuel.
<b>Structural Projects</b>							
SP-1	Per NFIP participation, identify flood-prone areas and mitigate the flooding problem by upgrading culverts under roads and bridges.	Flood, Hurricane, Thunderstorm	Very High	Grimes County Road and Bridge Dept.	HMA Grants and Local Funds	2023 - 2028	Deferred This mitigation action requires ongoing assessment and effort.
<b>Emergency Services</b>							
ES-1	Develop and implement Drought Contingency Plan Response Stages.	Drought	High	Grimes County Emergency Management	Local Funds	2023 - 2028	Deferred This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
ES-2	Establish heating and cooling center locations.	Excessive Heat, Drought, Winter Storm	High	Grimes County Emergency Management	Local Funds	2028	New
ES-3	Identify new available water supplies.	Drought, Wildfire	Moderate	Grimes County Emergency Management	Local Funds	2023 - 2028	Deferred This mitigation action is an ongoing effort.
<b>Public Education and Awareness</b>							
PEA-1	Public outreach and education for drought and fire prevention (i.e., brush removal).	Drought, Wildfire, Excessive Heat	Moderate	Grimes County Emergency Management	Grants and Local Funds	2023 - 2028	Deferred This mitigation action is an ongoing effort as the County continuously provides education.
PEA-2	Public outreach and education about the causes of natural disasters, specific storm preparation measures that can be taken, and what to do in the case of a "caught in a storm" scenario.	Earthquake Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane	Moderate	Grimes County Emergency Management	Grants and Local Funds	2023 - 2028	Deferred This mitigation action is an ongoing effort as the County continuously provides education.
PEA-3	Public outreach and education related to water conservation.	Drought	High	Grimes County Emergency Management	Grants and Local Funds	2023 - 2028	Deferred This mitigation action is an ongoing effort as the County continuously provides education.
PEA-4	Promote and educate local jurisdictions on methods to address how population changes and economic considerations, and future development impact exposure to natural hazards.	Drought, Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	Grimes County Emergency Management	Grants and Local Funds	2029	New
<b>Previously Completed Actions</b>							

**Table 19-3. Town of Anderson Mitigation Action Plan**

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Prevention</b>							
P-1	Adopt a Building Code that requires tie-downs with anchors and ground anchors appropriate for the soil type for manufactured homes.	Earthquake, Hurricane, Tornadoes, Thunderstorm	Moderate	Town of Anderson	Grants and Local Funds	2023 - 2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-2	Adopt a Building Code that requires wind engineering measures and construction techniques that may include structural bracing, straps and clips and anchor bolts to new structures.	Earthquake, Hurricane, Tornadoes, Thunderstorm	Low	Town of Anderson	Grants and Local Funds	2023 - 2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-3	Enforce burn bans as needed due to environmental conditions.	Drought, Wildfire	High	Town of Anderson	Local Funds	2023 - 2028	Deferred Ongoing effort and continual monitoring of situations that would trigger issuing a burn ban.
<b>Property Protection</b>							
PP-1	Develop and implement emergency tree and limb removal procedures for areas around roads and public right-of-way.	Winter Storm, Hurricane, Thunderstorm, Tornadoes	Low	Town of Anderson	Grants and Local Funds	2023 - 2028	Deferred This mitigation action is an ongoing effort.
PP-2	Retrofit and harden critical facilities.	Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane, Drought	Moderate	Town of Anderson	Grants and Local Funds	2023 - 2028	Deferred This mitigation action is an ongoing effort.
PP-3	Locate and install "quick-connect" for emergency generator hook-ups for critical facilities.	Flood, Winter Storm, Hurricane, Thunderstorm, Hailstorm, Excessive Heat,	High	Town of Anderson	HMA Grants	2023 - 2028	Deferred This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PP-4	Construct dual-use Community Safe Rooms.	Tornados, Hailstorm, Thunderstorm, Hurricane	High	Town of Anderson	HMA Grants	2023 - 2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PP-5	Document and develop hazard history for lightning to understand the extent for each participating community.	Lightning	High	Town of Anderson	HMA Grants	2023 - 2028	<b>New</b>
<b>Natural Resource Protection</b>							
NRP-1	Develop and maintain a database to track community vulnerability to wildfire and then remove the dry brush.	Wildfire	Moderate	Town of Anderson	Texas Forest Service Grant	2023 - 2028	<b>Deferred</b> This mitigation action is an ongoing effort.
<b>Structural Projects</b>							
SP-1	Upgrade flood-prone roads to include resurfacing and restoring ditches and drainage to reduce flooding impact. Assess and upsize culverts as needed.	Flood, Hurricane, Thunderstorm	Very High	Town of Anderson	Grants and Local Funds	2023 - 2028	<b>Deferred</b> This mitigation action requires ongoing assessment and effort.
<b>Emergency Services</b>							
ES-1	Develop and implement Drought Contingency Plan Response Stages.	Drought	High	Town of Anderson	Grants and Local Funds	2023 - 2028	<b>Deferred</b> This mitigation action is an ongoing effort.
ES-2	Establish heating and cooling center locations.	Excessive Heat, Drought, Winter Storm	High	Town of Anderson	Local Funds	2028	<b>New</b>
<b>Public Education and Awareness</b>							
PEA-1	Public outreach and education for drought and fire prevention (i.e., brush removal).	Drought, Wildfire, Excessive Heat	Moderate	Town of Anderson	Grants and Local Funds	2023 - 2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-2	Public outreach and education about the causes of natural disasters, specific storm preparation measures that can be taken, and what to do in the case of a "caught in a storm" scenario.	Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Hurricane	Moderate	Town of Anderson	Grants and Local Funds	2023 - 2028	<b>Deferred</b> This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PEA-3	Public outreach and education related to water conservation.	Drought	High	Town of Anderson	Grants and Local Funds	2023 - 2028	Deferred This mitigation action is an ongoing effort.
PEA-4	Promote and educate local jurisdictions on methods to address how population changes and economic considerations, and future development impact exposure to natural hazards.	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	Town of Anderson	Grants and Local Funds	2029	New
Previously Completed Actions							

Table 19-4. City of Bédias Mitigation Action Plan

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Prevention</b>							
P-1	Adopt a Building Code that requires tie-downs with anchors and ground anchors appropriate for the soil type for manufactured homes.	Earthquake, Hurricane, Tornadoes, Thunderstorm	Moderate	City of Bédias	Grants and Local Funds	2023–2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-2	Adopt a Building Code that requires wind engineering measures and construction techniques that may include structural bracing, straps and clips and anchor bolts to new structures.	Hurricane, Tornadoes, Thunderstorm	Low	City of Bédias	Grants and Local Funds	2023–2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-3	Enforce burn bans.	Wildfire	High	City of Bédias	N/A	2023–2028	Deferred Ongoing effort and continual monitoring of situations that would trigger issuing a burn ban.
P-4	Increase open space areas.	Flood	Low	City of Bédias	HMA Grants and Local Funds	2023–2028	Deferred This mitigation is ongoing and will be pursued as opportunities arise.
P-5	Perform regular maintenance of current drainage systems.	Flood, Hurricane, Thunderstorm	High	City of Bédias	Local Funds	2028	New
P-6	Adopt freeboard requirements of 24 inches to any new construction in the SFHA.	Flood, Hurricane, Thunderstorm	Moderate	City of Bédias	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
P-7	Adopt a requirement that a drainage study be conducted alongside any new development.	Flood	Moderate	City of Bédias	Grants and Local Funds	2028	New
<b>Property Protection</b>							
PP-1	Develop and implement emergency tree and limb removal procedures for areas around roads and public right-of-way.	Winter Storm, Hurricane, Thunderstorm, Tornadoes	Low	City of Bédias	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.



Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PP-2	Retrofit and harden critical facilities.	Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane, Drought	Moderate	City of Bédias	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PP-3	Locate and install “quick-connect” for emergency generator hook-ups for critical facilities.	Flood, Winter Storm, Hurricane, Thunderstorm, Hailstorm, Excessive Heat	High	City of Bédias	HMA Grants	2023–2028	Deferred This mitigation action is an ongoing effort.
PP-4	Construct dual-use Community Safe Rooms.	Tornados, Hailstorm, Thunderstorm, Hurricane	High	City of Bédias	HMA Grants	2023–2028	Deferred This mitigation action is an ongoing effort.
PP-5	Acquire residential structures located in flood-prone areas.	Flood, Hurricane	Removed	City of Bédias	HMA Grants	2022	Deleted There are no residential structures eligible for buy-outs.
PP-6	Document and develop hazard history for lightning to understand the extent for each participating community.	Lightning	High	City of Bédias	HMA Grants	2023 - 2028	New
<b>Natural Resource Protection</b>							
NRP-1	Scope erosion and sediment control projects.	Flood	Moderate	City of Bédias	Grant	2028	New
NRP-2	Improve water quality.	Drought, Excessive Heat	Moderate	City of Bédias	Grants and Local Funds	2028	New
<b>Structural Projects</b>							
SP-1	Upgrade flood-prone roads to include resurfacing and restoring ditches and drainage to reduce flooding impact. Assess and upsize culverts as needed.	Flood, Hurricane, Thunderstorm	Very High	City of Bédias	Grant and Local Funds	2023–2028	Deferred This mitigation action requires ongoing assessment and effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
SP-2	Scope localized flood risk reduction projects (i.e., storm drain improvements, channel modifications, detention/retention).	Flood, Hurricane, Thunderstorm	Moderate	City of Bédias	HMA Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
<b>Emergency Services</b>							
ES-1	Develop and implement Drought Contingency Plan Response Stages.	Drought	High	City of Bédias	Grant	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
ES-2	Establish heating and cooling center locations.	Excessive Heat, Drought, Winter Storm	High	City of Bédias	Local Funds	2028	New
ES-3	Conduct evacuation planning and shelter operations.	Flood, Hurricane, Wildfire	Moderate	City of Bédias	Local Funds	2028	New
ES-4	Install hazard warning systems.	Thunderstorm, Hailstorm, Tornado, Wildfire	Moderate	City of Bédias	HMA Grants and Local Funds	2028	New
<b>Public Education and Awareness</b>							
PEA-1	Public outreach and education for drought and fire prevention (i.e., brush removal).	Drought, Wildfire, Excessive Heat	Moderate	City of Bédias	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-2	Public outreach and education about the causes of natural disasters, specific storm preparation measures that can be taken, and what to do in the case of a "caught in a storm" scenario.	<b>Earthquake,</b> Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane	Moderate	City of Bédias	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-3	Public outreach and education related to water conservation.	Drought	High	City of Bédias	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PEA-4	Promote the benefits and encourage the purchase of insurance.	Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	Moderate	City of Bédias	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PEA-5	Develop and distribute hazard safety information in public locations (i.e., at the library).	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	Moderate	City of Bédias	Grants and Local Funds	2028	New
PEA-6	Host hazard safety expositions.	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	Moderate	City of Bédias	Local Funds	2028	New
PEA-6	Promote and educate local jurisdictions on methods to address how population changes and economic considerations, and future development impact exposure to natural hazards.	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	City of Bédias	Grants and Local Funds	2029	New
Previously Completed Actions							

**Table 19-5. City of Iola Mitigation Action Plan**

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Prevention</b>							
P-1	Adopt a Building Code that requires tie-downs with anchors and ground anchors appropriate for the soil type for manufactured homes.	Earthquake, Hurricane, Tornadoes, Thunderstorm	Moderate	City of Iola	Grants and Local Funds	2023–2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-2	Adopt a Building Code that requires wind engineering measures and construction techniques that may include structural bracing, straps and clips and anchor bolts to new structures.	Hurricane, Tornadoes, Thunderstorm	Low	City of Iola	Grants and Local Funds	2023–2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-3	Enforce burn bans.	Wildfire	High	City of Iola	N/A	2023–2028	Deferred Ongoing effort and continual monitoring of situations that would trigger issuing a burn ban.
<b>Property Protection</b>							
PP-1	Develop and implement emergency tree and limb removal procedures for areas around roads and public right-of-way.	Winter Storm, Hurricane, Thunderstorm, Tornadoes	Low	City of Iola	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PP-2	Retrofit and harden critical facilities.	Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane, Drought	Moderate	City of Iola	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PP-3	Locate and install “quick-connect” for emergency generator hook-ups for critical facilities.	Flood, Winter Storm, Hurricane, Thunderstorm, Hailstorm, Excessive Heat	High	City of Iola	HMA Grants	2023–2028	Deferred This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PP-4	Construct dual-use Community Safe Rooms.	Tornados, Hailstorm, Thunderstorm, Hurricane	High	City of Iola	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PP-5	Purchase and install a backup generator for the following city wells: <ul style="list-style-type: none"> <li>CR 110 Site</li> <li>Wickson Creek SUD</li> </ul>	Flood, Hurricane, Thunderstorm, Hailstorm, Excessive Heat, Winter Storm	High	City of Iola	HMA Grants	2026	New
PP-6	Document and develop hazard history for lightning to understand the extent for each participating community.	Lightning	High	City of Iola	HMA Grants	2023 - 2028	New
<b>Natural Resource Protection</b>							
NRP-1	Develop and maintain a database to track community vulnerability to wildfire and then remove the dry brush.	Wildfire	Moderate	City of Iola	Texas Forest Service Grant	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
<b>Structural Projects</b>							
SP-1	Upgrade flood-prone roads to include resurfacing and restoring ditches and drainage to reduce flooding impact. Assess and upsize culverts as needed.	Flood, Hurricane, Thunderstorm	Very High	City of Iola	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action requires ongoing assessment and effort.
<b>Emergency Services</b>							
ES-1	Develop and implement Drought Contingency Plan Response Stages.	Drought	High	City of Iola	Grant	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
ES-2	Establish heating and cooling center locations.	Excessive Heat, Drought, Winter Storm	High	City of Iola	Local Funds	2028	New
<b>Public Education and Awareness</b>							
PEA-1	Public outreach and education for drought and fire prevention (i.e., brush removal).	Drought, Wildfire, Excessive Heat	Moderate	City of Iola	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PEA-2	Public outreach and education about the causes of natural disasters, specific storm preparation measures that can be taken, and what to do in the case of a "caught in a storm" scenario.	Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Hurricane	Moderate	City of Iola	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PEA-3	Public outreach and education related to water conservation.	Drought	High	City of Iola	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PEA-4	Promote and educate local jurisdictions on methods to address how population changes and economic considerations, and future development impact exposure to natural hazards.	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	City of Iola	Grants and Local Funds	2029	New
Previously Completed Actions							

**Table 19-6. City of Navasota Mitigation Action Plan**

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Prevention</b>							
P-1	Identify obsolete fire hydrants and water valves throughout the city and identify areas of inadequate water supply to fire hydrants.	Fire	Very High	City of Navasota Office of Emergency Management	Completed within CIP	Completed	Completed
P-2	Enforce burn bans.	Wildfire	High	City of Navasota Office of Emergency Management	N/A	N/A	Delete  The City of Navasota does not implement burn bans; outdoor burning is enforced by IFC and City Ordinance.
P-3	Study the hazards associated with the buildings located in the historic downtown district.	Flood, Hurricane, Thunderstorm, Hailstorm, Excessive Heat, Drought	High	City of Navasota Building Department and City of Navasota Fire Marshal	Completed	Completed	Completed
P-4	Provide recommendations and assistance to local building owners within the historic downtown district.	Flood, Hurricane, Thunderstorm, Hailstorm, Excessive Heat, Drought	High	City of Navasota Economic Development Corp.	Grants, Local Funds, and Private Funds	2023–2028	<b>Deferred</b>  This mitigation action is an ongoing effort.
P-5	Update the following: <ul style="list-style-type: none"> <li>• Comprehensive Plan</li> <li>• Zoning Ordinance</li> <li>• Stormwater Management Regulations</li> <li>• Building Codes</li> <li>• Subdivision Ordinance</li> <li>• No-Rise Ordinance</li> <li>• Freeboard Requirement</li> <li>• Floodplain Maps</li> </ul>	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	Moderate – High	City of Navasota Office of Emergency Management, City of Navasota Development Services	Grants and Local Funds	2028	New

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
P-6	Increase open space areas.	Flood	Low	City of Navasota Office of Emergency Management	HMA Grants and Local Funds	N/A	Deleted
P-7	Perform regular maintenance of current drainage systems.	Flood, Hurricane, Thunderstorm	High	City of Navasota Office of Public Works	Local Funds	2028	New
P-8	Adopt a requirement that a drainage study and compensatory storage be conducted alongside any new development.	Flood	High	City of Navasota Office of Emergency Management	Grants and Local Funds	2028	Completed (Currently required by City Ordinance)
<b>Property Protection</b>							
PP-1	Per NFIP participation, acquire existing structures in the identified special flood hazard area adjacent to Cedar Creek north of Brule Drive.	Flood, Hurricane, Thunderstorm	Moderate	City of Navasota Office of Emergency Management	N/A	N/A	Deleted Following a study completed by the Army Corp. of Engineers, this mitigation was deemed not necessary.
PP-2	Develop and implement emergency tree and limb removal procedures for areas around roads and public right-of-way.	Winter Storm, Hurricane, Thunderstorm, Tornadoes	Low	City of Navasota Public Works – Street and Parks Department	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PP-3	Retrofit and harden critical facilities.	Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane, Drought	Moderate	City of Navasota Office of Emergency Management	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PP-4	Locate and install “quick-connect” for emergency generator hook-ups for critical facilities.	Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane	High	City of Navasota Office of Emergency Management	Completed	Completed	Completed



Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PP-5	Construct dual-use Community Safe Rooms.	Tornados, Hailstorm, Thunderstorm, Hurricane	High	City of Navasota Office of Emergency Management	N/A	N/A	Deleted The City of Navasota has facilities that can be utilized and currently does not have any plans for new construction.
PP-6	Purchase and install a backup generator for the following city wells: <ul style="list-style-type: none"> <li>Water Well #4</li> <li>Water Well #3</li> </ul>	Flood, Hurricane, Thunderstorm, Hailstorm, Excessive Heat, Winter Storm	Very High	City of Navasota Public Works – Street and Parks Department	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.  Completed Water Well #7(Main Well), #6 (Second Main Well), and #5 (Third Main Well)
PP-7	Purchase and install a backup generator for the following city lift stations: <ul style="list-style-type: none"> <li>Hollister Street</li> <li>McNair Street</li> <li>Heritage Meadows</li> <li>Link Drive</li> <li>Interstate Drive</li> <li>Austiana Hills</li> </ul>	Flood, Hurricane, Thunderstorm, Hailstorm, Excessive Heat, Winter Storm	Very High	City of Navasota Public Works – Street and Parks Department	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.  Completed Lift Station at Highway 105 West and Lift Station at Durden Street
PP-8	Increase flood resilience to structures through elevation or relocation.	Flood, Hurricane	Moderate	City of Navasota Office of Emergency Management	HMA Grants	2023–2028	<b>Deferred</b> While acquisitions and retrofitting had been an ongoing mitigation goal, the City of Navasota does not plan to pursue those measures and will focus on elevation or relocation opportunities.
PP-9	Document and develop hazard history for lightning to understand the extent for each participating community.	Lightning	High	City of Navasota	HMA Grants	2023 - 2028	<b>New</b>

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Natural Resource Protection</b>							
NRP-1	Clean and line Cedar Creek upstream of the railroad trestle within the corporate city limits.	Flood, Hurricane, Thunderstorm	Moderate	City of Navasota Office of Emergency Management, City of Navasota Public Works – Street and Parks Department	Grant	2023–2028	Deferred
NRP-2	Develop and maintain a database to track community vulnerability to wildfire and then remove the dry brush.	Wildfire	Moderate	City of Navasota Fire Department	Completed with Texas Forest Service Grant	Completed	Completed The database will need to be maintained and updated on a periodic basis.
<b>Structural Projects</b>							
SP-1	Remove abandoned railroad trestle to help reduce or eliminate potential flooding of existing structures in downtown Navasota.	Flood, Hurricane, Thunderstorm	High	City of Navasota Office of Emergency Management	N/A	N/A	Deleted The Cedar Creek study that was conducted determined that removing the trestle would have no effect.
SP-2	Address erosion control and install storm sewer management at Milroy Terrace to protect new structures.	Flood, Hurricane, Thunderstorm	Moderate	City of Navasota Office of Emergency Management, City of Navasota Public Works – Street and Parks Department	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
SP-3	Conduct a drainage study of Cedar Creek to identify flood areas and provide accurate data to assist the community with existing and future management of mitigation issues. Per NFIP participation, install new and larger culverts on Cedar Creek to decrease flood levels on new and existing structures.	Flood, Hurricane, Thunderstorm	High	City of Navasota Office of Emergency Management	Completed	Completed	Completed
SP-4	Conduct a drainage study of Sandy Creek Tributary. Use the results of this study to develop a flood control project to reduce flood levels on new structures.	Flood, Hurricane, Thunderstorm	High	City of Navasota Office of Emergency Management	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
SP-5	Develop alternative water supply by drilling three groundwater wells for estimated future population growth.	Drought, Excessive Heat	Moderate	City of Navasota Office of Emergency Management	Grant	2023–2028	Ongoing. This mitigation action is an ongoing effort.
SP-6	Improve Foster Street drainage systems by adding a storm water pump.	Flood, Hurricane, Thunderstorm	Low	City of Navasota Office of Emergency Management and City of Navasota Public Works	Completed	Completed	Completed
SP-7	Improve Buckingham Lane drainage by installing larger culverts.	Flood, Hurricane, Thunderstorm	Low	City of Navasota Office of Emergency Management and City of Navasota Public Works	Grants and City of Navasota Street and Drainage Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
SP-8	Improve drainage within a section of Farquhar Street (from Harn Street to Johnson Street) by installing larger culverts.	Flood, Hurricane, Thunderstorm	High	City of Navasota Office of Emergency Management and City of Navasota Public Works	Grants and City of Navasota Street and Drainage Funds	2023–2028	New
SP-9	Improve and upgrade storm water culvert system in City of Navasota Area #3 from clay pipes to reinforced concrete pipe (RCP).	Flood, Hurricane, Thunderstorm	High	City of Navasota Office of Emergency Management and City of Navasota Public Works	Grants and City of Navasota Street and Drainage Funds	2023–2028	New
SP-10	Scope localized flood risk reduction projects (i.e., storm drain improvements, channel modifications, detention/retention).	Flood, Hurricane, Thunderstorm	Moderate	City of Navasota Office of Emergency Management, City of Navasota Public Works – Street and Parks Department	HMA Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
SP-11	Relocate and construct a new main Fire Station as well as Administration Facility. (This goal was listed in the prior plan as "Expand and remodel the main Fire Station").	Fire, Wildfire	High	City of Navasota Fire Dept.	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
SP-12	Conduct a study of future fire station needs and locations based on anticipated growth and development. (This goal was listed in the prior plan as "Build Fire Station #2").	Fire, Wildfire	Moderate	City of Navasota Fire Dept.	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
<b>Emergency Services</b>							
ES-1	Purchase and install a backup generator for the following school locations for sheltering: <ul style="list-style-type: none"> <li>Navasota High School</li> <li>Navasota Intermediate School</li> <li>Navasota Junior High School</li> </ul>	Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	City of Navasota Office of Emergency Management and Navasota Independent School District	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
ES-2	Establish heating and cooling center locations.	Excessive Heat, Drought, Winter Storm	High	City of Navasota Office of Emergency Management	Completed	Completed	Completed
ES-3	Develop and implement Drought Contingency Plan Response Stages.	Drought	High	City of Navasota Office of Emergency Management	Grant	2023–2028	Deferred
ES-4	Purchase 700-800 MHz radio systems for city emergency services (police and fire departments) and public works.	Drought, Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	City of Navasota Office of Emergency Management	Completed	Completed	Completed

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
ES-5	Establish a Community Emergency Response Team (CERT) to serve the citizens of Navasota.	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	City of Navasota Police Dept.	Completed	Completed	Completed
ES-6	Install hazard warning systems.	Thunderstorm, Hailstorm, Tornado, Wildfire	Moderate	City of Navasota Office of Emergency Management	HMA Grants and Local Funds	2028	New
<b>Public Education and Awareness</b>							
PEA-1	Public outreach and education for Community Risk Reduction (CRR)	Drought, Wildfire, Excessive Heat	Moderate	City of Navasota Fire Department	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-2	Public outreach and education about the causes of natural disasters, specific storm preparation measures that can be taken, and what to do in the case of a "caught in a storm" scenario.	Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Hurricane	Moderate	City of Navasota Office of Emergency Management	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-3	Public outreach and education related to water conservation.	Drought	High	City of Navasota Office of Emergency Management, City of Navasota Marketing and Communications Department	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PEA-4	Promote the benefits and encourage the purchase of insurance.	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	Moderate	City of Navasota Office of Emergency Management, City of Navasota Marketing and Communications Department	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PEA-5	Promote and educate local jurisdictions on methods to address how population changes and economic considerations, and future development impact exposure to natural hazards.	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	City of Navasota	Grants and Local Funds	2029	New
Previously Completed Actions							

**Table 19-7. City of Plantersville Mitigation Action Plan**

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Prevention</b>							
P-1	Adopt a Building Code that requires tie-downs with anchors and ground anchors appropriate for the soil type for manufactured homes.	Earthquake, Hurricane, Tornadoes, Thunderstorm	Moderate	City of Plantersville	Grants and Local Funds	2023–2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-2	Adopt a Building Code that requires wind engineering measures and construction techniques that may include structural bracing, straps and clips and anchor bolts to new structures.	Hurricane, Tornadoes, Thunderstorm	Low	City of Plantersville	Grants and Local Funds	2023–2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-3	Enforce burn bans.	Wildfire	High	City of Plantersville	N/A	2023–2028	Deferred Ongoing effort and continual monitoring of situations that would trigger issuing a burn ban.
<b>Property Protection</b>							
PP-1	Develop and implement emergency tree and limb removal procedures for areas around roads and public right-of-way.	Winter Storm, Hurricane, Thunderstorm, Tornadoes	Low	City of Plantersville	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PP-2	Retrofit and harden critical facilities.	Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane, Drought	Moderate	City of Plantersville	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PP-3	Locate and install “quick-connect” for emergency generator hook-ups for critical facilities.	Flood, Winter Storm, Hurricane, Thunderstorm, Hailstorm, Excessive Heat,	High	City of Plantersville	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PP-4	Construct dual-use Community Safe Rooms.	Tornados, Hailstorm, Thunderstorm, Hurricane	High	City of Plantersville	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PP-5	Document and develop hazard history for lightning to understand the extent for each participating community.	Lightning	High	City of Plantersville	HMA Grants	2023 - 2028	<b>New</b>
<b>Natural Resource Protection</b>							
<b>Structural Projects</b>							
SP-1	Upgrade flood-prone roads to include resurfacing and restoring ditches and drainage to reduce flooding impact. Assess and upsize culverts as needed.	Flood, Hurricane, Thunderstorm	Very High	City of Plantersville	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action requires ongoing assessment and effort.
<b>Emergency Services</b>							
ES-1	Develop and implement Drought Contingency Plan Response Stages.	Drought	High	City of Plantersville	Grant	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
ES-2	Establish heating and cooling center locations.	Excessive Heat, Drought, Winter Storm	High	City of Plantersville	Local Funds	2028	<b>New</b>
<b>Public Education and Awareness</b>							
PEA-1	Public outreach and education for drought and fire prevention (i.e., brush removal).	Drought, Wildfire, Excessive Heat	Moderate	City of Plantersville	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.



Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PEA-2	Public outreach and education about the causes of natural disasters, specific storm preparation measures that can be taken, and what to do in the case of a "caught in a storm" scenario.	Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Hurricane	Moderate	City of Plantersville	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PEA-3	Public outreach and education related to water conservation.	Drought	High	City of Plantersville	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PEA-4	Promote and educate local jurisdictions on methods to address how population changes and economic considerations, and future development impact exposure to natural hazards.	Drought, Earthquake, Flood, Tornados, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	City of Plantersville	Grants and Local Funds	2029	New
Previously Completed Actions							

**Table 19-8. City of Todd Mission Mitigation Action Plan**

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Prevention</b>							
P-1	Adopt a Building Code that requires tie-downs with anchors and ground anchors appropriate for the soil type for manufactured homes.	Earthquake, Hurricane, Tornadoes, Thunderstorm	Moderate	City of Todd Mission	Grants and Local Funds	2023–2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-2	Adopt a Building Code that requires wind engineering measures and construction techniques that may include structural bracing, straps and clips and anchor bolts to new structures.	Hurricane, Tornadoes, Thunderstorm	Low	City of Todd Mission	Grants and Local Funds	2023–2028	Deferred This mitigation action is part of an ongoing effort to develop and adopt county-wide building codes.
P-3	Enforce burn bans.	Wildfire	High	City of Todd Mission	N/A	2023–2028	Deferred Ongoing effort and continual monitoring of situations that would trigger issuing a burn ban.
<b>Property Protection</b>							
PP-1	Develop and implement emergency tree and limb removal procedures for areas around roads and public right-of-way.	Winter Storm, Hurricane, Thunderstorm, Tornadoes	Low	City of Todd Mission	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.
PP-2	Retrofit and harden critical facilities.	Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane, Drought	Moderate	City of Todd Mission	Grants and Local Funds	2023–2028	Deferred This mitigation action is an ongoing effort.

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
PP-3	Locate and install “quick-connect” for emergency generator hook-ups for critical facilities.	Flood, Winter Storm, Hurricane, Thunderstorm, Hailstorm, Excessive Heat	High	City of Todd Mission	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PP-4	Construct dual-use Community Safe Rooms.	Tornados, Hailstorm, Thunderstorm, Hurricane	High	City of Todd Mission	HMA Grants	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PP-5	Document and develop hazard history for lightning to understand the extent for each participating community.	Lightning	High	City of Todd Mission	HMA Grants	2023 - 2028	<b>New</b>
<b>Natural Resource Protection</b>							
<b>Structural Projects</b>							
SP-1	Upgrade flood-prone roads to include resurfacing and restoring ditches and drainage to reduce flooding impact. Assess and upsize culverts as needed.	Flood, Hurricane, Thunderstorm	Very High	City of Todd Mission	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action requires ongoing assessment and effort.
SP-2	Conduct a drainage study of Mill Creek for future development reference.	Flood, Hurricane, Thunderstorm	Moderate	City of Todd Mission	HMA Grants	2028	New
SP-3	Improve Renfaire Drive drainage by improving creek channel and maintaining or upgrading street culverts.	Flood, Hurricane, Thunderstorm	Moderate	City of Todd Mission	Grants and Local Funds	2028	New
<b>Emergency Services</b>							
ES-1	Develop and implement Drought Contingency Plan Response Stages.	Drought	High	City of Todd Mission	Grant	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
ES-2	Establish heating and cooling center locations.	Excessive Heat, Drought, Winter Storm	High	City of Todd Mission	Local Funds	2028	New

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
<b>Public Education and Awareness</b>							
PEA-1	Public outreach and education for drought and fire prevention (i.e., brush removal).	Drought, Wildfire, Excessive Heat	Moderate	City of Todd Mission	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-2	Public outreach and education about the causes of natural disasters, specific storm preparation measures that can be taken, and what to do in the case of a "caught in a storm" scenario.	Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Hurricane	Moderate	City of Todd Mission	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-3	Public outreach and education related to water conservation.	Drought	High	City of Todd Mission	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-4	Public outreach and education related to notification systems available to citizens.	Drought, Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	Moderate	City of Todd Mission	Grants and Local Funds	2023–2028	<b>Deferred</b> This mitigation action is an ongoing effort.
PEA-5	Public outreach and education related to proper culvert cleaning and maintenance.	Flood, Hurricane, Thunderstorm	Moderate	City of Todd Mission	Grants and Local Funds	2028	New
PEA-6	Promote and educate local jurisdictions on methods to address how population changes and economic considerations, and future development impact exposure to natural hazards.	Drought, Earthquake, Flood, Tornadoes, Thunderstorm, Hailstorm, Winter Storm, Wildfire, Hurricane	High	City of Todd Mission	Grants and Local Funds	2029	New

Action No.	Description	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Potential Funding Sources	Implementation Schedule	Implementation Status (2023)
Previously Completed Actions							

## **20.0 PLAN MAINTENANCE**

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### **20.1 PLAN MAINTENANCE PROCEDURES**

The following is an explanation of how the participating jurisdictions within Grimes County, and the general public will be involved in implementing, evaluating, and enhancing the Plan over time. When the plan is discussed in all maintenance procedures it includes mitigation actions and hazard assessments. The sustained hazard mitigation planning process consists of four main parts:

1. Incorporation
2. Monitoring and Evaluation
3. Updating
4. Continued Public Involvement

### **20.2 INCORPORATION**

Participating jurisdictions within Grimes County will be responsible for further development and implementation of mitigation actions. Each action has been assigned to a specific department within the participating jurisdictions. The following describes the process by which participating jurisdictions will incorporate elements of the mitigation plan into other planning mechanisms.

#### **20.2.1 Process of Incorporation**

Once the Plan Update is adopted, participating jurisdictions within Grimes County will implement actions based on priority and the availability of funding. The Planning Area currently implements policies and programs to reduce loss to life and property from hazards. The mitigation actions developed for this Plan Update enhance this ongoing effort and will be implemented through other program mechanisms where possible.

The potential funding sources listed for each identified action may be used when the jurisdiction seeks funds to implement actions. An implementation period or a specific implementation date has been assigned to each action as an incentive for completing each task and gauging whether actions are implemented in a timely manner.

Participating jurisdictions within Grimes County will integrate implementation of their mitigation actions with other plans and policies such as construction standards and emergency management plans, and ensure that these actions, or proposed projects, are reflected in other planning efforts. Coordinating and integrating components of other plans and policies into goals and objectives of the Plan Update will further maximize funding and provide possible cost-sharing of key projects, thereby reducing loss of lives and property and mitigating hazards affecting the area.

Upon formal adoption of the Plan Update, planning team members from each participating jurisdiction will work to integrate the hazard mitigation strategies into other plans and codes as they are developed. Participating team members will conduct periodic reviews of plans and policies, once per year at a minimum, and analyze the need for amendments in light of the approved Plan. The planning team will review all comprehensive land use plans, capital improvement plans, annual budget

reviews, emergency operations or management plans, and transportation plans (applicable jurisdictions only) to guide and control development. Participating jurisdictions will ensure that capital improvement planning in the future will also contribute to the goals of this HMP update to reduce the long-term risk to life and property from all hazards. Within 1 year of formal adoption of the HMP update, existing planning mechanisms will be reviewed by each jurisdiction.

Grimes County is committed to supporting the participating jurisdictions as they implement their mitigation actions. Planning team members will review and revise, as necessary, the long-range goals and objectives in strategic plan and budgets to ensure that they are consistent with this mitigation action plan. Additionally, the Planning Area will work to advance the goals of this HMP through its routine, ongoing, long-range planning, budgeting, and work processes.

Table 20-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts. The team members listed in Table 20-2 below will be responsible for the review of these planning mechanisms and their incorporation of the plan, with the exception of the FMPs; the jurisdictions who have a floodplain administrator on staff will be responsible for incorporating the plan when FMPs are updated, or new plans are developed.

**Table 20-1. Methods of Incorporation of the Plan**

Planning Mechanism	Department/ Title Responsible	Incorporation of Plan
Annual Budget Review	Grimes County: EMC City of Navasota: City Manager & CFO	Various departments and key personnel that participated in the planning process for participating jurisdictions within Grimes County will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.
Capital Improvement Plans	City of Navasota: EDC, Development Services, Public Works, & City Manager	Participating jurisdictions within Grimes County have a CIP in place. Prior to any revisions to the CIP, County and City departments will review the risk assessment and mitigation strategy sections of the Hazard Mitigation Action Plan, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Comprehensive Plans	City of Navasota: EDC & Development Services	Participating jurisdictions within Grimes County have a Long-term Comprehensive Development Plan in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.

Planning Mechanism	Department/ Title Responsible	Incorporation of Plan
Floodplain Management Plans	City of Navasota: Emergency Management & Development Services	FMPs include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 5 of this Plan Update discussing the people and property at risk to flood will be reviewed and revised when participating jurisdictions within Grimes County update their management plans or develops new plans.
Grant Applications	City of Navasota: Grants Coordinator	The Plan will be evaluated by participating jurisdictions within Grimes County when grant funding is sought for mitigation projects. If a project is not in the Plan Update, an amendment may be necessary to include the action in the Plan.
Regulatory Plans	City of Navasota: Emergency Management & Development Services	Currently, participating jurisdictions within Grimes County have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County and City departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.

### 20.3 MONITORING AND EVALUATION

Periodic revisions of the Plan are required to ensure that goals, objectives, and mitigation actions are kept current. When the plan is discussed in these sections it includes the risk assessment and mitigation actions as a part of the monitoring, evaluating, updating and review process. Revisions may be required to ensure the Plan is in compliance with federal and state statutes and regulations. This section outlines the procedures for completing Plan revisions, updates, and review. Table 20-2 indicates the department and title of the party responsible for Plan monitoring, evaluating, updating, and review of the Plan.



**Table 20-2. Team Members Responsible for Plan Monitoring, Evaluating, Updating, and Review of the Plan**

Jurisdiction	Title
Grimes County	Emergency Management Coordinator (EMC)
Town of Anderson	Mayor
City of Bédias	Mayor
City of Iola	Mayor
City of Navasota	Fire Chief / EMC
City of Plantersville	Mayor
City of Todd Mission	City Manager

### 20.3.1 Monitoring

Designated Planning Team members are responsible for monitoring, evaluating, updating, and reviewing the Plan, as shown in Table 20-2. Individuals holding the title listed in Table 20-2 will be responsible for monitoring the Plan on an annual basis. Plan monitoring includes reviewing and incorporating into the Plan other existing planning mechanisms that relate or support goals and objectives of the Plan; monitoring the incorporation of the Plan into future updates of other existing planning mechanisms as appropriate; reviewing mitigation actions submitted and coordinating with various County and City departments to determine whether mitigation actions need to be re-evaluated and updated; evaluating and updating the Plan as necessary; and monitoring plan maintenance to ensure that the process described is being followed, on an annual basis, throughout the planning process. The Planning Team will develop a brief report that identifies policies and actions in the plan that have been successfully implemented and any changes in the implementation process needed for continued success. A summary of meeting notes will report the particulars involved in developing an action into a project. In addition to the annual monitoring, the Plan will be similarly reviewed immediately after extreme weather events include but not limited to state and federally declared disasters.

### 20.3.2 Evaluation

As part of the evaluation process, the Planning Team will assess changes in risk; determine whether the implementation of mitigation actions is on schedule; determine whether there are any implementation problems, such as technical, political, legal, or coordination issues; and identify changes in land development or programs that affect mitigation priorities for each respective department or organization.

The Planning Team will meet on an annual basis to evaluate the Plan and identify any needed changes and assess the effectiveness of the plan achieving its stated purpose and goals. The team will evaluate the number of mitigation actions implemented along with the loss-reduction associated with each action. Actions that have not been implemented will be evaluated to determine whether any social, political or financial barriers are impeding implementation and if any changes are necessary to improve the viability of an action. The team will evaluate changes in land development and/or programs that affect mitigation priorities in their respective jurisdictions. The annual evaluation process will help to determine whether any changes are necessary. In addition, the Plan will be

similarly evaluated immediately after extreme weather events including but not limited to state and federally declared disasters.

## **20.4 UPDATING**

As stated before, hazard mitigation activities are an investment in a community's safety and sustainability. It is widely accepted that the most effective hazard mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made. A comprehensive review of an HMP addresses hazard vulnerability that exists today and in the foreseeable future. Therefore, a plan must identify how projected patterns of future development will increase or decrease a community's overall hazard vulnerability. There have been little to no changes in development for communities as this is a rural county. There is no anticipated impact to vulnerability for the county and all participating jurisdictions.

### **20.4.1 Plan Amendments**

At any time, minor technical changes may be made to update the Grimes County Hazard Mitigation Action Plan. Material changes to mitigation actions or major changes in the overall direction of the Plan or the policies contained within it, must be subject to formal adoption by the participating jurisdictions.

The participating jurisdictions within Grimes County will review proposed amendments and vote to accept, reject, or amend the proposed change. Upon ratification, the amendment will be transmitted to TDEM.

In determining whether to recommend approval or denial of a Plan amendment request, participating jurisdictions will consider the following factors:

- Errors or omissions made in the identification of issues or needs during the preparation of the Plan Update;
- New issues or needs that were not adequately addressed in the Plan Update; and
- Changes in information, data, or assumptions from those on which the Plan Update was based.

### **20.4.2 Five-Year Year Review**

The Plan will be thoroughly reviewed by the Planning Team at the end of three years from the approval date, to determine whether there have been significant changes in the planning area that necessitate changes in the types of mitigation actions proposed. Factors that may affect the content of the Plan include new development in identified hazard areas, increased exposure to hazards, disaster declarations, increase or decrease in capability to address hazards, and changes to federal or state legislation.

The Plan review process provides the participating jurisdictions within Grimes County an opportunity to evaluate mitigation actions that have been successful, identify losses avoided due to the implementation of specific mitigation measures, and address mitigation actions that may not have been successfully implemented as assigned. It is recommended that the full Executive Planning Team

and Stakeholder Group meet to review the Plan at the end of 3 years because grant funds may be necessary for the development of a 5-year update. Reviewing planning grant options in advance of the 5-Year Plan update deadline is recommended considering the timelines for grant and planning cycles can be in excess of a year.

During the 5-Year Plan review process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the Plan:

- Do the goals address current and expected conditions?
- Has the nature or magnitude of risks changed?
- Are the current resources appropriate for implementing the Plan?
- Are there implementation problems, such as technical, political, legal or coordination issues with other agencies?
- Have the outcomes occurred as expected?
- Did County departments participate in the plan implementation process as assigned?

Following the Plan review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures and Plan amendment process outlined herein. Upon completion of the review, update, and amendment process the revised Plan will be submitted to TDEM for final review and approval in coordination with FEMA.

### 20.4.3 Disaster Declaration

Following a disaster declaration, the Grimes County Hazard Mitigation Plan will be revised as necessary to reflect lessons learned, or to address specific issues and circumstances arising from the event. It will be the responsibility of the Grimes County Emergency Management Director to reconvene the Hazard Mitigation Planning Team and ensure the appropriate stakeholders are invited to participate in the plan revision and update process following declared disaster events.

## 20.5 CONTINUED PUBLIC INVOLVEMENT

44 CFR Requirement
<i>44 CFR Part 201.6(c)(4)(iii):</i> The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

Public input was an integral part of the preparation of this Plan and will continue to be essential for Plan updates. The Public will be directly involved in the annual evaluation, monitoring, reviews, and cyclical updates. Changes or suggestions to improve or update the Plan will provide opportunities for additional public input.

The public can review the Plan on the participating jurisdictions' websites, where officials and the public are invited to provide ongoing feedback, via email.

The Planning Team may also designate voluntary citizens from the planning area or willing stakeholder members from the private sector businesses that were involved in the Plan's development to provide feedback on an annual basis. It is important that stakeholders and the immediate community

maintain a vested interest in preserving the functionality of the planning area as it pertains to the overall goals of the mitigation plan. The Planning team is responsible for notifying stakeholders and community members on an annual basis and maintaining the Plan.

Media, including local newspaper and radio stations, will be used to notify the public of any maintenance or periodic review activities during the implementation, monitoring, and evaluation phases. Additionally, local news media will be contacted to cover information regarding Plan updates, status of grant applications, and project implementation. Local and social media outlets, such as Facebook and Twitter, will keep the public and stakeholders apprised of potential opportunities to fund and implement mitigation projects identified in the Plan.

## **Appendix A**

### **Plan Adoption**

## **Appendix B**

### **Planning Tools**

## **Appendix C**

### **Local Mitigation Plan Review Tool**

## **Appendix D**

### **Planning Process Documentation**



# APPENDIX A

## PLAN ADOPTION

This appendix includes the final approval letter and local adoption resolutions for each of the participating jurisdictions.

# APPENDIX B

## PLANNING TOOLS

This appendix includes the following:

1. List of Recommended Stakeholders
2. Blank Public Participation Survey
3. GIS Data Inventory Sheet
4. Scoring Criteria for Capability Assessment
5. Blank Mitigation Action Worksheet
6. Mitigation Action Progress Report Form
7. Plan Update Evaluation Worksheet

## List of Recommended Stakeholders

Date: \_\_\_\_\_

*In establishing a planning team, you want to ensure that you have a broad range of backgrounds and experiences represented. Below are some suggestions for agencies to include in a planning team. There are many organizations, both governmental and community-based, that should be included when creating a local team. In addition, state organizations can be included on local teams, when appropriate, to serve as a source of information and to provide guidance and coordination.*

*Use the checklist as a starting point for forming your team. Check the boxes beside any individuals or organizations that you have in your community/state that you believe should be included on your planning team so you can follow up with them.*

### Local/Tribal

- ☐ Administrator/Manager's Office
- ☐ Budget/Finance Office
- ☐ Building Code Enforcement Office
- ☐ City/County Attorney's Office
- ☐ Economic Development Office
- ☐ Emergency Preparedness Office
- ☐ Fire and Rescue Department
- ☐ Hospital Management
- ☐ Local Emergency Planning Committee
- ☐ Planning and Zoning Office
- ☐ Police/Sheriff's Department
- ☐ Public Works Department
- ☐ Sanitation Department
- ☐ School Board
- ☐ Transportation Department
- ☐ Tribal Leaders

### Special Districts and Authorities

- ☐ Airport and Seaport Authorities
- ☐ Business Improvement District(s)
- ☐ Fire Control District
- ☐ Flood Control District
- ☐ Redevelopment Agencies
- ☐ Regional/Metropolitan Planning Organization(s)
- ☐ School District(s)
- ☐ Transit/Transportation Agencies

### Others

- ☐ Architectural/Engineering/Planning Firms
- ☐ Citizen Corps
- ☐ Colleges/Universities
- ☐ Land Developers
- ☐ Major Employers/Businesses
- ☐ Professional Associations
- ☐ Retired Professionals

### State

- ☐ Adjutant General's Office (National Guard)
- ☐ Board of Education
- ☐ Building Code Office
- ☐ Climatologist
- ☐ Earthquake Program Manager
- ☐ Economic Development Office
- ☐ Emergency Management Office/State Hazard Mitigation Officer
- ☐ Environmental Protection Office
- ☐ Fire Marshal's Office
- ☐ Geologist
- ☐ Homeland Security Coordinator's Office
- ☐ Housing Office
- ☐ Hurricane Program Manager
- ☐ Insurance Commissioner's Office
- ☐ National Flood Insurance Program Coordinator
- ☐ Natural Resources Office
- ☐ Planning Agencies
- ☐ Police
- ☐ Public Health Office
- ☐ Public Information Office
- ☐ Tourism Department

### Non-Governmental Organizations (NGOs)

- ☐ American Red Cross
- ☐ Chamber of Commerce
- ☐ Community/Faith-Based Organizations
- ☐ Environmental Organizations
- ☐ Homeowners Associations
- ☐ Neighborhood Organizations
- ☐ Private Development Agencies
- ☐ Utility Companies
- ☐ Other Appropriate NGO

## **PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING**

### **We need your help!**

Grimes County is currently engaged in a planning process to become less vulnerable to natural disasters, and your participation is important to us!

The County, along with participating local jurisdictions and other participating partners, are now working to prepare a multi-jurisdictional *Hazard Mitigation Plan*. The purpose of this Plan is to identify and assess our community's natural hazard risks and determine how to best minimize or manage those risks. Upon completion, the Plan will represent a comprehensive multi-jurisdictional *Hazard Mitigation Plan* for the County.

This survey questionnaire provides an opportunity for you to share your opinions and participate in the mitigation planning process. The information you provide will help us better understand your hazard concerns and can lead to mitigation activities that should help lessen the impact of future hazard events.

**Please help us by completing this survey by June 30, 2022 and returning it to:**

Ash Rahman, Atkins 200 Westlake Park Blvd, Suite 1100 Houston, TX 77079
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Surveys can also be emailed to [ash.rahman@atkinsglobal.com](mailto:ash.rahman@atkinsglobal.com).

If you have any questions regarding this survey or would like to learn about more ways you can participate in the development of the *Grimes Co. County Multi-jurisdictional Hazard Mitigation Plan*, please contact Atkins, planning consultant for the project. You may reach Shane Porter (Atkins) at 281.529.4203 or by email at [shane.porter@atkinsglobal.com](mailto:shane.porter@atkinsglobal.com).

### **1. Where do you live?**

- ☐ Unincorporated Grimes County
- ☐ City of Anderson
- ☐ City of Bédias
- ☐ City of Iola
- ☐ City of Navasota
- ☐ City of Plantersville
- ☐ City of Todd Mission
- ☐ Other: \_\_\_\_\_

**2. Have you ever experienced or been impacted by a disaster?**

- ☐ Yes
- ☐ No

**a. If “Yes,” please explain:**

**3. How concerned are you about the possibility of our community being impacted by a disaster?**

- ☐ Extremely concerned
- ☐ Somewhat concerned
- ☐ Not concerned

**4. Please select the one hazard you think is the *highest threat* to your neighborhood:**

- |                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> Flood        | <input type="checkbox"/> Drought             |
| <input type="checkbox"/> Extreme Heat | <input type="checkbox"/> Severe Winter Storm |
| <input type="checkbox"/> Hail         | <input type="checkbox"/> Tornado             |
| <input type="checkbox"/> Wildfire     | <input type="checkbox"/> Hurricane           |
| <input type="checkbox"/> Dam Failure  | <input type="checkbox"/> Earthquake          |

**5. Please select the one hazard you think is the *second highest threat* to your neighborhood:**

- |                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> Flood        | <input type="checkbox"/> Severe Winter Storm |
| <input type="checkbox"/> Extreme Heat | <input type="checkbox"/> Tornado             |
| <input type="checkbox"/> Hail         | <input type="checkbox"/> Hurricane           |
| <input type="checkbox"/> Wildfire     | <input type="checkbox"/> Earthquake          |
| <input type="checkbox"/> Dam Failure  |  |
| <input type="checkbox"/> Drought      |  |

**6. Is there another hazard not listed above that you think is a wide-scale threat to your neighborhood?**

- ☐ Yes (please explain): \_\_\_\_\_
- ☐ No

**7. Is your home located in a floodplain?**

- ☐ Yes
- ☐ No
- ☐ I don't know

**8. Do you have flood insurance?**

- ☐ Yes
- ☐ No
- ☐ I don't know

**a. If "No," why not?**

- ☐ Not located in floodplain
- ☐ Too expensive
- ☐ Not necessary because it never floods
- ☐ Not necessary because I'm elevated or otherwise protected
- ☐ Never really considered it
- ☐ Other (please explain): \_\_\_\_\_

**9. Have you taken any actions to make your home or neighborhood more resistant to hazards?**

- ☐ Yes
- ☐ No

**a. If "Yes," please explain:**

**10. Are you interested in making your home or neighborhood more resistant to hazards?**

- ☐ Yes
- ☐ No

**11. Do you know what office to contact regarding reducing your risks to hazards in your area?**

- ☐ Yes
- ☐ No

**12. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?**

- ☐ Newspaper
- ☐ Television
- ☐ Radio
- ☐ Internet
- ☐ Mail
- ☐ Public workshops/meetings
- ☐ School meetings
- ☐ Other (please explain): \_\_\_\_\_

**13. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?**

**14. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?**

**15. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.**

Category	Very Important	Somewhat Important	Not Important
<b><u>1. Prevention</u></b> Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>2. Property Protection</u></b> Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>3. Natural Resource Protection</u></b> Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include: floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>4. Structural Projects</u></b> Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, detention/retention basins, channel modification, retaining walls, and storm sewers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>5. Emergency Services</u></b> Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>6. Public Education and Awareness</u></b> Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials, and demonstration events.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## THANK YOU FOR YOUR PARTICIPATION!

*This survey may be submitted anonymously; however, if you provide us with your name and contact information below we will have the ability to follow up with you to learn more about your ideas or concerns (optional):*

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone:** \_\_\_\_\_ **E-Mail:** \_\_\_\_\_



## GIS Data Inventory Request Sheet

Data requested	Available?	Received?	Potential Sources
Tax Parcel Data			Tax Assessor
<i>including replacement value</i>			
Building Footprints			Tax Assessor/GIS office
Critical Facilities (in GIS or list form with addresses)			Tax Assessor/GIS office
examples include:			
government buildings			
hospitals			
senior care			
police/fire/EMS/EOC			
locally significant buildings			
schools			
Local hazard studies			public works, natural resources, planning
examples include:			
Flood Studies (HEC-RAS, Risk MAP)			
Local Hazard History Articles			
Areas of Concern Studies			

If you have any additional questions, please contact:

Ash Rahman

[ash.rahman@atkinsglobal.com](mailto:ash.rahman@atkinsglobal.com)

281.529.5222

## Scoring Criteria for Capability Assessment

**0-24 points = Limited overall capability**  
**25-49 points = Moderate overall capability**  
**50-86 points = High overall capability**

### **I. Planning and Regulatory Capability (Up to 48 points)**

*Yes = 3 points*

*Under Development = 1 point*

*Included under county plan/code/ordinance/program = 1 point*

*No = 0 points*

- Hazard Mitigation Plan
- Threat Hazard and Identification and Risk Assessment (THIRA)
- Comprehensive Land Use Plan
- Floodplain Management Plan/Flood Mitigation Plan
- National Flood Insurance Program (NFIP)
- NFIP Community Rating System (CRS Program)

*Yes = 2 points*

*Under Development = 1 point*

*Included under county plan/code/ordinance/program = 1 point*

*No = 0 points*

- Open Space Management Plan/Parks & Recreation Plan/Greenways Plan
- Stormwater Management Plan/Ordinance
- Natural Resource Protection Plan
- Flood Response Plan
- Emergency Operations Plan
- Emergency Management Accreditation Program (EMAP Accreditation)
- Continuity of Operations Plan
- Evacuation Plan
- Disaster Recovery Plan
- Flood Damage Prevention Ordinance
- Post-disaster Redevelopment/Reconstruction Plan/Ordinance

*Yes = 1 point*

*No = 0 points*

- Capital Improvements Plan
- Economic Development Plan
- Historic Preservation Plan
- Zoning Ordinance

- Subdivision Ordinance
- Unified Development Ordinance
- Building Code
- Fire Code

## **II. Administrative and Technical Capability (Up to 15 points)**

*Yes = 2 points*

*Service provided by county = 1 point*

*No = 0 points*

- Planners with knowledge of land development and land management practices
- Engineers or professionals trained in construction practices related to buildings and/or infrastructure
- Planners or engineers with an understanding of natural and/or human-caused hazards
- Emergency manager
- Floodplain manager

*Yes = 1 point*

*No = 0 points*

- Land surveyors
- Scientist familiar with the hazards of the community
- Staff with education or expertise to assess the community's vulnerability to hazards
- Personnel skilled in Geographical Information Systems (GIS) and/or Hazus
- Resource development staff or grant writers

## **III. Fiscal Capability (Up to 20 points)**

*Yes - used to implement mitigation = 2 points*

*Yes - available = 1 point*

*No = 0 points*

- Capital Improvement Programming
- Community Development Block Grants (CDBG)
- Special Purpose Taxes (or tax districts)
- Gas/Electric Utility Fees
- Water/Sewer Fees
- Stormwater Utility Fees
- Development Impact Fees
- General Obligation/Revenue/Special Tax Bonds
- Partnering arrangements or intergovernmental agreements
- Other

**IV. Political Capability  
(Up to 3 points)**

*High = 3 point*

*Moderate = 2 points*

*Limited = 1 point*

- Degree of support by local elected officials in terms of adopting/funding mitigation

## MITIGATION ACTION WORKSHEETS

Mitigation Action Worksheets are used to identify potential hazard mitigation actions that Grimes County and its municipalities will consider to reduce the negative effects of identified hazards. Copy as many sheets as needed. The worksheets provide a simple yet effective method of organizing potential actions in a user-friendly manner that can easily be incorporated into the Hazard Mitigation Plan.

The worksheets are to be used as part of a strategic planning process and are designed to be:

- a.) completed electronically (worksheets and instructions will be e-mailed to members of the Hazard Mitigation Planning Committee following the Mitigation Strategy Workshop;
- b.) reviewed with your department/organization for further consideration; and
- c.) returned according to the contact information provided below.

**Please return all completed worksheets no later than November 21, 2022 to:**

Carrie Beth Lasley, Project Planner

Electronic copies may be e-mailed to: [carrie.lasley@atkinsglobal.com](mailto:carrie.lasley@atkinsglobal.com)

Hard copies may be faxed to: (713) 278-7974 (Attn: Shane Porter)

## INSTRUCTIONS

Each mitigation action should be considered to be a separate local project, policy or program and each individual action should be entered into a separate worksheet. By identifying the implementation requirements for each action, the worksheets will help lay the framework for engaging in distinct actions that will help reduce the community's overall vulnerability and risk. Detailed explanations on how to complete the worksheet are provided below.

**Proposed Action:** Identify a specific action that, if accomplished, will reduce vulnerability and risk in the impact area. Actions may be in the form of local policies (i.e., regulatory or incentive-based measures), programs or structural mitigation projects and should be consistent with any pre-identified mitigation goals and objectives.

**Site and Location:** Provide details with regard to the physical location or geographic extent of the proposed action, such as the location of a specific structure to be mitigated, whether a program will be citywide, countywide or regional, etc.

**History of Damages:** Provide a brief history of any known damages as it relates to the proposed action and the hazard(s) being addressed. For example, the proposed elevation of a repetitive loss property should include an overview of the number of times the structure has flooded, total dollar amount of damages if available, etc.

**Category:** Indicate the most appropriate category for the proposed action as discussed during the Mitigation Strategy Workshop (Prevention; Property Protection; Natural Resource Protection; Structural Projects; Emergency Services; Public Education and Awareness).

**Hazard(s) Addressed:** List the hazard(s) the proposed action is designed to mitigate against.

**Goal(s) Addressed:** List the mitigation goal(s) the proposed action supports.

**Priority:** Indicate whether the action is a "high" priority, "moderate" priority or "low" priority based generally on the following criteria:

1. Effect on overall risk to life and property
2. Ease of implementation / technical feasibility
3. Project costs versus benefits
4. Political and community support
5. Funding availability

**Potential Funding Sources:** If applicable, indicate how the cost to complete the action will be funded. For example, funds may be provided from existing operating budgets or general funds, a previously established contingency fund, a cost-sharing federal or state grant program, etc.

**Lead Agency/Department Responsible:** Identify the local agency, department or organization that is best suited to implement the proposed action.

**Implementation Schedule:** Indicate when the action will begin and when the action is expected to be completed. Remember that some actions will require only a minimal amount of time, while others may require a long-term or continuous effort.

**Comments:** This space is provided for any additional information or details that may not be captured under the previous headings.

MITIGATION ACTION	
Proposed Action:	
BACKGROUND INFORMATION	
Site and Location:	
History of Damages:	

MITIGATION ACTION DETAILS	
Category:	
Hazard(s) Addressed:	
Goal(s) Addressed:	
Priority (High, Moderate, Low):	
Potential Funding Sources:	
Lead Agency/Department Responsible:	
Implementation Schedule:	

COMMENTS

## Mitigation Action Progress Report Form

Progress Report Period	From Date:	To Date:
Action/Project Title		
Responsible Agency		
Contact Name		
Contact Phone/Email		
Project Status	<ul style="list-style-type: none"><li><input type="radio"/> Project completed</li><li><input type="radio"/> Project canceled</li><li><input type="radio"/> Project on schedule</li><li><input type="radio"/> Anticipated completion date: _____</li><li><input type="radio"/> Project delayed</li><li>Explain _____</li></ul>	

### Summary of Project Progress for this Report Period

1. What was accomplished for this project during this reporting period?

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2. What obstacles, problems, or delays did the project encounter?

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3. If uncompleted, is the project still relevant? Should the project be changed or revised?

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4. Other comments

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## Plan Update Evaluation Worksheet

Plan Section	Considerations	Explanation
Planning Process	Should new jurisdictions and/or districts be invited to participate in future plan updates?	
	Have any internal or external agencies been invaluable to the mitigation strategy?	
	Can any procedures (e.g., meeting announcements, plan updates) be done differently or more efficiently?	
	Has the Planning Team undertaken any public outreach activities?	
	How can public participation be improved?	
	Have there been any changes in public support and/or decision-maker priorities related to hazard mitigation?	
Capability Assessment	Have jurisdictions adopted new policies, plans, regulations, or reports that could be incorporated into this plan?	
	Are there different or additional administrative, human, technical, and financial resources available for mitigation planning?	
	Are there different or new education and outreach programs and resources available for mitigation activities?	
	Has NFIP participation changed in the participating jurisdictions?	
Risk Assessment	Has a natural and/or technical or human-caused disaster occurred?	
	Should the list of hazards addressed in the plan be modified?	
	Are there new data sources and/or additional maps and studies available? If so, what are they and what have they revealed? Should the information be incorporated into future plan updates?	
	Do any new critical facilities or infrastructure need to be added to the asset lists?	
	Have any changes in development trends occurred that could create additional risks?	
	Are there repetitive losses and/or severe repetitive losses to document?	



Mitigation Strategy	Is the mitigation strategy being implemented as anticipated? Were the cost and timeline estimates accurate	
	Should new mitigation actions be added to the Action Plan? Should existing mitigation actions be revised or eliminated from the plan?	
	Are there new obstacles that were not anticipated in the plan that will need to be considered in the next plan update	
	Are there new funding sources to consider?	
	Have elements of the plan been incorporated into other planning mechanisms?	
Plan Maintenance Procedures	Was the plan monitored and evaluated as anticipated?	
	What are needed improvements to the procedures?	

# **APPENDIX C**

## **LOCAL MITIGATION PLAN REVIEW TOOL**

# Local Mitigation Plan Review Tool

## Cover Page

The Local Mitigation Plan Review Tool (PRT) demonstrates how the local mitigation plan meets the regulation in 44 CFR § 201.6 and offers states and FEMA Mitigation Planners an opportunity to provide feedback to the local governments, including special districts.

1. The Multi-Jurisdictional Summary Sheet is a worksheet that is used to document how each jurisdiction met the requirements of the plan elements (Planning Process; Risk Assessment; Mitigation Strategy; Plan Maintenance; Plan Update; and Plan Adoption).
2. The Plan Review Checklist summarizes FEMA's evaluation of whether the plan has addressed all requirements.

*For greater clarification of the elements in the Plan Review Checklist, please see Section 4 of this guide. Definitions of the terms and phrases used in the PRT can be found in Appendix E of this guide.*

Plan Information	
Jurisdiction(s)	Grimes County, TX
Title of Plan	Grimes County Hazard Mitigation Plan Update
New Plan or Update	Update
Single- or Multi-Jurisdiction	Multi-jurisdiction
Date of Plan	5/26/2023
Local Point of Contact	
Title	Emergency Management Services Coordinator
Agency	Grimes County Office of Emergency Management
Address	P.O. Box 593 Anderson, TX 77830
Phone Number	(979) 204-4592 (936) 873-4404
Email	david.lilly@grimescountytexas.gov

Additional Point of Contact	
<b>Title</b>	Click or tap here to enter text.
<b>Agency</b>	Click or tap here to enter text.
<b>Address</b>	Click or tap here to enter text.
<b>Phone Number</b>	Click or tap here to enter text.
<b>Email</b>	Click or tap here to enter text.

Review Information	
State Review	
<b>State Reviewer(s) and Title</b>	Click or tap here to enter text.
<b>State Review Date</b>	Click or tap to enter a date.
FEMA Review	
<b>FEMA Reviewer(s) and Title</b>	Click or tap here to enter text.
<b>Date Received in FEMA Region</b>	Click or tap to enter a date.
<b>Plan Not Approved</b>	Click or tap to enter a date.
<b>Plan Approvable Pending Adoption</b>	Click or tap to enter a date.
<b>Plan Approved</b>	Click or tap to enter a date.

## Multi-Jurisdictional Summary Sheet

#	Jurisdiction Name	Requirements Met (Y/N)						
		A. Planning Process	B. Risk Assessment	C. Mitigation Strategy	D. Plan Maintenance	E. Plan Update	F. Plan Adoption	G. State Requirements
1	Grimes County	Y	Y	Y	Y	Y		
2	Anderson	Y	Y	Y	Y	Y		
3	Bedias	Y	Y	Y	Y	Y		
4	Iola	Y	Y	Y	Y	Y		
5	Navasota	Y	Y	Y	Y	Y		
6	Plantersville	Y	Y	Y	Y	Y		
7	Todd Mission	Y	Y	Y	Y	Y		

## Plan Review Checklist

The Plan Review Checklist is completed by FEMA. States and local governments are encouraged, but not required, to use the PRT as a checklist to ensure all requirements have been met prior to submitting the plan for review and approval. The purpose of the checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been “met” or “not met.” FEMA completes the “required revisions” summary at the bottom of each element to clearly explain the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is “not met.” Sub-elements in each summary should be referenced using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each element and sub-element are described in detail in Section 4: Local Plan Requirements of this guide.

Plan updates must include information from the current planning process.

If some elements of the plan do not require an update, due to minimal or no changes between updates, the plan must document the reasons for that.

Multi-jurisdictional elements must cover information unique to all participating jurisdictions.

### Element A: Planning Process

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))</b>		
A1-a. Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan’s development, as well as who was involved?	Section 2; Appendix A	Choose an item.
A1-b. Does the plan list the jurisdiction(s) participating in the plan that seek approval, and describe how they participated in the planning process?	Section 2; Appendix A	Choose an item.
<b>A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))</b>		
A2-a. Does the plan identify all stakeholders involved or given an opportunity to be involved in the planning process, and how each stakeholder was presented with this opportunity?	Section 2	Choose an item.

Element A Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))</b>		
A3-a. Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan?	Section 2.4; Appendix D	Choose an item.
<b>A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3))</b>		
A4-a. Does the plan document what existing plans, studies, reports and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document?	Section 2.2; Table 2-3	Choose an item.
<b>ELEMENT A REQUIRED REVISIONS</b>		
<b>Required Revision:</b> Click or tap here to enter text.		

## Element B: Risk Assessment

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))</b>		
B1-a. Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area?	Section 4 provides an overall risk overview; Sections 5-15 describe each hazard in detail in their own respective section	Choose an item.
B1-b. Does the plan include information on the location of each identified hazard?	Sections 5-15 list location and special extent per each identified hazard	Choose an item.

Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
B1-c. Does the plan describe the extent for each identified hazard?	Sections 5-15 describe the special extent per each identified hazard	Choose an item.
B1-d. Does the plan include the history of previous hazard events for each identified hazard?	Sections 5-15 lists historical occurrences per each identified hazard	Choose an item.
B1-e. Does the plan include the probability of future events for each identified hazard? Does the plan describe the effects of future conditions, including climate change (e.g., long-term weather patterns, average temperature and sea levels), on the type, location and range of anticipated intensities of identified hazards?	Sections 5-15 describes the probability of future occurrences per each identified hazard	Choose an item.
B1-f. For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or vary from those affecting the overall planning area?	Sections 5-15 describes any variance in hazards for the participating jurisdictions	Choose an item.
<b>B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))</b>		
B2-a. Does the plan provide an overall summary of each jurisdiction's vulnerability to the identified hazards?	Sections 5-15 provide a summary of the jurisdiction's vulnerability	Choose an item.
B2-b. For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction?	Sections 5-15 community impacts are included per hazard; Section 16	Choose an item.
B2-c. Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods?	Section 5.11; Table 5-10	Choose an item.



Element B Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>ELEMENT B REQUIRED REVISIONS</b>		
<b>Required Revision:</b> Click or tap here to enter text.		

## Element C: Mitigation Strategy

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>C1. Does the plan document each participant's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))</b>		
C1-a. Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use and development ordinances or regulations?	Section 17.3	Choose an item.
C1-b. Does the plan describe each participant's ability to expand and improve the identified capabilities to achieve mitigation?	Sections 17.3-17.4	Choose an item.
<b>C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))</b>		
C2-a. Does the plan contain a narrative description or a table/list of their participation activities?	Section 5	Choose an item.
<b>C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))</b>		
C3-a. Does the plan include goals to reduce the risk from the hazards identified in the plan?	Section 18.2	Choose an item.
<b>C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))</b>		
C4-a. Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment?	Section 19	Choose an item.

Element C Requirements	Location in Plan (section and/or page number)	Met / Not Met
C4-b. Does the plan include one or more action(s) per jurisdiction for each of the hazards as identified within the plan's risk assessment?	Each participating jurisdiction has a Mitigation Action Plan (MAP) in Section 19 and Table 19.1 directs to the location	Choose an item.
<b>C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))</b>		
C5-a. Does the plan describe the criteria used for prioritizing actions?	Section 19.1	Choose an item.
C5-b. Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame?	Each participating jurisdiction has a MAP and Table 19.1 directs to the location. Each participating jurisdiction provided the hazard addressed, priority, lead agency, potential funding source, and implementation schedule and status.	Choose an item.
<b>ELEMENT C REQUIRED REVISIONS</b>		
<b>Required Revision:</b> Click or tap here to enter text.		

## Element D: Plan Maintenance

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))</b>		
D1-a. Does the plan describe how communities will continue to seek future public participation after the plan has been approved?	Section 20.5	Choose an item.

Element D Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))</b>		
D2-a. Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process?	Section 20.4	Choose an item.
D2-b. Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process must identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible.	Section 20.3	Choose an item.
D2-c. Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process?	Section 20.4	Choose an item.
<b>D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))</b>		
D3-a. Does the plan describe the process the community will follow to integrate the ideas, information and strategy of the mitigation plan into other planning mechanisms?	Section 20.2	Choose an item.
D3-b. Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated?	Section 20.2; Table 20-1	Choose an item.
D3-c. For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms?	Table 20-1	Choose an item.
<b>ELEMENT D REQUIRED REVISIONS</b>		
<b>Required Revision:</b> Click or tap here to enter text.		

## Element E: Plan Update

Element E Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))</b>		
E1-a. Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community's vulnerability since the previous plan was approved?	Section 3.3; Section 3.5	Choose an item.
<b>E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))</b>		
E2-a. Does the plan describe how it was revised due to changes in community priorities?	Section 2.2 – 2.3	Choose an item.
E2-b. Does the plan include a status update for all mitigation actions identified in the previous mitigation plan?	Each participating jurisdiction has a Mitigation Action Plan (MAP) and Table 19.1 directs to the location. Each participating jurisdiction provided status updates of mitigation actions	Choose an item.
E2-c. Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms?	Section 17	Choose an item.
<b>ELEMENT E REQUIRED REVISIONS</b>		
<b>Required Revision:</b> Click or tap here to enter text.		

## Element F: Plan Adoption

Element F Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))</b>		
F1-a. Does the participant include documentation of adoption?	Appendix A	Choose an item.
<b>F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))</b>		
F2-a. Did each participant adopt the plan and provide documentation of that adoption?	Appendix A	Choose an item.
<b>ELEMENT F REQUIRED REVISIONS</b>		
<b>Required Revision:</b> Click or tap here to enter text.		

## Element G: High Hazard Potential Dams (Optional)

A separate annex was developed for dams to create eligibility for funding for High Hazard Potential Dams (HHPD) grant program. The state and FEMA have reviewed the annex and provided comments for revisions. The state dam agency, DHEC, has provided additional information on the inspections of the dams that will be included in the revisions and submitted back to FEMA.

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>HHPD1. Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs?</b>		
HHPD1-a. Does the plan describe how the local government worked with local dam owners and/or the state dam safety agency?	NA	Choose an item.
HHPD1-b. Does the plan incorporate information shared by the state and/or local dam owners?	NA	Choose an item.

HHPD Requirements	Location in Plan (section and/or page number)	Met / Not Met
<b>HHPD2. Did the plan address HHPDs in the risk assessment?</b>		
HHPD2-a. Does the plan describe the risks and vulnerabilities to and from HHPDs?	NA	Choose an item.
HHPD2-b. Does the plan document the limitations and describe how to address deficiencies?	NA	Choose an item.
<b>HHPD3. Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?</b>		
HHPD3-a. Does the plan address how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies?	NA	Choose an item.
HHPD3-b. Does the plan link proposed actions to reducing long-term vulnerabilities that are consistent with its goals?	NA	Choose an item.
<b>HHPD4-a. Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPDs?</b>		
HHPD4-a. Does the plan describe specific actions to address HHPDs?	NA	Choose an item.
HHPD4-b. Does the plan describe the criteria used to prioritize actions related to HHPDs?	NA	Choose an item.
HHPD4-c. Does the plan identify the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs?	NA	Choose an item.
<b>HHPD Required Revisions</b>		
<b>Required Revision:</b> Click or tap here to enter text.		

## Element H: Additional State Requirements (Optional)

Element H Requirements	Location in Plan (section and/or page number)	Met / Not Met
This space is for the State to include additional requirements		
Click or tap here to enter text.	Click or tap here to enter text.	Choose an item.

## Plan Assessment

These comments can be used to help guide your annual/regularly scheduled updates and the next plan update.

### Element A. Planning Process

#### Strengths

- [insert comments]

#### Opportunities for Improvement

- [insert comments]

### Element B. Risk Assessment

#### Strengths

- [insert comments]

#### Opportunities for Improvement

- [insert comments]

### Element C. Mitigation Strategy

#### Strengths

- [insert comments]

#### Opportunities for Improvement

- [insert comments]

### Element D. Plan Maintenance

#### Strengths

- [insert comments]

#### Opportunities for Improvement

- [insert comments]

### Element E. Plan Update

#### Strengths

- [insert comments]

#### Opportunities for Improvement

- [insert comments]



## **Element G. HHPD Requirements (Optional)**

### **Strengths**

- [insert comments]

### **Opportunities for Improvement**

- [insert comments]

## **Element H. Additional State Requirements (Optional)**

### **Strengths**

- [insert comments]

### **Opportunities for Improvement**

- [insert comments]

# APPENDIX D

## PLANNING PROCESS DOCUMENTATION

This appendix includes:

1. Meeting Agendas
2. Meeting Minutes
3. Meeting Sign-In Sheets
4. Public Meeting Advertisements
5. Public Survey Advertisements
6. Public Survey Results

## **Hazard Mitigation Plan Update for Grimes County**

### **Planning Committee Kick-off Meeting**

**Thursday, January 20, 2022, 10:00 am**

**Navasota Center – Navasota, TX**

### **Agenda**

- Introductions
- Overview of Mitigation
  - Ice Breaker Exercise
- Project Overview
  - Key Objectives
  - Project Tasks
  - Hazard Mitigation Planning Committee
  - Project Schedule
  - Data Requests
- Roles & Responsibilities
- Next Steps
- Working Lunch

## **Hazard Mitigation Plan Update for Grimes County**

### **Planning Committee Risk Meeting**

**Wednesday, May 25, 2022, 1:00 pm**

**Navasota Center – Navasota, TX**

### **Agenda**

- Introductions
- Risk Assessment Findings
- Public Involvement Activities
- Project Schedule
- Next Steps

## **Hazard Mitigation Plan Update for Grimes County**

### **Planning Committee Mitigation Workshop**

**Thursday, August 11, 2022, 10:00 am**

**Navasota Center – Navasota, TX**

#### **Agenda**

- Introductions
- Public Involvement Activities
- Capability Assessments
- Mitigation Strategy
- Next Steps

## **Hazard Mitigation Plan Update for Grimes County**

### **Public Meeting**

**Wednesday, May 25, 2022, 6:00 pm**

**Navasota Center – Navasota, TX**

### **Agenda**

- Introduction
- Project Overview
- Project Tasks
- Project Schedule
- Public Involvement
- Next Steps

## Grimes County Commissioners Court

**Chad Mallett**  
Commissioner, Precinct #1

**David Dobyanski**  
Commissioner, Precinct #2



**Barbara Walker**  
Commissioner, Precinct #3

**Phillip Cox**  
Commissioner, Precinct #4

**Joe Fauth III**  
Grimes County Judge  
270 FM 149 W, Anderson,  
Texas 77830

### **NOTICE OF THE PUBLIC MEETING OF THE COMMISSIONERS COURT OF GRIMES COUNTY, TEXAS**

**THURSDAY, JUNE 16, 2022 at 6:00 PM**

*This Public Notice is being posted in the event there may be a quorum of the Grimes County Commissioners Court at an upcoming event. No formal action will be taken but a discussion of the general affairs and well-being of the County may occur.*


*Notice is hereby given that a **Public Meeting of the Commissioners Court of Grimes County, Texas**, will be held on **Thursday, June 16, 2022 at 6:00 p.m. in the Commissioners Courtroom, located in the Grimes County Justice & Business Center, 270 FM 149 W., Anderson, Texas**, at which time the following subjects will be discussed and acted upon, to-wit:*

1. Call to Order.
2. Discuss and participate in the Grimes County Hazard Mitigation Plan Public Meeting.
3. Adjourn.

DATE: 06/10/2022

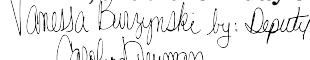
POSTED BY: Cherie Wagner

DATED, this **10<sup>th</sup> day of June, 2022**

  
\_\_\_\_\_  
Joe Fauth III, Grimes County Judge

I, the undersigned **County Clerk**, do hereby certify that the above notice of the **Public Meeting** of the above-named Commissioners Court is a true and correct copy of the said notice which was posted on the **10<sup>th</sup> day of June 2022**. Notice is to remain so posted continuously for at least three days preceding the date of said meeting.

DATED, this the **10<sup>th</sup> day of June, 2022**

  
\_\_\_\_\_  
Vanessa Burzynski, Grimes County Clerk

(This Court reserves the right to convene in executive session at any time deemed necessary for the consideration of confidential matters under the Texas Government code, Sections 551.071-551.084.)

## **Hazard Mitigation Plan Update for Grimes County**

### **Public Meeting**

**Thursday, August 11, 2022, 7:00 pm**

**Navasota Center – Navasota, TX**

### **Agenda**

- Introduction
- Project Overview
- Project Tasks
- Project Schedule
- Public Involvement
- Next Steps



**Meeting Minutes**  
**Grimes County Hazard Mitigation Plan Update**  
**Kick-off Meeting**  
**January 20, 2022**

Shane Porter, Atkins' Project Manager for Grimes County Hazard Mitigation Plan Update led the meeting and thanked everyone for attending. All the meeting attendees introduced themselves. Erin Capps and Margaret Walton with Atkins and Brian Hurtuk with Texas Division of Emergency Management joined the meeting online via Teams. David Lilly from Grimes County Office of Emergency Management introduced himself and said that he will be the central point of contact for this project. He also explained some of the disasters Grimes County faced in recent times and how this hazard mitigation plan update will help the county.

Shane Porter then began by providing an overview of the agenda items and briefly reviewed each of the handouts that were distributed in the meeting packets (agenda and presentation slides). He then provided a brief overview of the meeting agenda and discussed the necessity of a hazard mitigation plan update. Margaret Walton, Senior Planner from Atkins emphasized that mitigation refers to actions (projects, policies, plans) to reduce the impacts of future hazard events. The hazard mitigation planning process looks at hazards, capability to conduct mitigation, and specific activities to reduce impacts of hazards. She explained how federal legislation requires local governments to have a hazard mitigation plan in place to remain eligible for federal mitigation grants (e.g., BRIC, HMGP, FMAP, PDM) so there is funding to implement some of the actions that this plan may identify. Ms. Walton then laid out all the mitigation techniques/categories that mitigation actions fall within. She walked through the presentation to outline various examples of each technique and began a discussion of projects that the county and participating jurisdictions might pursue.

Following this discussion, Shane Porter led an icebreaker exercise. He provided instructions to attendees on how to complete the exercise. Attendees were given an equal amount of fictitious grant money (\$25 each) and asked to spend it in the various mitigation categories. Given the windfall of financial resources, attendees were to target their money towards areas of mitigation that are of greatest concern. Ideally, the exercise helps pinpoint areas of mitigation that the community may want to focus on when developing mitigation actions. Mr. Porter then explained that due to time constraint, the results would be presented and reviewed at the next Hazard Mitigation Planning Committee meeting.

The results were:

- Emergency Services - \$139
- Prevention - \$139
- Property Protection - \$77
- Natural Resource Protection - \$61
- Structural Projects - \$60
- Public Education and Awareness - \$47

Shane Porter then started discussing the project objectives and gave a brief overview of all the steps of the planning process. Grimes County Judge, Joe Fauth, asked about the duration/schedule of the project. Shane Porter, Margaret Walton and Brian Hurtuk then explained the schedule of the project. Shane Porter said Atkins should send the draft plan to TDEM at the end of August 2022. Brian Hurtuk said it should not take more than a couple weeks for him to review and then FEMA's review usually takes between 45 to 90 days. Mr. Porter continued that the plan is anticipated to be implemented at the end of the calendar year. Judge Fauth then asked if the county can apply for any grants while the plan development is in process. Margaret

Walton, Erin Capps and Brian Hurtuk explained that FEMA usually considers application for grants if the Hazard Mitigation Plan update is in-process for a jurisdiction. Brian Hurtuk added that there are ways to work around this type of situation and he can help if such a situation arises. Erin Capps then discussed various types of grant funding (e.g., BRIC, HMGP) that the county can apply for in the future.

### **Risk Assessment**

Margaret Walton explained the process of hazard severity identification and numerical ranking analysis which will be reviewed in the next meeting. FEMA requires that plans address natural hazards, but an all-hazards approach is becoming more prevalent. Some manmade/technological hazards can be included in the hazard identification, but vulnerability assessment focuses more on the natural hazards since more mitigation funding is available for natural hazards. Shane Porter then presented the list of hazards to be addressed in the plan.

At this point, the Mayor of Anderson, Karen McDuffie asked that if equipment such as a heater can be bought to be added inside wastewater treatment plants in light of recent winter storms. Erin Capps and Margaret Walton explained that it can be done and it is a good example of a mitigation action.

### **Capability Assessment**

A capability assessment survey was handed out to the participants at this point. Margaret Walton explained that the survey does not need to be filled out individually, rather one for the county and one per jurisdiction.

### **Mitigation strategy**

Erin Capps, Emergency Management Project Director of Atkins, showed an example of how to develop a mitigation action and explained the importance of considering all aspects and regulations to develop the plan. She stated that mitigation goals come from the existing plan and the current mitigation actions will be updated. She then emphasized the need for an amendment of the mitigation plan if any additional hazards occur after the plan is in effect. She continued the presentation by discussing the hazard mitigation planning committee which includes members of various jurisdictions and stakeholders.

Shane Porter then briefly gave an overview of the current project schedule and the data that needs to be collected from the county and analyzed to develop the hazard mitigation plan update.

### **Public Involvement**

Shane Porter then discussed the roles and responsibilities of all the parties involved as well as the expectations for the level of involvement. The Atkins team will provide technical assistance, data collection, facilitation, and plan preparation. The county and jurisdictions were asked to be active participants by assisting with data collection, public awareness, hosting committee meetings, mitigation strategy, plan feedback, and plan adoption.

Mr. Porter explained how public comment and participation is required as part of this process. A public participation survey was handed out at this point and Ash Rahman showed the online link of the survey for dissemination. The link will be shared electronically following the meeting and the meeting participants were requested to share the link in their social media as well.

Shane Porter then discussed the next steps of the plan development and mentioned that the next meeting will be in April. He thanked everyone for participating and then took questions.

Freeman Vickers, the Fire Chief of White Hall mentioned that emergency response is a big part of hazard mitigation and it is very expensive to run the emergency response facilities. He asked if it is possible to get emergency response funding through mitigation funding. Margaret Walton explained emergency response

funding is considered different and it may come through other grant programs. Erin Capps and Brian Hurtuk reiterated that emergency response funding usually does not come from mitigation funds.

Answering a question asked by Karen McDuffie, Erin Capps said that each jurisdiction inside the county can use this hazard mitigation plan to apply for funding.

Ms. Capps then explained the In-Kind Cost Tracking Form to charge for the participants' time contribution for this project. The hourly rate will be decided from the U.S. Bureau of Labor Statistics website and the in-kind form will be emailed after the meeting and will need to be submitted to David Lilly.

Following this discussion, lunch was provided and participants worked through the capability assessments and additional questions. The meeting ended around 1 PM.

**Meeting Minutes**  
**Grimes County Hazard Mitigation Plan Update**  
**Risk Workshop**  
**May 25, 2022 1:00 PM**

Shane Porter, Atkins' Project Manager for Grimes County Hazard Mitigation Plan Update led the meeting and thanked everyone for attending. Shane Porter informed everyone that the main goal of this meeting was to show the risk assessment findings based on the data that had been collected and analyzed so far and get opinion from the attendees. All the meeting attendees introduced themselves. Erin Capps and Margaret Walton with Atkins joined the meeting online via Teams.

Margaret Walton, Senior Planner of Atkins, then began by providing an overview of the agenda items. She explained that even though the best available data was utilized, events or damages could be underreported or not reported at all. She also welcomed and encouraged the attendees for any kind of recommendation for adjustment. At this point David Lilly of Grimes County Office of Emergency Management (OEM) asked if any infrastructure damage data would be included in the hazard profile analysis or only structural loss data would be included. Erin Capps replied that Atkins will include any data that could be provided to the team. Ms. Walton then briefly described the criteria which was used to determine the Priority Risk Index (PRI) for each hazard. She then started sharing the hazard profile data for the identified natural hazards- flood, drought, extreme heat, severe winter storm, thunderstorm, hail, tornado, wildfire, hurricane, dam failure and earthquake. Ms. Walton and Ms. Capps shared the previous occurrences, probability of future occurrence, location, extent and damage values for the hazards. Both Ms. Walton and Ms. Capps repeatedly mentioned that most of the hazards are underreported in the national database and encouraged the attendees to provide the team with any data that is locally available. For flood, David Lilly stated that he could provide additional damage data to the team. The attendees agreed with Erin Capps that the probability of earthquake happening in Grimes County is very low. Therefore, earthquake will be included in the hazard profile, but no mitigation action plans will be developed.

Erin Capps then presented the hazard ranking table based on the criteria which was discussed previously. She assured the attendees that the table will be updated in the future based on additional data and public feedback. Ms. Capps also stated that all the hazards that were discussed will have a mitigation action plan except earthquake. Based on the available data, hazards were classified into three categories- high risk (flood, drought, wildfire, severe winter storm), moderate risk (extreme heat, hurricane and thunderstorm) and low risk (hail, tornado, dam failure and earthquake). Erin Capps then requested the attendees to discuss the hazard ranking and provide feedback. The attendees then had a brief discussion among themselves, and Navasota Fire Chief Jason Katoski, County Judge Joe Fauth and David Lilly concluded that both hail and tornado should be moved to moderate risk and severe winter storm should be moved to low risk.

Shane Porter shared that only 42 people have filled out the public participation survey so far and requested the attendees to disseminate the survey with other people. Judge Fauth then asked Mr. Lilly to put the public participation survey in the next commissioners' court meeting agenda. Mr. Porter and Mr. Lilly also informed that more public meetings will be held in the next few months to increase public involvement. Shane Porter then asked everyone to fill out capability assessment survey and in-kind sheet. Mr. Porter then thanked everyone again for attending and ended the meeting around 2:10 PM.

## Mitigation Workshop Meeting on August 11<sup>th</sup>, 2022

1000

The meeting began and Shane Porter reminded the group to fill and submit their in-kind forms.

Shane Porter introduced the meeting's agenda

Everyone introduced themselves. The following people were present for the meeting:

- David Dobyanski, Grimes County, Commissioner Precinct 2
- Phillip Cox, Grimes County, Commissioner Precinct 4
- David Lilly, Grimes County, Emergency Manager
- Sinda Phelps, Grimes County, Assistant Auditor
- Jason Katkoski, City of Navasota, Fire Chief
- Harry Walker, Grimes County, Road and Bridge Engineer
- Shane Porter, Atkins NA, CII South Texas & Louisiana Project Director
- Margaret Walton, Atkins NA, Land Senior Planner II
- David Gigrich, Atkins NA, Water Resources Intern II
- Erin Capps, Atkins NA, CII Emergency Management Project Director

1005

Shane Porter touched on how the public participation survey has 70 responses so far. It is moving in the right direction. He reminded everyone to encourage the community to fill out the survey as it is the public's opportunity to get involved. So far, the vast majority of survey respondents are from unincorporated Grimes County.

The hazards citizens were most concerned about were wildfires and tornados.

When the topic of dams was brought up, David Lilly mentioned that he has personally engaged with two of the dams. The community's initial main concern was the Gibbon's Creek Dam since there is a new owner (no longer the TMPA), however the new owner is being proactive in the dam's maintenance and operation. The other dam of concern is Yarboro Dam near SH 105. It is owned by Union Pacific and is not a large concern because of the active rail head atop the dam.

Margaret Walton mentioned getting an EMP for high hazard plans in order to meet the requirement for funding. It is a whole new element that her and her team are working on. Once she gets the TCEQ data then she can see where Grimes County's dams fall on that list.

Erin Capps touched on how all of this is being worked on by people within Atkins.

David Lilly has reached out to the TCEQ Dam Safety Office about why the list of high hazard dams has changed. Grimes County originally had many dams on the list but know

there are only four. Most are TMPA dams. David Lilly is working on getting the data from the TCEQ.

Phillip Cox found it interesting that there were not more drought concerns on the public survey, but there were a lot of cold weather concerns when there had only been one major cold weather event in recent history.

Shane Porter said that it was concerning that over 2/3 of survey respondents don't know who to contact in an emergency preparedness or management scenario.

Margaret Walton noticed the typically natural resource protection is lower on the list of priorities while private property protection is higher. The survey results for Grimes County indicate the opposite.

Jason Katkoski said that several years ago the fire department did a risk plan. He asked whether it would be included in the HMP. He said that several years ago there were talks of removing trees where new subdivisions were meeting the national forest as a means of wildland fire prevention.

Erin Capps mentioned that reducing wildland fire fuels was a good mitigation strategy as this could address not only wildland fire, but also extreme heat and drought.

1025

A Capability Assessment review was led by Erin Capps.

David Lilly mentioned that the CRS program was only available to cities, not counties. Therefore, Grimes County could not participate. Instead, all of the cities and towns within Grimes County would have to do it on their own. He said that he will reach out to the cities and towns and see if the CRS program is something that they are looking into.

It was mentioned that if you participate in NFIP you may get the full of your home elevation covered and the city could get money to conduct a buyback of homes and land within floodplains

Erin Capps touched on how the capability assessment is crucial in finding out where current city and town HMPs overlap and where there are gaps.

1035

Margaret Walton said that for the mitigation strategies we are taking the capability assessment and risk assessment and using them to find the best strategies and create the best goals and action plans.

Margaret Walton said that step one is to update the current actions. The table containing current actions was passed out to the group.

Step two was to develop new actions. Margaret Walton said that if you want grants then you need an action on the books. A handout with details on creating new actions was passed out to the group.

Using the acronym STAPLEE you can do a rough BCA that can be used to prioritize the mitigation measures and plans.

1105

The group took a five-to-ten-minute break.

1115

The group started going through all of the County's actions and deciding whether to amend, defer, or delete them.

Harry Walker said that the current floodplain? (this may not be the correct word) is one foot above the BFE.

Grimes County Hazard Mitigation Plan Update

**Hazard Mitigation Plan Update – Planning Committee Kickoff Meeting Sign In**

**Date:** January 20, 2022 **Start Time:** 10:00 AM **Location:** Navasota Community Center – Navasota, TX

Name	Dept/Org	Phone Number	Email Address
David Lilly	Grimes County OEM	979-204-4542	David.Lilly@grimescountytexas.gov
Sinda Phelps	Grimes County <sup>ASST</sup> Auditor	936-873-4412	Sinda.Phelps@grimescountytexas.gov
Dan Sharron	Shiro Vfd	832-492-6625	sufl301@gmail.com
Connie Clements	Navasota Ex-miner	979-777-3631	ConnieClem@puddenluck.net
Gwen Baullian	City of Bedias	979-575-0267	GwenBaullian.CityofBedias@windstream.net
Savannah Cordell	RVFD	832-266-9419	Savannah.Cordell@Compassionunited.us
William Boyce	RISD	936-577-5594	wboyce2richardsisd.net
Freeman Vickers	W.C.V.F.D.	281-620-3546	whitehallvfd@yahoo.com
Jason Katkos	City of Navasota	936-825-7388	jkattos@navasotatx.gov
Samantha Kimich	AVFD	936-870-6438	Andersonfire114@yahoo
Kat Lee	Grimes Co. <sup>GIS</sup> 911/Env.	936-873-4493	kat.lee@grimescountytexas.gov
Ryan Rutledge	Sheriff's Office	936-873-6406	ryan.rutledge@grimescountytexas.gov





## Grimes County Hazard Mitigation Plan Update

Name	Dept/Org	Phone	Email Address
Cassandra Malone	Todd Mission VFD	936 661 5752	tmvfdcas@hotmail.com
DAVIS USE	GRIMES COUNTY S/O	936-873-6403	DAVIS.USE@GRIMESCOUNTYTEXAS.GOV
JOE FAUTH	Grimes County Judge	936-873-4475	JOE.FAUTH@grimescounty.texas.gov
St. Musick	Navasota ISD	936-825-4203	musicks@navasota.tx.us
Ronnie Gonzalez	NAVASOTA ISD	936-870-8634	GONZALEZr@NAVASOTAISD.org
Harry Walker	Grimes Co. Rob	936-873-4496	harry.walker@grimescounty.texas.gov
Karen Hale	Plantersville	713-851-8304	KHale@cityofplantersville.net
Christina Spore	City of Lolo	979-255-6149	lola@windstream.net
Karen Maduffe	Town of Anderson	936-827-9422	KMcDuffe@anderson.tx.gov
Neal Wendele	City of Todd Mission	936-218-6900	nwendele@ToddMissionTX.gov
Ash Rahman	Atkins	281-793-7809	ash.rahman@atkinsglobal.com
Eoin Capps	Atkins	512-340-1138	eoin.capps@atkinsglobal.com
Margaret Walton	Atkins	678-247-2688	margaret.walton@atkinsglobal.com
Brian Hurtuk	TDEM	512-925-7943	brian.hurtuk@tdem.texas.gov

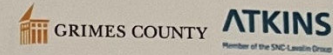
online  
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Grimes County Hazard Mitigation Plan Update

Name	Dept/Org	Phone	Email Address
SHANE PORTER	ATKINS	936.446.9109	SHANE.PORTER@ATKINSGCOBAC.COM



Grimes County Hazard Mitigation Plan Update  
**Hazard Mitigation Plan Update – Risk Workshop Sign In**



Date: May 25, 2022

Start Time: 1:00 PM

Location: Navasota Community Center – Navasota, TX

Name	Dept/Org	Phone Number	Email Address
David Lilly	Grimes County OEM	979-204-4592	David.Lilly@grimescountytxas.gov
Ryan Burleson	Todd Mission PD	979 324 7030	11-Mission@toddmissiontx.gov
Sinda Phelps	Grimes County	936-873-4412	sinda.phelps@grimescountytxas.gov
Kat Lee	Grimes County	936-873-4413	kat.lee@grimescountytxas.gov
Cassandra Malone	Todd Mission UFD	936 661 7792	tmvfdcas@hotmail.com
Joe Farris	Grimes County	936 873-4426	Joe.Farris@grimescountytxas.gov
Jawan Kattoski	Navasota	936 825 7388	JKattoski@navasotatx.gov
SHANE PORTER	ATKINS		
ASH RAHMAN	ATKINS		
MARGARET WALTON (BY PHONE)	ATKINS		
ERIN CAPPS (BY PHONE)	ATKINS		

Grimes County Hazard Mitigation Plan Update

# Hazard Mitigation Plan Update – Stakeholder Committee Mitigation Workshop Sign-in Sheet

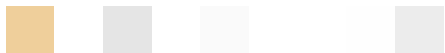
Date: Thursday, August 11, 2022

Time: 10:00 AM

Location: Navasota Community Center – Navasota, TX

Name	Dept/Org	Phone Number	Email Address
Cort Norman	Richards	936 714 5410	
Sinda Phelps	Grimes County	936 873 4412	
Phillip Cox	Grimes County	936-870-5816	
David Lilly	Grimes Co. OEM	979-204-4592	David.lilly@grimescountytexas.gov
David E. Dobynski	Grimes County	979-571-5125	
Harry Walker	GRIMES COUNTY	936-873-4436	harry.walker@grimescountytexas.gov
SHANE PORTER	ATKINS	281.521.4203	SHANE.PORTER@ATKINSGLOBAL.COM
David Grigrich	ATKINS NA	301-970-9185	David.Grigrich@atkinsglobal.com
Erin Capps	ATKINS	512-844-3275	erin.capps@atkinsglobal.com
MARGARET WALTON	ATKINS	803.622.4142	MARGARET.WALTON@ATKINSGLOBAL.COM

By  
PHONE



## Grimes County Hazard Mitigation Plan Update - Public Meeting Sign-in Sheet

**Date:** Wednesday, May 25, 2022

**Time:** 6:00 PM

**Location:** Navasota Community Center – Navasota, TX

Name	Address	Phone Number	Email Address
David Lilly, CFM Emergency Management Services Coordinator Grimes County, Texas	PO BOX 593 Anderson, Texas 77830	979.204.4592	davidlilly@grimescountytexas.gov
Shane Porter Atkins	200 Westlake Park Blvd Suite 1100 Houston, TX 77079	281.529.4203	shane.porter@atkinsglobal.com
Ashikur Rahman Atkins	200 Westlake Park Blvd Suite 1100 Houston, TX 77079	281.529.5222	ash.rahman@atkinsglobal.com





## Grimes County Hazard Mitigation Plan Update - Public Meeting Sign-in Sheet

Date: Thursday, June 16, 2022

Time: 6:00 PM

Location: Commissioner's Court Room (Grimes County Justice Center - 270 FM 149 W., Anderson, TX)

Name	Address	Phone Number	Email Address
JOE FAUTH	7506 CR. 204 Plantersville, TX. 77363	281-389-1852	Joe.Fauth@grimescountytx.gov
SHERY FAUTH	"	"	"
SARAH FAUTH	"	"	"
Rick Gremlion	Richard 77873 10144 FM 149	281 723 7376	rgremlion@me.com
Michael Gremlion	"	713 504 3243	mal186@53cglobal.net
Phillip Cox	911 E. Milroy Navasota, TX 77868	936-870-5416	phillip.cox@grimescountytx.gov
Barbara Walker	10219 GLENASWOOD DR NAVASOTA, TX 77868	936 727 1408	bwalker10915@gmail.com



## Grimes County Hazard Mitigation Plan Update - Public Meeting Sign-in Sheet

Date: Thursday, June 16, 2022

Time: 6:00 PM

Location: Commissioner's Court Room (Grimes County Justice Center - 270 FM 149 W., Anderson, TX)

Name	Address	Phone Number	Email Address
David Dobyanki	3913 Ski Lane Navasota 77868	936-203-2801	David.dobyanki@grimescountytx.gov
DAVID LILLY (Grimes Co. EMC)			
SHANE PORTER (ATKINS)			



## Grimes County Hazard Mitigation Plan Update - Public Meeting Sign-in Sheet

Date: Thursday, August 11, 2022

Time: 7:00 PM

Location: Navasota Community Center – Navasota, TX

Name	Address	Phone Number	Email Address
Cornie Clements	300 Hillside Nav 77868	979- 777-3631	CornieClements @suddenlink.net
Don Brame RCC	8853 Horse Apple Ln Anderson, TX 77830	936 900 9095	dbrame2001 @yahoo.com
JASON WEEKS	2006 MCALPINE NAVASOTA	214-585-9607	jweeks@navasotatx gov
Joyce April	904 Holladay Navasota	401- <sup>338</sup> <del>227</del> -4629	joyceapril7@gmail. com
Micha Bertone	904 Holland St Navasota	401 648 5365	mbertone2@gmail.co
David Gigrich	Atkins NA	301-970-9185	david.gigrich @atkinglobal.com
David Lilly	Grimes Co. OEM	979-204-4592	David.Lilly@grimescountytx.gov





# Grimes County Hazard Mitigation Plan Update - Public Meeting Sign-in Sheet

**Date:** Thursday, August 11, 2022

**Time: 7:00 PM**

**Location:** Navasota Community Center – Navasota, TX

[illegible]



**Grimes County Emergency Management** ...

May 24, 2022 · 🌐

Grimes County is currently working on a new hazard mitigation plan that will help us to obtain grant funds to help pay for projects around the count... [See more](#)



## **Hazard Mitigation Plan Public Meeting**

Grimes County and the City of Navasota are co-hosting a public meeting where we will discuss progress on our hazard mitigation plan. We solicit input from the public on this plan.

**When**

**Wednesday, 25 May  
6:00 pm – 8:00 pm**

**Where**

**Navasota Center, 101  
Stadium Drive**



- [Shivers County Board](#)
- [Shivers County Emergency Management](#)
- [Shivers County District Attorney](#)
- [Shivers Health Resource Center](#)
- [Shivers County Court House](#)
- [Shivers County Historical Commission](#)

# PUBLIC NOTICES

- [NOTICE OF 2021 PROPOSED PROPERTY TAX RATE FOR GRIMES COUNTY](#)
- [NOTICE OF FINDING OF NO SIGNIFICANT IMPACT/NOTICE OF INTENT TO REQUEST RELEASE OF FUNDS](#)
- [STATE OF TEXAS EVICTION DIVERSION PROGRAM](#)
- [COUNTY JUDGE SIGNS DECLARATION OF LOCAL DISASTER](#)
- [GRIMES COUNTY VOTER APPROVAL TAX RATE ORDER 07/22/2020](#)
- [PUBLIC NOTICE- GRIMES COUNTY TEXAS COMMUNITY DEVELOPMENT BLOCK GRANT \(CDBG\)](#)
- [HURRICANE HARVEY DISASTER RECOVERY PROGRAM](#)
- [Grimes County Public Notice for Buyout Guidelines 3/30/20](#)
- [Grimes County Buyout Guidelines APPROVED for Public Comment](#)

## Grimes County Hazard Mitigation Public Survey Link



## **Hazard Mitigation Plan Public Meeting**

Grimes County and the City of Navasota are co-hosting a public meeting where we will discuss progress on our hazard mitigation plan. The public will be encouraged to participate in a short survey to provide input for this plan.

**When**

**Thursday, June 16th  
6:00 pm – 8:00 pm**

**Where**

**Commissioner's Court  
Room, Grimes County  
Justice Center, 270 FM 149  
West in Anderson.**







Grimes County Commissioners Court

Chad Mallett  
Commissioner, Precinct #1

David Dobyanski  
Commissioner, Precinct #2



Barbara Walker  
Commissioner, Precinct #3

Phillip Cox  
Commissioner, Precinct #4

Joe Fauth III  
Grimes County Judge  
270 FM 149 W, Anderson,  
Texas 77830

**NOTICE OF THE PUBLIC MEETING OF THE COMMISSIONERS COURT OF  
GRIMES COUNTY, TEXAS**

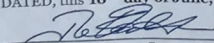
**THURSDAY, JUNE 16, 2022 at 6:00 PM**

*This Public Notice is being posted in the event there may be a quorum of the Grimes County Commissioners Court at an upcoming event. No formal action will be taken but a discussion of the general affairs and well-being of the County may occur.*

*Notice is hereby given that a Public Meeting of the Commissioners Court of Grimes County, Texas, will be held on Thursday, June 16, 2022 at 6:00 p.m. in the Commissioners Courtroom, located in the Grimes County Justice & Business Center, 270 FM 149 W., Anderson, Texas, at which time the following subjects will be discussed and acted upon, to-wit:*

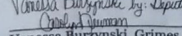
1. Call to Order.
2. Discuss and participate in the Grimes County Hazard Mitigation Plan Public Meeting.
3. Adjourn.

DATE: 06/10/2022  
POSTED BY: Cherie Wagner  
DATED, this 10<sup>th</sup> day of June, 2022

  
Joe Fauth III, Grimes County Judge

I, the undersigned County Clerk, do hereby certify that the above notice of the Public Meeting of the above-named Commissioners Court is a true and correct copy of the said notice which was posted on the 10<sup>th</sup> day of June 2022. Notice is to remain so posted continuously for at least three days preceding the date of said meeting.

DATED, this the 10<sup>th</sup> day of June, 2022

  
Vanessa Burzynski, Grimes County Clerk  
(This Court reserves the right to convene in executive session at any time deemed necessary for the consideration of confidential matters under the Texas Government code, Sections 551.071-551.084.)



**Grimes County Emergency Management** ...

Jun 9, 2022 · 🌐

Our next public meeting for the county Hazard Mitigation plan will be on Thursday, 16 June from 6:00 to 8:00 pm at the Commissioner's C... See more

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## **Hazard Mitigation Plan Public Meeting**

Grimes County and the City of Navasota are co-hosting a public meeting where we will discuss progress on our hazard mitigation plan. The public will be encouraged to participate in a short survey to provide input for this plan.

**When**

**Thursday, June 16th  
6:00 pm – 8:00 pm**

**Where**

**Commissioner's Court  
Room, Grimes County  
Justice Center, 270 FM 149  
West in Anderson.**

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# **Hazard Mitigation Plan Public Meeting**

**Grimes County and the City of Navasota are co-hosting a public meeting where we will discuss progress on our hazard mitigation plan. The public is encouraged to participate in a short survey to provide input for this plan.**

**When**

**Thursday, August 11th  
7:00 – 8:00 pm**

**Where**

**Navasota Center, 101  
Stadium Drive,  
Navasota TX.**



Posts

About

Photos

Mentions



Grimes County Emergency Management ...

Aug 2, 2022 · 🌐

We are hosting another public meeting on our Hazard Mitigation Plan next Thursday. We encourage everyone to join us as we provide an upd... See more



## Hazard Mitigation Plan Public Meeting

Grimes County and the City of Navasota are co-hosting a public meeting where we will discuss progress on our hazard mitigation plan. The public is encouraged to participate in a short survey to provide input for this plan.

When

Thursday, August 11th  
7:00 – 8:00 pm

Where

Navasota Center, 101  
Stadium Drive,  
Navasota TX.



# GRIMES COUNTY

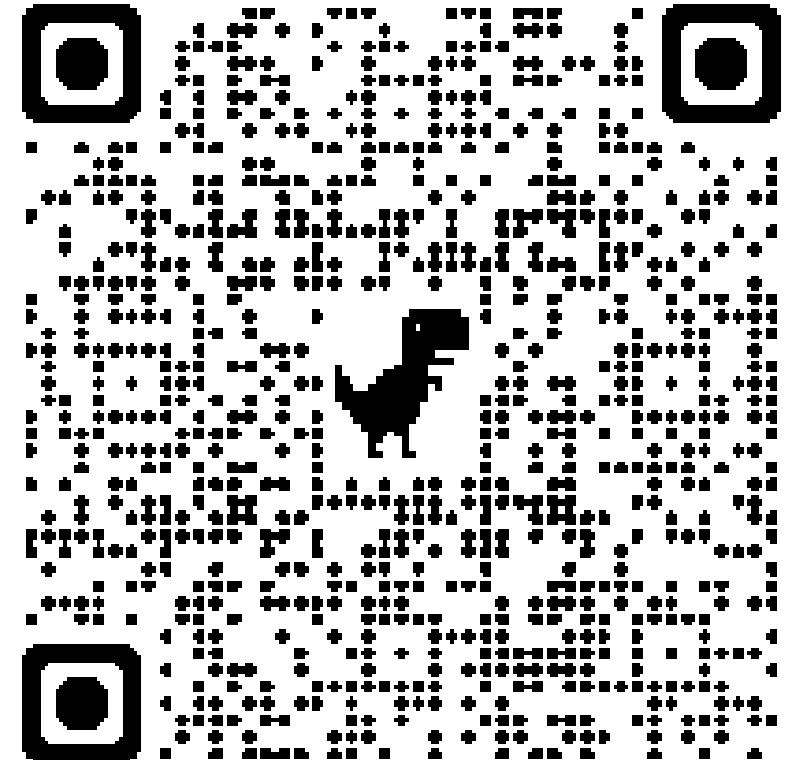
We Want to Hear from You!

Grimes County is developing a Hazard Mitigation Plan Update to protect lives and property in response to hazards that threaten the area.

We need your input on what hazards you consider to be highest threat, actions the County and participating communities can take, and types of projects of interest

**Scan the code on the right or go to the link below to take a short survey and give us your feedback!**

<https://forms.gle/F64ATb11ST9VbFK9>



# Public Participation Survey for Hazard Mitigation Planning

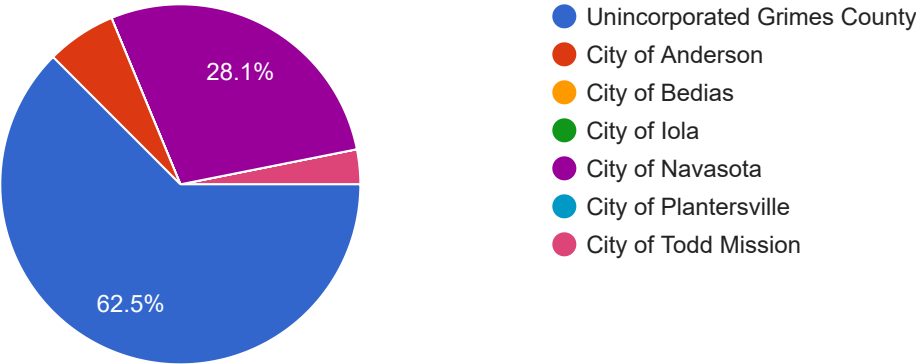
32 responses

[Publish analytics](#)

1. Where do you live?

 Copy

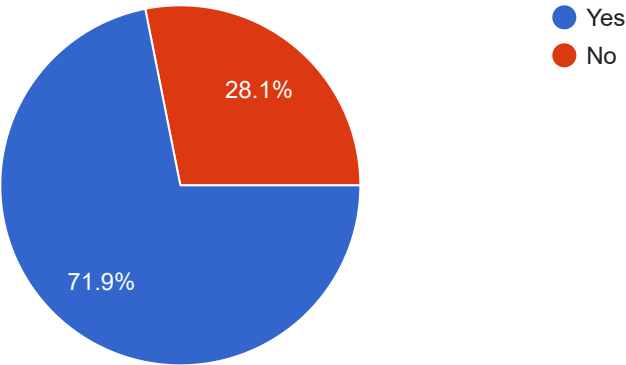
32 responses



2. Have you ever experienced or been impacted by a disaster?

 Copy

32 responses



## 2 a. If "Yes," please explain:

23 responses

Power outages due to hurricanes primarily, but also snowmagedon last year. In our early years here, we often had power outages during winter storms, the power service has greatly improved since then.

Flooded roads in Grimes county. Power outages

Hurricanes on the Texas Gulf Coast; Ice Storms where power was lost for weeks.

Damage from Hurricane Ike, Hurricane Harvey

Trees down

I worked for Texas Division of emergency management. I retired from the state of Texas in 2007

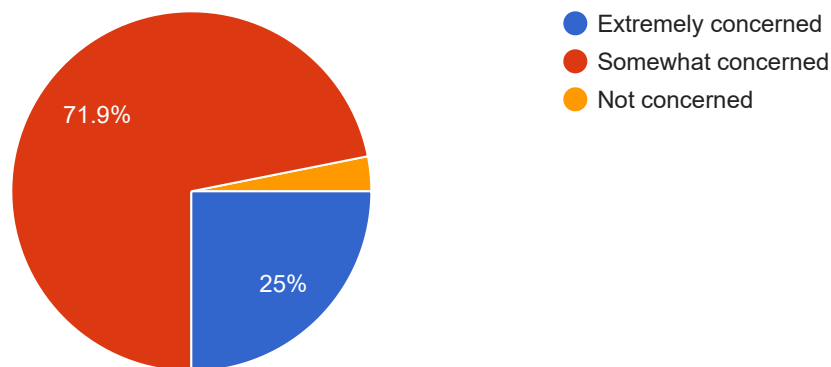
Tri county fires

Hurricanes, Ice storm , Floods & Ice Storm

## 3. How concerned are you about the possibility of our community being impacted by a disaster?

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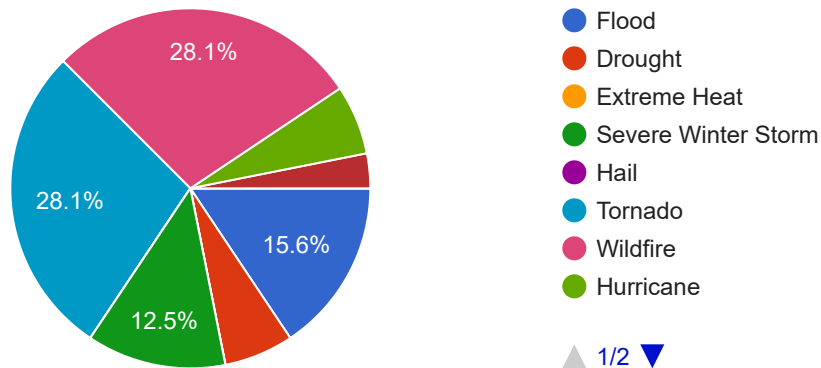
32 responses



4. Please select the one hazard you think is the highest threat to your neighborhood:

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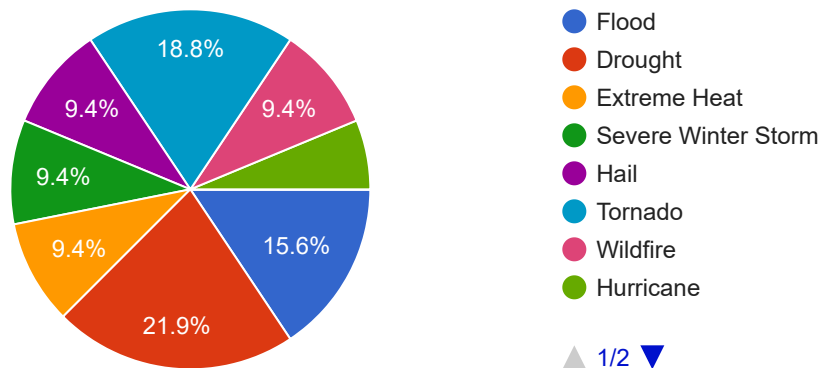
32 responses



5. Please select the one hazard you think is the second highest threat to your neighborhood:

 Copy

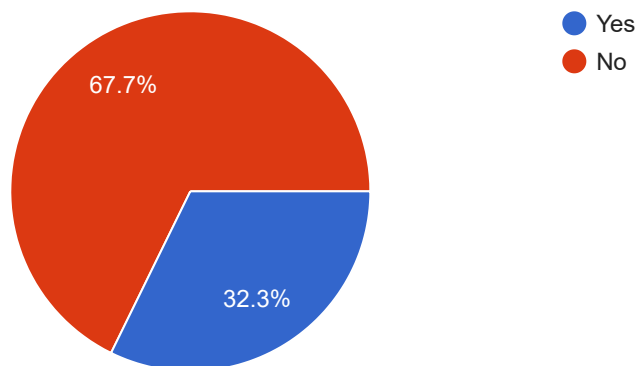
32 responses



6. Is there another hazard not listed above that you think is a wide-scale threat to your neighborhood?

 Copy

31 responses



9 a. If you answered Question 6 "Yes," please explain:

10 responses

Railroad chemical spill

Hurricane, extended power outage

Railway Chemical Spill

Winter storm..power grids, etc.

If anything were to happen on Scenic View Dr. , It'd be near impossible for emergency personnel to traverse the road. The county has ZERO interest in helping and seem to care less about the tax payers that live and own property on that road.

METH

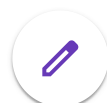
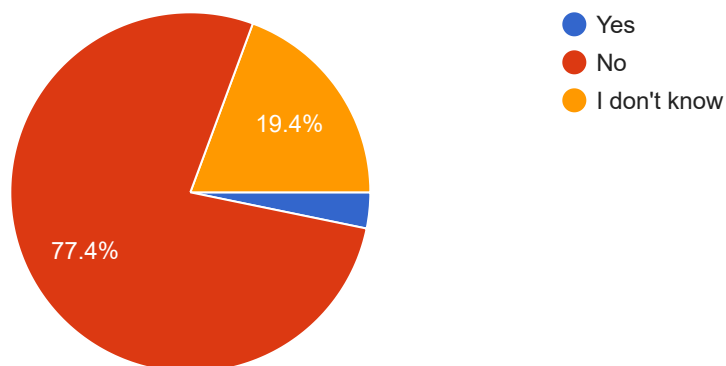
Gas line disasters

Crime and/or cyber attack

7. Is your home located in a floodplain?

 Copy

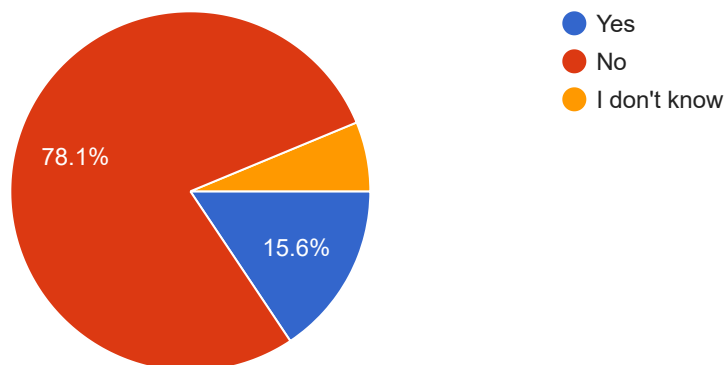
31 responses



## 8. Do you have flood insurance?

 Copy

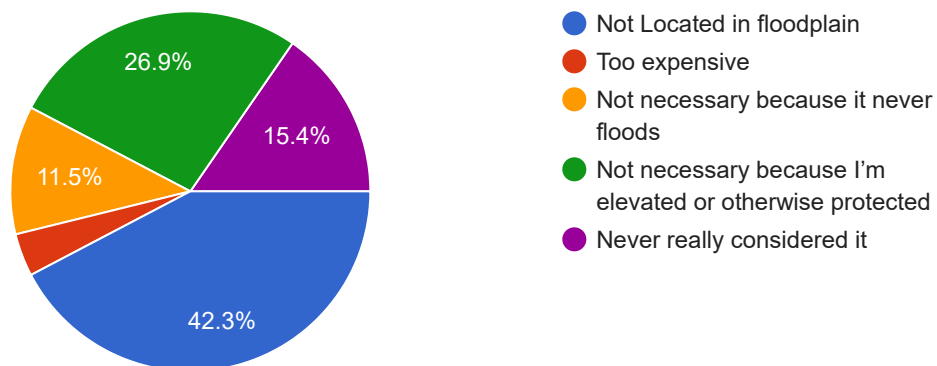
32 responses



## 8 a. If you do not have flood insurance, why not?

 Copy

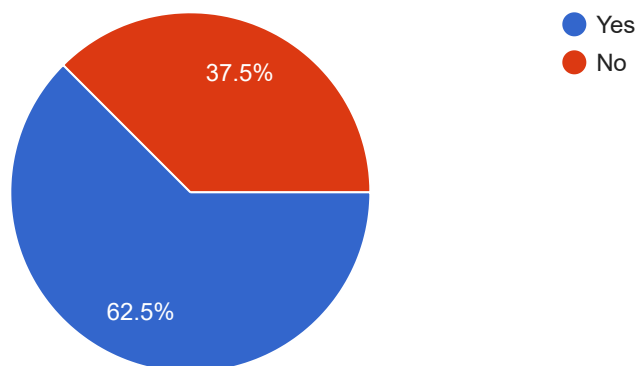
26 responses



## 9. Have you taken any actions to make your home or neighborhood more resistant to hazards?

 Copy

32 responses



9 a. If you answered Question 9 "Yes," please explain:

19 responses

Working forestry service plan

Purchased a generator, and pay attention to weather warnings for preparedness at home.

Keep trees trimmed and ditches cleared.

Installed Generator

Following Forestry Plan developed by Texas A&M Forester

Generator

New windows, hardy board siding.

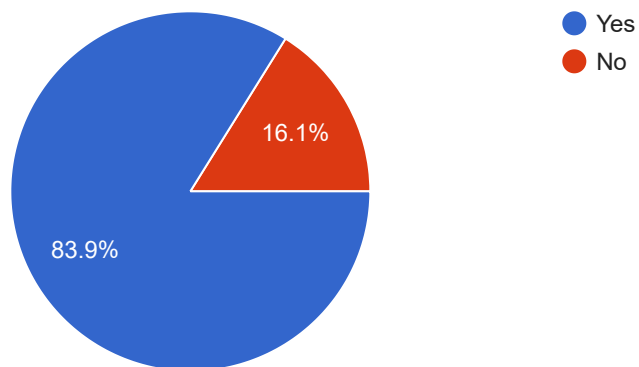
Keep my yard clear of under growth

Additional planning for disaster response, better drainage for water concerns. Actively monitor weather, drought concerns etc.

10. Are you interested in making your home or neighborhood more resistant to hazards?

 Copy

31 responses

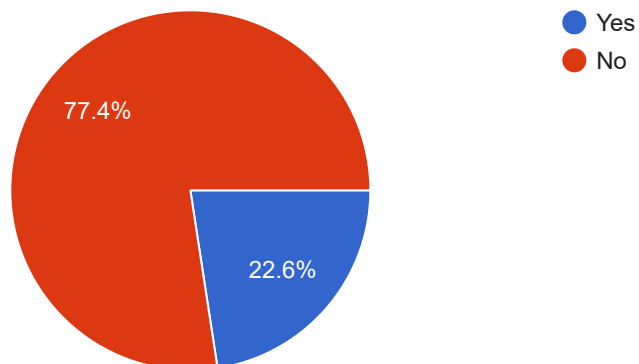




11. Do you know what office to contact regarding reducing your risks to hazards in your area?



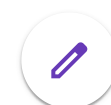
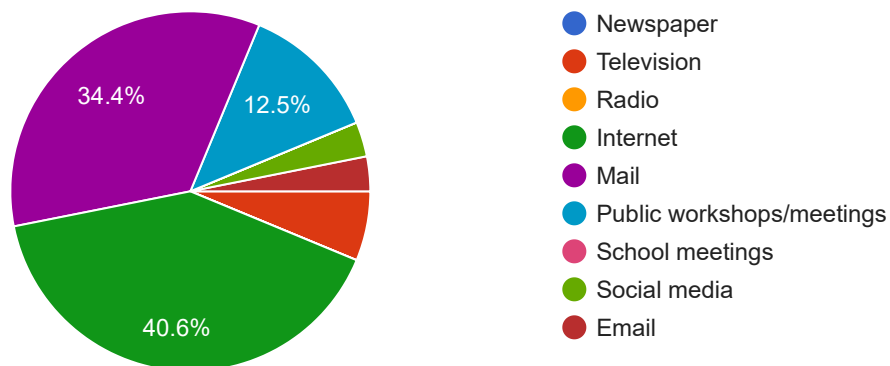
31 responses



12. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?



32 responses



13. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?

24 responses

Having an ESD to fund VFDs for increased ability at fire mitigation.

County ditch and tree maintenance.

Making sure Propane, electricity and water are available during severe weather

Develop an Emergency Services District

Local/precinct meetings with public to discuss risks that could impact citizens and their properties, and to see what local/ city county resources are available when disasters strike

Patrol fm 3090 and fm 149 more to mitigate speeding motorcycles and cars.

More awareness groups

Better weather alerts

Storm drainage issues



14. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?

13 responses

Having an ESD to fund VFDs for increased ability at fire mitigation.

Better access to high speed Internet to help track and stay informed of issues.

Food supply and Emergency Transportation

Better use of modern technology for communication to residents, such as text messages in an emergency.

Citizens need to be informed of protocols, and procedures in the event of an emergency or disaster.

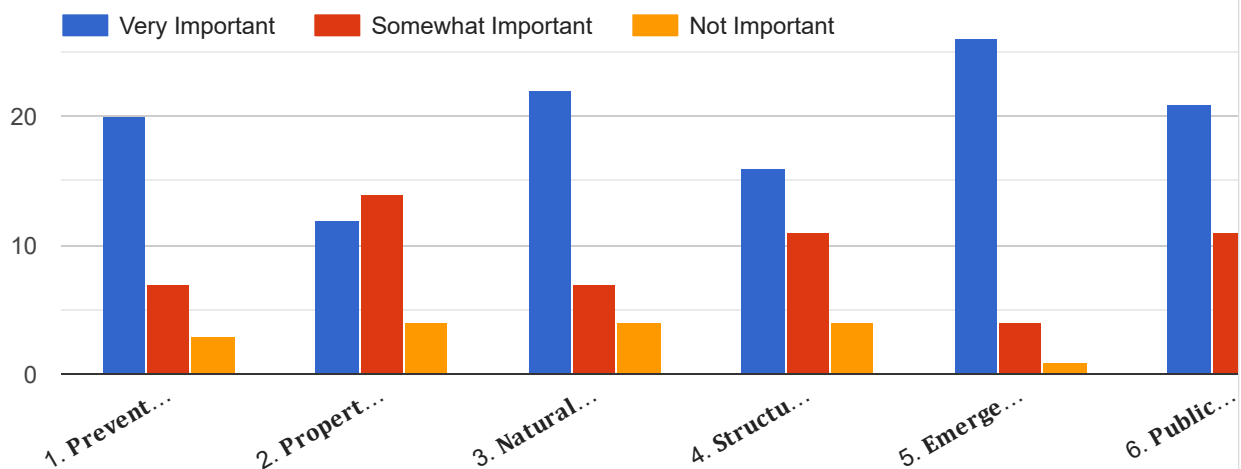
Better police presence

Roads

No

15. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.

 Copy



THANK YOU FOR YOUR PARTICIPATION!



## Name

21 responses

Michele Gremillion

W. Hall

Tommy Thompson

Richard C. Gremillion

Dominick Adamo

Douglas Crabtree

Andrew Carmical

Judith Mugrage

Kenneth Nobles

## Address

21 responses

10744 FM 149, Richards, Tx 77873

County Road 140

9002 Amelia Dr

10744 FM 149, Richards, TX 77873

10162 County Rd 420

16228 fm 244 lola, Texas

4112 Scenic View Dr. Anderson, TX

10732 renfaire dr

209 Blakewood Navasota TX 77868



Phone

15 responses

715043243
9792191070
4093131945
2817237376
832 6612406
936-419-1332
9364199232
936-870-7180
9792042078



## Email

22 responses

ma1186@sbcglobal.net

twinkfarms@aol.com

thompstl1@yahoo.com

rgremillion@me.com

Wpwx694@gmail.com

dougrabtree4@gmail.com

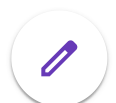
Carmicala84@gmail.com

judisunicorn.jf@gmail.com

klnobles68@gmail.com

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Google Forms



# County kicks off hazard mitigation planning

✎ Connie Clements Examiner Reporter

📌 Posted in: NEWS



Nearly two dozen elected officials, school administrators and first responders participated in the first of four planning meetings addressing the Grimes County Hazard Mitigation Plan.

Elected officials, first responders and others in key administrative roles in Grimes County assembled at the Navasota Center Thursday, Jan. 20, to begin the process for updating Grimes County's Hazard Mitigation Plan which expired in 2018.

This was the first of four meetings which will wrap up in August so the Plan can be presented to the Texas Department of Emergency Management (TDEM) and the FEMA (Federal Emergency Management Agency) for approval by the end of 2022. Grimes County is the plan holder, and the participating jurisdictions are the cities of Anderson, Bédias, Iola, Navasota, Plantersville and Todd Mission.

Facilitating Thursday's meeting was Shane Porter, Project Director with Atkins North America, Inc. Additional Atkins staff and TDEM reps participated remotely. Porter defined hazard mitigations as "any sustained action taken to reduce or eliminate the longterm risk to human life and property from hazards."

According to Porter, the key objectives are getting the plan updated, maintaining mitigation funding eligibility for Grimes County and the municipalities, identifying potential projects in each community, promoting public awareness and being within state and federal compliance.

Porter said, "What we're going to be doing is collecting information to do a risk assessment, and once we have those hazards identified, what are the risks that are associated with those specific hazards? From there we'll do a capability assessment, really a gap analysis."

He continued, "What is key to the whole thing is the plan adoption. The participating municipalities will need to, by their own councils, adopt a plan into their own elements."

Categories and strategies of hazard mitigation to be addressed during planning are prevention, property management, natural resource protection, structural projects, emergency services and public awareness and education. Project tasks include risk and capability assessments - identifying hazards, assessing vulnerability and measuring capability to implement hazard mitigation activities.

It was clarified that while Grimes County is the plan holder and funding the 25% match, the jurisdictions adopting the plan by resolution will be able to apply for grant funds individually.

It was also noted that time spent on the grant by each participant is considered an in-kind contribution which go toward the County's match.

Meetings are planned for April, June and August with the April and June steering committee meetings open to the public.



(<https://www.navasotaexaminer.com/simpleads/redirect/920>)





## REQUEST FOR CITY COUNCIL AGENDA ITEM # 8.

Agenda Date Requested	05/28/2024
Requested By	Lupe Diosdado, Development Services Director
Department	Development Services
Type	Ordinance

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### Agenda Item

Conduct a public hearing to receive public comment and testimony regarding a specific use permit application submitted to the City of Navasota by Neil Martensen with Neillious, LLC, for the property located at 202 Holland Street, Navasota, Grimes County, TX 77868. The specific use permit application requests to allow for the operation of a vendor market. The property affected is legally described as H&TC, Block 108, Lot 1, 2. Consideration and possible action approving Ordinance No. 1048-24, granting a specific use permit application submitted to the City of Navasota by Neil Martensen with Neillious, LLC, for the property located at 202 Holland Street, Navasota, Grimes County, TX 77868. The specific use permit application requests to allow for the operation of a vendor market. The property affected is legally described as H&TC, Block 108, Lot 1, 2. [Lupe Diosdado, Development Services Director]

### Summary & Recommendation

**Public hearing opened at \_\_\_\_\_ p.m.**

A specific use permit application has been submitted to the City of Navasota by Neil Martensen, for the property located at 202 Holland Street, Navasota, Grimes County, TX 77868. The specific use permit application requests to allow for the operation of a vendor market, a use not listed under the current CBD: Central Business Zoning District. The property affected is legally described as H&TC, Block 108, Lot 1, 2. A copy of the business plan and operating procedures and vendor layout are attached for review and consideration. On May 23rd, the Planning & Zoning Commission held a public hearing and voted on a recommendation to City Council. Currently, City staff is working with the property owner to establish a long-term lease for City staff vehicle parking during the workweek.

### SUP Ordinance References:

Special Use Permit review allows for the City Council, upon recommendation from the Planning and Zoning Commission, the discretionary approval of uses with unique or widely-varying operating characteristics or unusual site development features, subject to the terms and conditions set forth in this Ordinance. Specific uses are not generally compatible with those uses permitted by right in the zoning district, but because of the unusual circumstances (existing uses and historic uses) in the area, consideration of the use is advisable. Such uses are granted to the owner of the property and are not transferable with the sale of the property.

The Planning and Zoning Commission, in considering and determining their recommendation to the City Council regarding requests for a Special Use Permit, may require plans, information, operating data, and expert evaluations concerning the location, function, and

characteristics of proposed buildings or uses. The Planning and Zoning Commission and/or the City Council may impose additional reasonable restrictions or conditions to carry out the spirit of intent of this Ordinance and to mitigate adverse effects of the proposed use. These requirements may include, but are not limited to, increased open space, loading and parking requirements, suitable landscaping, and additional improvements such as curbing and sidewalks.

**Property Information:**

**PID:** R25304

**Legal Description:** H&TC, BLOCK 108, LOT 1,2

**Owner:** Neilious, LLC

**Address:** 202 Holland St, NAVASOTA, TX 77868

**Zoning:** [CBD](#)

**Applicant\Project Rep:** Neil Martensen

**Site Information:**

Vacant Lot

**Existing Site and Surrounding Land Uses:**

Current Land Use: Vacant Lot

Proposed Land use: Vendor Market SUP

**Public Information Plan:**

An ad was published in the May 8<sup>th</sup> edition of the Navasota Examiner, a public hearing sign has been placed on the property. A total of **50** surrounding property owners within 500 feet were notified via public notice letters.

**Public Input Summary:**

As of Wednesday, May 15, 2024, city staff have not received any written or verbal feedback for or against the proposed SUP.

**Aerial & Street view:**

City staff recommend the City Council to conduct a public hearing and approve the SUP as requested.

**Public hearing closed at \_\_\_\_\_p.m.**

**Action Requested by Council**

**Conduct a public hearing & approve or deny Ordinance No 1048-24. (With conditions if applicable)**

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**Attachments**

Ordinance No. 1048-24  
Exhibit A Property Survey  
Navasota Market on Holland

**ORDINANCE NO. 1048-24**

**AN ORDINANCE OF THE CITY OF NAVASOTA, TEXAS, AMENDING THE OFFICIAL ZONING MAP, GRANTING A SPECIFIC USE PERMIT TO NEILIOUS LLC, FOR A VENDOR MARKET, ON THE PROPERTY LOCATED AT 202 HOLLAND ST, LEGALLY DESCRIBED AS H&TC, BLOCK 108, LOT 1, 2, GRIMES COUNTY, TEXAS, SITUATED IN THE H&TC ADDITION IN THE CITY OF NAVASOTA, BEING MORE FULLY DESCRIBED ON EXHIBIT "A" ATTACHED HERETO AND INCORPORATED HEREIN FOR ALL PURPOSES PERTINENT; PROVIDING FOR CONDITIONS RELATED TO THE SPECIFIC USE PERMIT; PROVIDING FOR AMENDMENT, CHANGE OR RESCISSION OF THE SPECIFIC USE PERMIT; PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, on the 17<sup>th</sup> day of May, 2024, Neil Martensen submitted an application for a specific use permit to the City of Navasota, to allow for the development of vendor market, for the property located at 202 Holland St, legally described as H&TC, BLOCK 108, LOT 1, 2, Grimes County, Texas, situated in the H&TC Addition in the City of Navasota, being more fully described on Exhibit "A" attached hereto and incorporated herein for all purposes pertinent (the "Property"); and

**WHEREAS**, on the 23<sup>rd</sup> day of May, 2024, a public hearing was held before the Planning and Zoning Commission of the City of Navasota, a quorum being present on the occasion and said matter of a specific use permit being part of the agenda for said Commission meeting, an opportunity to present arguments for and against the proposed specific use permit was held regarding the Property; and

**WHEREAS**, the Planning and Zoning Commission recommends to the City Council that the requested specific use permit be granted to NEILIOUS, LLC, to develop a vendor market in the CBD: Central Business District, specifically for the Property; and

**WHEREAS**, on the 28<sup>th</sup> day of May, 2024, a public hearing was held before the Navasota City Council, a quorum being present on the occasion and said matter of the specific use permit being part of the agenda, an opportunity to present arguments for and against the proposed specific use permit for the Property was held;

**NOW THEREFORE, BE IT ORDAINED** by the City Council of the City of Navasota, Texas that:

## **SECTION 1.**

The Official Zoning Map of the City of Navasota, Texas, is hereby amended to show that a specific use permit is granted to NEILIOUS, LCC, for the development of a vendor market on the Property located at 202 Holland St, Navasota, Grimes County, Texas, 77868. Said development of the Property must comply with the applicable City of Navasota Building Codes, Zoning Ordinance, and other applicable ordinances and regulations. Said Property is located in the CBD: Central Business Zoning District and requires the approval of a specific use permit to allow for the development of a vendor market, a use not permitted as a matter of right in the CBD: Central Business Zoning District.

## **SECTION 2.**

The development of the Property shall be in accordance with the following special conditions, restrictions and regulations:

- a) No development or expansion is required for this use.
- b) The Property and its use shall comply with all ordinances, regulations and codes of the City of Navasota.
- c) Vendors can operate on the Property Saturday and Sunday from the hours of 7AM to 4PM, excluding the 2<sup>nd</sup> Saturday of every month.
- d) Operating outside of Saturday and Sunday is permitted subject to City manager approval if no conflicts with other city events or operations exist.
- e) Permitted electric power outlets necessary to service the vendor market spaces will be installed on the Property within six (6) months after the effective date of this Ordinance. The electric power outlets necessary to service the vendor market spaces on the Property shall be installed in accordance with all applicable ordinances, regulations, and codes.

## **SECTION 3.**

Upon holding a properly notified public hearing, the City Council may amend, change, or rescind the Specific Use Permit granted by this Ordinance if:

- a) There is a violation and conviction of any of the provisions of this Ordinance, or any ordinance of the City of Navasota, that occurs on the Property;
- b) There is a violation of any provision of the terms and conditions of the Specific Use Permit granted by this Ordinance; or
- c) As otherwise permitted by law and/or Navasota's Zoning Ordinance, as it exists or may be amended.

**SECTION 4.**

This Ordinance shall take effect as provided by the Charter of the City of Navasota, Texas and applicable law.

**PASSED AND APPROVED THIS THE 28<sup>th</sup> DAY OF MAY, 2024.**

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**BERT MILLER, MAYOR**

**ATTEST:**

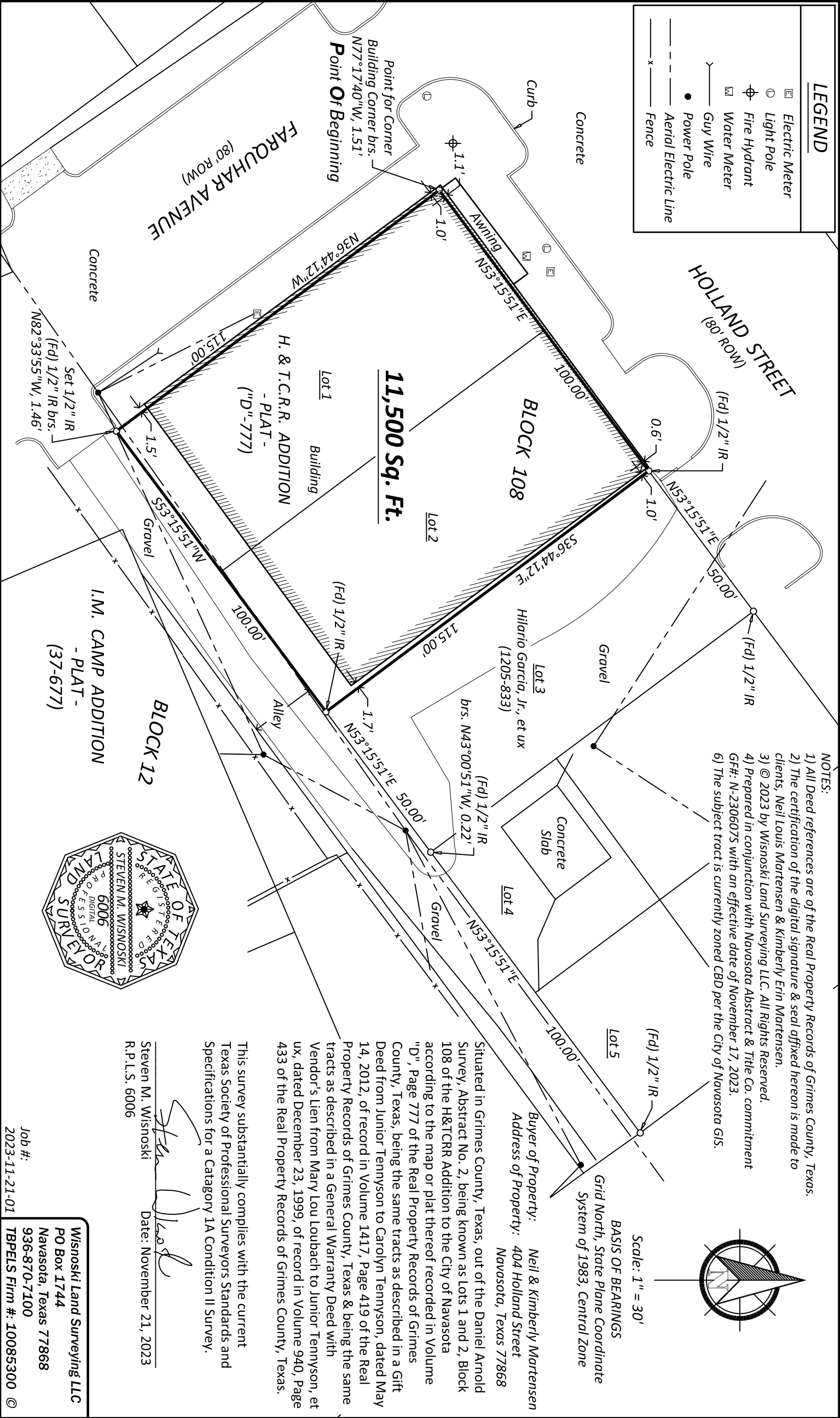
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**SUSIE M. HOMEYER, CITY SECRETARY**

**EXHIBIT "A"**  
**PROPERTY SURVEY**

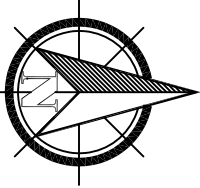
LEGEND

- Electric Meter
- Light Pole
- Fire Hydrant
- Water Meter
- Guy Wire
- Power Pole
- Aerial Electric Line
- Fence



NOTES:

- 1) All deed references are of the Real Property Records of Grimes County, Texas.
- 2) The certification of the digital signature & seal affixed hereon is made to clients, Neil Louis Martensen & Kimberly Erin Martensen.
- 3) © 2023 by Wisnoski Land Surveying LLC. All Rights Reserved.
- 4) Prepared in conjunction with Navasota Abstract & Title Co. commitment GFF#: N-2306075 with an effective date of November 17, 2023.
- 6) The subject tract is currently zoned CBD per the City of Navasota GIS.



Scale: 1" = 30'

BASIS OF BEARINGS  
Grid North, State Plane Coordinate  
System of 1983, Central Zone

Buyer of Property: Neil & Kimberly Martensen  
Address of Property: 404 Holland Street  
Navasota, Texas 77868

Situated in Grimes County, Texas, out of the Daniel Arnold Survey, Abstract No. 2, being known as Lots 1 and 2, Block 108 of the H&TCRR Addition to the City of Navasota according to the map or plat thereof recorded in Volume "D", Page 777 of the Real Property Records of Grimes County, Texas, being the same tracts as described in a Gift Deed from Junior Tennyson to Carolyn Tennyson, dated May 14, 2012, of record in Volume 1417, Page 419 of the Real Property Records of Grimes County, Texas & being the same tracts as described in a General Warranty Deed with Vendor's Lien from Mary Lou Loubach to Junior Tennyson, et ux, dated December 23, 1999, of record in Volume 940, Page 433 of the Real Property Records of Grimes County, Texas.

This survey substantially complies with the current Texas Society of Professional Surveyors Standards and Specifications for a Catagory 1A Condition II Survey.

Steven M. Wisnoski  
R.P.L.S. 6006  
Date: November 21, 2023

*Steven M. Wisnoski*



Wisnoski Land Surveying LLC  
PO Box 1744  
Navasota, Texas 77868  
936-870-7100  
TBPELS Firm #: 10085300 ©

Job #:  
2023-11-21-01





**NAVASOTA MARKET ON HOLLAND**  
202 HOLLAND ST NAVASOTA, TX 77868  
VENDOR@NAVASOTAMARKET.COM  
NAVASOTAMARKET.COM  
979-218-5714

2024 Navasota Traders Market  
VENDOR INDEMNITY WAIVER & POLICY DETAILS AGREEMENT

Date: \_\_\_\_\_

Vendor's Legal Name ("Releasor"): \_\_\_\_\_ (PRINT PLEASE)

PLEASE READ CAREFULLY BEFORE SIGNING AT THE BOTTOM

As a Releasor, I fully understand and agree to the following terms:

**Assumption of Risk:** Participation in the Navasota Traders Market involves various risks, dangers and hazards, which all Vendors are required to assume. The Releasor hereby freely accepts and fully assumes all such risks, dangers and hazards and the possibility of personal injury, bodily injury, death and property loss resulting from participation.

**Release:** In consideration of being granted permission to participate in the Navasota Traders Market, the Releasor hereby for itself, its heirs, executors, administrators, or any others who may claim on its behalf, covenant not to sue, and hereby waive, release and discharge the Navasota Market on Holland and Released Parties from any and all claims of liability for personal injury, illness, loss of life or property damage of any kind or nature, arising out of or sustained in the course of the Releasor's participation.

**Indemnity:** In consideration of being granted permission to participate in the Flea Market, the Releasor agrees to hold harmless and indemnify the NMOH and Released Parties from any and all liability, loss, claims, demands, costs and expenses, including reasonable legal fees, due to any personal injury, illness, loss of life or property damage arising from the Releasor's participation as a Vendor in the Traders Market.

**Rules:** The Releasor agrees to comply with all rules, instructions and directions of the NMOH staff and representatives, and as outlined in the Traders Market Policies herein. The Releasor understands and agrees that a failure to comply with the Rules will result in his/her participation in the Traders Market being terminated with immediate effect and that he/she may be required to remove him/herself forthwith from the Traders Market.

**Consent to Use:** In consideration of being granted permission to participate in the Traders Market, the Releasor grants the NMOH, and anyone it may authorize, its consent to use its likeness, voice, words, or any other representation, as well as any works it may furnish [collectively the "Works"] in television, radio, film, print, electronically or in any other form, and the right to reproduce, display, distribute, and record the same, to promote the NMOH and Traders Market, and any other future promotions as may be determined by the NMOH. The Works may or may not identify the Releasor as the subject and/or owner, and the Releasor waives any rights that it may have to inspect or give approval to the Works.

**Personal Items:** The Releasor is fully responsible for their own personal items during the Traders Market, including but not limited to any equipment, materials, or personal effects that they may use in the course of their Participation and the NMOH and Released Parties shall not be liable for any loss of or damage to the same.

## **Vendor Policy Agreement**

The Traders Market is a venue meant exclusively for the sale of old and used goods and artisan items and/or products produced in Grimes Co and surrounding areas. It is to encourage the traffic and draw attention to the city of Navasota.

Vendor Space: All Vendors Must:

1. Provide Table/s for product.
2. Manage the space around their Site and keep orderly.
3. Be in their assigned space by 9am or they will forfeit their space and no refunds will be issued.
4. Not resell their space. Once a space is paid for, no refunds will be honored.
5. Remain onsite for the entire duration of the Market. Exiting early is not permitted.
6. Maintain the cleanliness of their booths and of the area directly in front of their booths.
7. Must remove all of their garbage, boxes and other debris from the site, and leave the space in the same condition as when they arrived.
8. Keep all of their products, merchandise, possessions etc. within the boundaries of their assigned space.
9. Not play music, use stereo etc., and are encouraged to minimize noise so as not to disturb other vendors and visitors.
10. Smoking is prohibited at the site, as is consumption or possession of alcoholic beverages and controlled substances.
11. Not sell the following items:
  - a. Food, alcoholic and/or non-alcoholic beverages, candy, gum, etc unless specifically given permission to Food Truck Vendors
  - b. Weapons and fireworks of any kind
  - c. Chemicals
  - d. Live animals or pet sales

Due to family atmosphere of the event, the management reserves the right to reasonably restrict the sale or display of any items in order to maintain a proper moral and wholesome environment.

Location: Each approximate 10x10 space is number on the ground. Vendors will be assigned a location by number. When possible, Vendor's needing power will be assigned to numbers 1-10.

1. There are limited number of sites that can provide amperage. Vendors amperage spots are limited in what may be plugged into amperage in the grid. The NMOH reserves the right to limit access. Vendors must follow the directions of the NHOH at all times.
2. The General Manager of the Traders Market or other authorized employees of the NMOH, from time to time, will have reason to adjust Vendor Locations. Additionally, municipal authorities, from time to time, have reason to adjust their policies. All Vendor Locations and approvals are subject to change due to changing environment considerations or safety – without warning or advance notice.
3. Load in time is between 7am-9am. All Vendor vehicles SHALL be off site by 9am at THE INSTRUCTION OF MARKET STAFF AND VOLUNTEERS.
4. Load out time is between 3pm-4pm. All Vendors and Vendor vehicles SHALL be off site by 4PM at THE INSTRUCTION OF MARKET STAFF AND VOLUNTEERS.
5. Vendor parking will be free and will be directed to surrounding streets Farquar and southside of Railroad St.

**Signage:** All prices must be clearly marked and displayed prominently. Prices should not be altered during the day unless through verbal negotiation with customers. Signage and vendor presentations is very important. All Vendors should strive for an attractive public appearance.

At the NMOH sole discretion, signage or messaging which is inappropriate, offensive or otherwise brings the reputation of the Traders Market in to disrepute will not be permitted. The NMOH and/or authorized employees of the NMOH maintain the right at any time to instruct a vendor to remove signage determined to go against the policy, and reserve the right to remove a Vendor who fails to comply with the above.

**Vendors who do not comply with the above will be unable to sell their wares at the Traders Market.**

At their discretion, the General Manager and the NMOH may deny further access to the market to any individual or organization unable to comply with the above rules.

**I AM AWARE OF THE NATURE AND EFFECT OF ALL TERMS AND POLICIES ABOVE, AND VOLUNTARILY AGREE TO ABIDE BY ALL TERMS ENCLOSED IN THE AGREEMENT. I AM AWARE OF THE NATURE AND EFFECT OF THIS ASSUMPTION OF RISKS, RELEASE, AND INDEMNITY AND FULLY UNDERSTAND ITS TERMS, AND UNDERSTAND THAT I/THE VENDOR HAVE GIVEN UP SUBSTANTIAL RIGHTS BY SIGNING IT, AND I SIGN IT FREELY AND VOLUTARILY WITHOUT ANY INDUCEMENT. I HAVE REVIEWED AND UNDERSTOOD THE WAIVER AND ALL TERMS OF THIS AGREEMENT.**

---

Signature of Releasor

---

Print Name (Clearly)

---

Date

# NAVASOTA MARKET ON HOLLAND

PORTABLE RESTROOMS

<-- VENDOR UNLOAD <--

5 0		4 0		3 0		2 0		1 0	FOOD TRUCK 5
4 9		3 9		2 9		1 9		9	
4 8		3 8		2 8		1 8		8	FOOD TRUCK 4
4 7		3 7		2 7		1 7		7	
4 6		3 6		2 6		1 6		6	FOOD TRUCK 3
4 5		3 5		2 5		1 5		5	
4 4		3 4		2 4		1 4		4	FOOD TRUCK 2
4 3		3 3		2 3		1 3		3	
4 2		3 2		2 2		1 2		2	FOOD TRUCK 1
4 1		3 1		2 1		1 1		1	

**FARQUAR ST**

**202 HOLLAND ST**

\* VENDOR PARKING WILL BE DOWN FARQUAR, SOUTH OF RAILROAD ST AND SURROUND

\*CHECK-IN/LOAD-IN WILL BE 7AM-9AM / LOAD-OUT 3PM-4PM

\*VENDOR SPOTS WILL BE 10X10 WITH 12' WALKING AREA IN BETWEEN

\*HOURS: SAT & SUN 9AM - 3PM AT 202 HOLLAND - FRONT OF MARKET



## REQUEST FOR CITY COUNCIL AGENDA ITEM # 9.

Agenda Date Requested	05/28/2024
Requested By	Lupe Diosdado, Development Services Director
Department	Development Services
Type	Ordinance

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### Agenda Item

Conduct a public hearing to receive public comment and testimony regarding a zoning amendment application submitted to the City of Navasota by Crosstrails Development, LLC for the property located in the A0055-0 D Tyler Abstract adjacent to Pecan Lakes Estates Phase 2. The zoning amendment application requests to amend the existing regulations outlined within the Pecan Groves Estates PUD, a planned unit development, additional design guidelines related to home design standards, street design standards, and parkland requirements. The property affected is legally described as A0055-0 D Tyler, Tract 4, Acres 35.13, located in Navasota, Grimes County, Texas 77868; Consideration and possible action on the approval of Ordinance No. 1047-24, approving a zoning amendment application submitted to the City of Navasota by Crosstrails Development, LLC for the property located in the A0055-0 D Tyler Abstract adjacent to Pecan Lakes Estates Phase 2. The zoning amendment application requests to amend the existing regulations outlined within the Pecan Groves Estates PUD, a planned unit development, additional design guidelines related to home design standards, street design standards, and parkland requirements. The property affected is legally described as A0055-0 D Tyler, Tract 4, Acres 35.13, located in Navasota, Grimes County, Texas 77868. [Lupe Diosdado, Development Services Director]

### Summary & Recommendation

A zoning amendment application has been submitted to the City of Navasota by Crosstrails Development, LLC for the property located in the A0055-0 D Tyler Abstract adjacent to Pecan Lakes Estates Phase 2. The zoning amendment application requests to amend the existing regulations outlined within the Pecan Groves Estates PUD, a planned unit development, additional design guidelines related to home design standards, street design standards, and parkland requirements. The property affected is legally described as A0055-0 D Tyler, Tract 4, Acres 35.13, located in Navasota, Grimes County, Texas 77868. On May 23rd, the Planning & Zoning Commission held a public hearing and voted on a recommendation to City Council regarding the proposed PUD amendment.

**Public hearing opened at:** \_\_\_\_\_ **p.m.**

### Background:

On December 15, 2022, property owner Crosstrails Development, LLC, filed a petition with the City of Navasota requesting the rezoning of 35.13 acres from A/O: Agriculture/Open Space District to Pecan Grove Estates PUD, a planned unit development. The developer intended to develop 130+ residential lots adjacent to the Pecan Lakes Estates subdivision. Subsequently, the Planning & Zoning Commission on January 12, 2023, followed by City Council on January 23, 2023, approved the PUD as presented.

Over the last year, City staff have worked with the developer on two important factors: 1) to ensure the necessary public improvements are included to adequately serve the proposed subdivision and future growth, and 2) to promote compatibility with the adjacent Pecan Lakes Estates subdivision. Ordinance No. 1047-24 is attached outlining the proposed PUD amendments for the City Council's review and consideration.

To promote economic development and to ensure both factors are met, a Chapter 380 Development Agreement will be proposed at the May 28th City Council meeting, making certain concessions related to parkland requirements while also cost sharing a percentage of critical sewer infrastructure upgrades and improvements. Below are the proposed deliverables included in the development agreement:

#### 380 Agreement Summary:

##### Developer Deliverables:

- HOA owned & maintained open/green space to include walking trails.
- 146 single-family lots with certain lots requiring a minimum of 1,400 and 1,600 square foot homes.
- The existing lift station & force main upgrades, including adding a backup natural gas generator, benefit this development and the Pecan Lakes Estates subdivision.
- Exterior home masonry requirements along the project's southern perimeter & corner lots match the adjacent Pecan Lakes Estates Phase 2.
- Connecting sidewalks to Pecan Lakes Estates Phase 2 via Birdie Ct. & Eagle View Dr. as well as paying \$15,000 sidewalk fee for a future August Horst Park sidewalk connection.
- 100% concrete streets to match the adjacent Pecan Lakes Estates Phase 2.

##### City of Navasota Deliverables:

Proposes to incentivize the development by cost sharing certain elements of the sanitary sewer upgrades & waiving applicable parkland fees.

- 100% cost participation in natural gas backup generator.
- 50% cost participation in engineering, design, & construction of lift station upgrades and 6" force main extension.
- 100% waiving of parkland dedication & parkland development fees.

The total amount to be paid to the developer is \$123,750. Reimbursements will be paid on a phase basis, based on completion of infrastructure.

#### **Property Information:**

**PID:** R14167

**Legal Description:** A0055-0 D TYLER, TRACT 4, ACRES 35.13

**Owner:** CROSSTRAILS DEVELOPMENT, LLC

**Address:** Highway 105 W, NAVASOTA, TX 77868

**Zoning:** Pecan Groves Estates PUD - Attached

**Applicant\Project Rep:** Brandon Goodyk

#### **Site Information:**

Vacant Lot

#### **Existing Site and Surrounding Land Uses:**

Current Land Use: Vacant Lot

Proposed Land Use: 140+ lot single dwelling unit subdivision

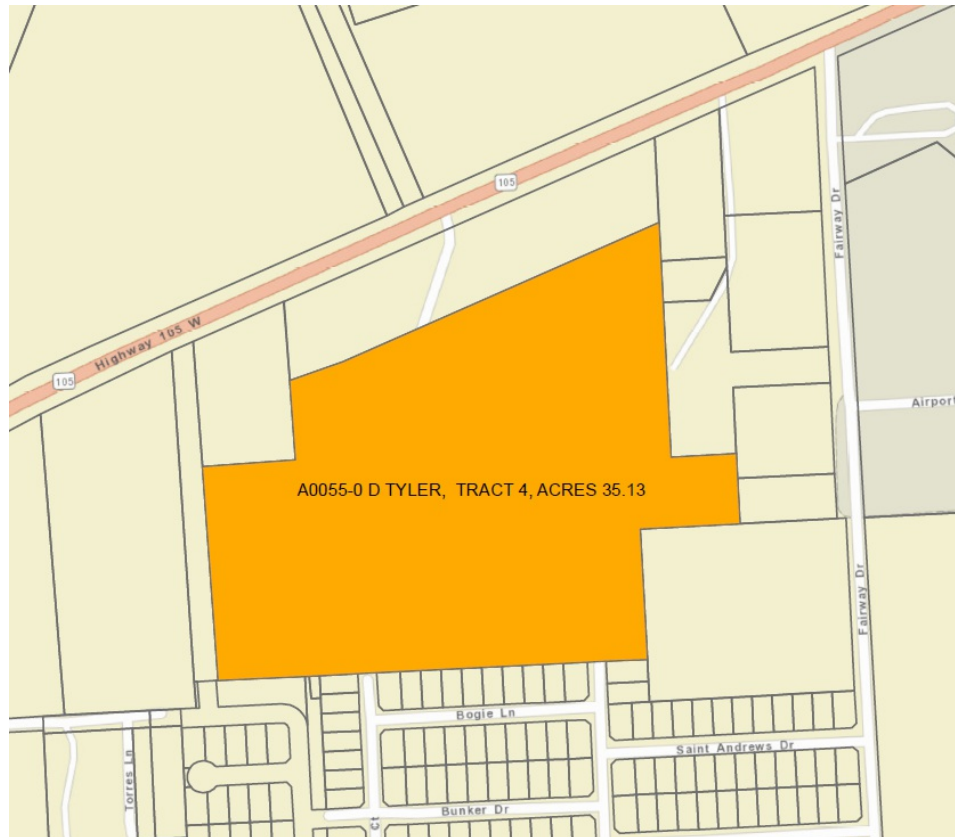
**Public Information Plan:**

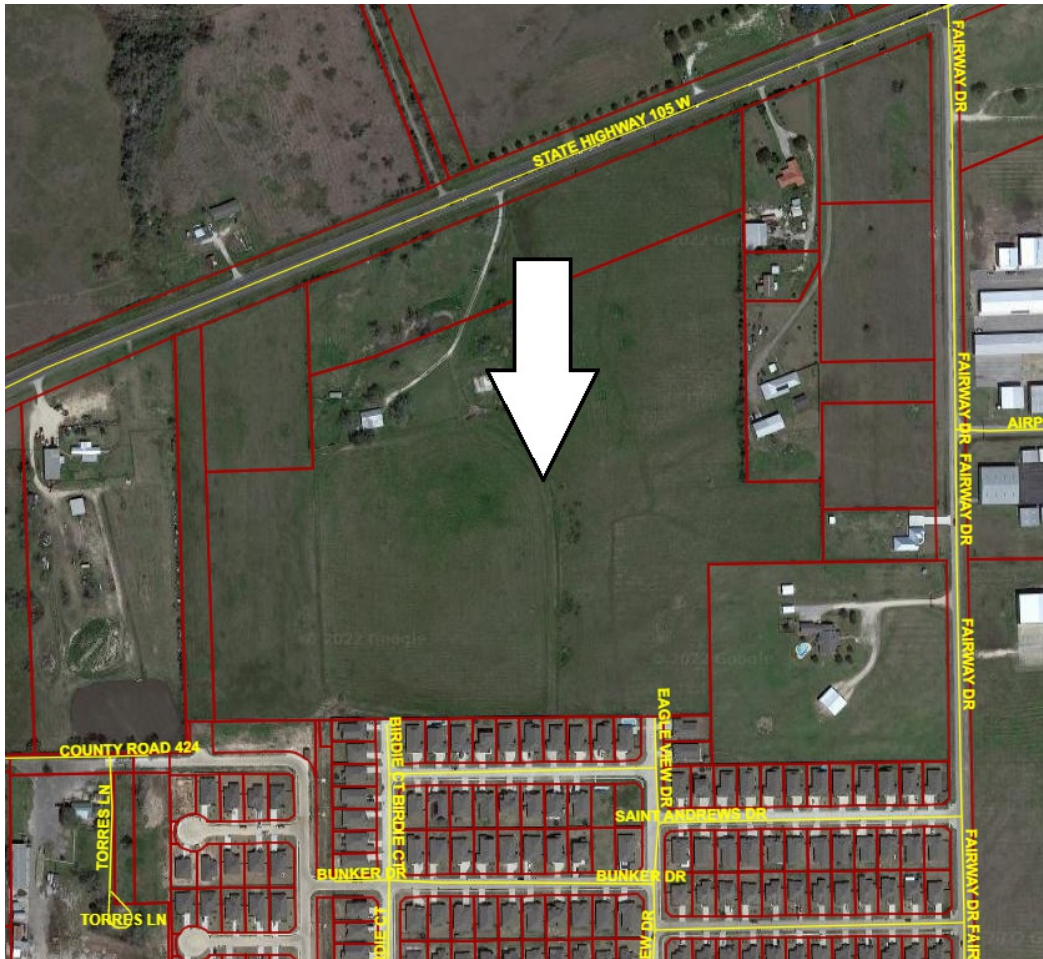
An ad was published in the May 8<sup>th</sup> edition of the Navasota Examiner, a public hearing sign has also been placed on the property. A total of **102** surrounding property owners within 500 feet were notified via public notice letters.

**Public Input Summary:**

As of Wednesday, May 15, 2024, staff have not received any written or verbal feedback for or against the proposed PUD amendments.

**Aerial & Street view:**





City staff recommend the City Council to conduct a public hearing and approve Ordinance No. 1047-24.

**Public hearing closed at \_\_\_\_\_p.m.**

**Action Requested by Council**

**Conduct a public hearing and approve or deny Ordinance No. 1047-24.**

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### **Attachments**

Ordinance No. 1047-24  
Ordinance Exhibit C  
Ordinance Exhibit D



**ORDINANCE NO. 1047-24**

**AN ORDINANCE AMENDING ORDINANCE NO. 1014-23 "PECAN GROVE ESTATES PUD" A PLANNED UNIT DEVELOPMENT; PROVIDING FOR A SEVERABILITY CLAUSE; AND PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, on the 13<sup>th</sup> day of February 2023 the City Council of the City of Navasota adopted Ordinance No. 1014-23 establishing the planned unit development zoning district "Pecan Grove Estates PUD"; and

**WHEREAS**, on the 30<sup>th</sup> day of April 2024, property owner Crosstrails Development, LLC, filed a petition requesting to amend the Pecan Grove Estates PUD; and

**WHEREAS**, on the 23<sup>rd</sup> day of May 2024, a public hearing was held before the Planning and Zoning Commission of the City of Navasota, a quorum being present on the occasion and said matter of the zoning amendment being part of the agenda for said Commission meeting, an opportunity to present arguments for and against the proposed zoning amendment was held; and

**WHEREAS**, the Planning and Zoning Commission recommends to the City Council of the City of Navasota that it is in the best interest and to the benefit of the residents of the City of Navasota, that the Pecan Grove Estates PUD zoning district be amended; and

**WHEREAS**, on the 28<sup>th</sup> day of May 2024, after notice as required by law, a public hearing was held before the Navasota City Council, a quorum being present on the occasion and said matter of the zoning amendment being part of the agenda, an opportunity to present arguments for and against the proposed amendments was held;

**WHEREAS**, the zoning amendment requested is in harmony with the Comprehensive Plan of the City of Navasota; and

**WHEREAS**, the City Council desires to amend the Pecan Grove Estates PUD development standards, specifically design guidelines related to parkland requirements;

**WHEREAS**, the City Council desires to amend the Pecan Grove Estates PUD development standards, specifically residential design guidelines;

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF NAVASOTA, TEXAS THAT:**

**SECTION 1.** Ordinance No. 1014-23, Exhibit "C" Pecan Grove Estates PUD: Development Standards, A. Standards for Residential Lots, Additional Design Guidelines, is hereby amended by adding subsection G. to read as follows:

G. Greenspace: Parkland and Open Space provided within the Pecan Grove Estates PUD development shall be owned, controlled, and maintained by an HOA/POA and shall be publicly accessible, no fee-in-lieu of parkland or park development fees shall be required for any shortages in accordance with Chapter 10 Subdivision regulations. The parkland/open space provided shall be allowed to have less than 50% of its frontage abutting a public street.

**SECTION 2.** Ordinance No. 1014-23, Exhibit "C" Pecan Grove Estates PUD: Development Standards, A. Standards for Residential Lots, Additional Design Guidelines, is hereby amended by adding subsection H. to read as follows:

H. Home Design Standards:

1. All Single Dwelling Homes constructed on lots meeting or exceeding 8,000 square feet shall be a minimum of 1,600 square feet, all Single Dwelling Homes constructed on lots under 8,000 square feet shall be a minimum of 1,400 square feet.
2. All Single Dwelling Homes constructed within the subdivision in accordance with the attached Exhibit "D" shall have 100% masonry exterior finished walls of brick or stone on at least 3 sides except for porches, covered entry ways, gables, above garage, exterior window trim and second floors.

**SECTION 3.** Ordinance No. 1014-23, Exhibit "C" Pecan Grove Estates PUD: Development Standards, A. Standards for Residential Lots, Additional Design Guidelines, is hereby amended by adding subsection I. to read as follows:

I. Street Design Standards: All roadways and or streets constructed within the subdivision shall be constructed of rigid concrete material in accordance with the adopted unified design guidelines.

**SECTION 4.** If any section, subsection, word, sentence or phrase of this Ordinance is held invalid, it shall not affect the remaining parts of this Ordinance.

**SECTION 5.** This Ordinance shall become effective from and after its passage, approval, and adoption on second reading.

**PASSED AND ADOPTED ON FIRST READING THIS THE 28<sup>th</sup> DAY OF MAY 2024.**

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**HON. BERT MILLER, MAYOR**

**ATTEST:**

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**SUSIE M. HOMEYER, CITY SECRETARY**

**ORDINANCE NO. 1014-23**

**AN ORDINANCE AMENDING THE OFFICIAL ZONING MAP OF THE CITY OF NAVASOTA, TEXAS TO REZONE 35.13 ACRES, MORE PARTICULARLY DESCRIBED AS A0055-0 D TYLER, TRACT 4, FROM A/O: AGRICULTURE/OPEN SPACE DISTRICT TO "PECAN GROVE ESTATES PUD" A PLANNED UNIT DEVELOPMENT; PROVIDING FOR A SEVERABILITY CLAUSE; AND PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, on the 15<sup>th</sup> of December 2023, property owner Crosstrails Development, LLC, filed a petition requesting the rezoning of 35.13 acres more particularly described as A0055-0 D TYLER, TRACT 4, ACRES 35.13, and legally described by metes and bounds on Exhibit "A" which is attached hereto and incorporated herein for all purposes pertinent, from A/O: Agriculture/Open Space District to "Pecan Grove Estates PUD" a planned unit development; and

**WHEREAS**, the rezoning request is in harmony with the Comprehensive Plan of the City of Navasota; and

**WHEREAS**, on the 12<sup>th</sup> day of January 2023, a public hearing was held before the Planning and Zoning Commission of the City of Navasota, a quorum being present on the occasion and said matter of rezoning being part of the agenda for said Commission meeting, an opportunity to present arguments for and against the proposed rezoning was held; and

**WHEREAS**, the property is shown on Exhibit "B" attached hereto and incorporated herein for all purposes pertinent; and

**WHEREAS**, the "Pecan Grove Estates PUD: Concept Plan" is also attached hereto as Exhibit "C" and incorporated herein for all purposes pertinent, outlining the requirements and standards of the "Pecan Grove Estates PUD" a Planned Unit Development; and

**WHEREAS**, the Planning and Zoning Commission recommends to the City Council of the City of Navasota that it is in the best interest and to the benefit of the residents of the City of Navasota, that the said property be rezoned from A/O Agriculture Open Space District to Pecan Grove Estates PUD a Planned Unit Development; and

**WHEREAS**, on the 23<sup>rd</sup> day of January 2023, after notice as required by law, a public hearing was held before the Navasota City Council, a quorum being present on the occasion and said matter of rezoning being part of the agenda, an opportunity to present arguments for and against the proposed rezoning was held;

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF NAVASOTA, TEXAS THAT:**

**SECTION 1.** The Official Zoning Map of the City of Navasota is hereby amended to change the property legally described on Exhibit "A" and shown on Exhibit "B" from A/O Agriculture Open Space District to "Pecan Grove Estates PUD" a Planned Unit Development. Unless otherwise provided for or modified by Exhibit "C", the property located within the Pecan Grove Estates PUD area shall conform to the provisions of the City's Zoning Ordinance, Subdivision Ordinance and all other applicable ordinances.

**SECTION 2.** If any section, subsection, word, sentence or phrase of this Ordinance is held invalid, it shall not affect the remaining parts of this Ordinance.

**SECTION 3.** This Ordinance shall become effective from and after its passage, approval, and adoption on second reading.

**PASSED AND ADOPTED ON FIRST READING THIS THE 23<sup>RD</sup> DAY OF JANUARY 2023.**

  
BERT MILLER, MAYOR

**ATTEST:**

  
SUSIE M. HOMEYER, CITY SECRETARY



**PASSED AND ADOPTED ON SECOND READING THIS 13<sup>th</sup> DAY OF FEBRUARY 2023.**

  
BERT MILLER, MAYOR

**ATTEST:**

  
SUSIE M. HOMEYER, CITY SECRETARY



**METES AND BOUNDS DESCRIPTION**  
**of a**  
**35.130 Acre Tract**  
**Daniel Tyler Survey, A-55, Grimes County, Texas**  
**April 26, 2022**

All that certain tract or parcel of land lying and being situated in Grimes County, Texas, out of the Daniel Tyler Survey, Abstract No. 55, being a part of a called 42.381 acre tract as described in a General Warranty Deed from J & H Navasota Development, LLC to PWP Land Co., LLC, dated March 29, 2021, of record in Document No. 2021-315007 of the Real Property Records of Grimes County, Texas and more fully described by metes and bounds as follows:

**COMMENCING** at a Point for the Northeast corner of the called 42.381 acre tract mentioned above, the Northwest corner of a called 2.01 acre tract as described in a Deed to Ralph Torres, Jr. (1327/814) and same being in the Southeast ROW of State Highway 105 (120 ft. ROW) from which a found 3/8 inch iron rod, at the Northerly base of a 10 inch treated fence corner post, brs. S 02°52'43" E, 0.14 ft. and a found broken concrete ROW monument brs. N 66°07'26" E, 689.24 ft.;

THENCE S 02°52'43" E, 267.78 ft., along a portion of the generally fenced and West line of said 2.01 acre Torres tract (1327/814) and a portion of an East line of the called 42.381 acre tract mentioned above to a 5/8 inch iron rod set for the Northerly Northeast corner and **TRUE PLACE OF BEGINNING** of the tract of land herein described;

THENCE S 02°52'43" E, 737.11 ft., along a portion of the generally fenced and West line of said 2.01 acre Torres tract (1327/814), the West line of a called 0.60 acre tract as described in a Deed to Ralph Torres, Jr. (1363/535), the West line of a called 2.87 acre tract as described in a Deed to Anthony J. Cunneen, et ux (Doc #: 2022-322382) and a portion of an East line of the called 42.381 acre tract mentioned above to a found 3/8 inch iron rod, at the Northwest base of an 8 inch treated fence corner post, for an interior corner thereof and the Southwest corner of said 2.87 acre Cunneen tract;

THENCE N 86°57'58" E, 208.56 ft., along the generally fenced and South line of said 2.87 acre Cunneen tract (Doc #: 2022-322382) and a North line of the called 42.381 acre tract mentioned above to a Point for a Northeast corner thereof, the Southeast corner of said 2.87 acre tract and same being in the West line of Lot 2, Block 1, Fly Away Field (Plat – 2020-308796), from which a found disturbed 3/8 inch iron rod, in concrete at the Easterly base of an 8 inch treated fence corner post, brs. S 67°22'21" E, 0.23 ft.;

THENCE S 02°50'55" E, 217.35 ft., along a portion of the generally fenced and West line of Lot 2, Block 1, Fly Away Field, the generally fenced and West line of Lot 3 as described in a Deed to Leonard Firth, et al (2020-309530) and an East line of the called 42.381 acre tract mentioned above to a Point for a Southeast corner thereof, the Southwest corner of Lot 3 and same being in the North line of a called 8.00 acre tract as described in a Deed to Christy Curry Garcia (1230/160), from which a found disturbed 3/8 inch iron rod, in concrete and at the Westerly base of an 8 inch treated fence corner post, brs. N 55°00'32" E, 1.32 ft.;

THENCE S 86°59'53" W, 309.23 ft., along a portion of the generally fenced and North line of said 8.00 acre Garcia tract (1230/160) and a South line of the called 42.381 acre tract mentioned above to a found ½ inch iron rod, in concrete and at the Northwest base of an 8 inch treated fence corner post, for an interior corner thereof and the Northwest corner of said 8.00 acre Garcia tract;

THENCE S 03°03'00" E, 406.48 ft., along a portion of the generally fenced and West line of said 8.00 acre Garcia tract (1230/160) and an East line of the called 42.381 acre tract mentioned above to a found ½ inch iron rod, at the Northeast base of a 10 inch treated fence corner post, for the Southerly Southeast corner thereof and a Northeast corner of Pecan Lake Estates, Phase 2 (Plat – 295779);

THENCE S 87°14'15" W, along a generally fenced and South line of the called 42.381 acre tract mentioned above, a North line of Pecan Lakes Estates, Phase 2 and **PASSING** at 1,060.67 ft. a found 5/8 inch iron rod in concrete and projecting 6 inch, for the Northwest corner thereof, the Northerly Northeast corner of Pecan Lakes Estates, Phase 3, Section 1 (Plat – 309888) and continuing along a generally fenced and North line thereof for a **TOTAL DISTANCE** of 1,352.58 ft. to a set 5/8 inch iron rod for the Southwest corner of the tract of land herein described, the Southeast corner of a called 1.567 acre tract as described in a Deed to J & H Development, LLC (Doc #: 2020-305736) and same being a Northeast corner of Pecan Lakes Drive;

THENCE N 04°14'38" W, 664.40 ft., along a portion of the East line of said 1.567 acre J & H Navasota Development tract (Doc #: 2020-305736) and a West line of the called 42.381 acre tract mentioned above to a found 5/8 inch iron rod for the Westerly Northwest corner thereof and the Southwest corner of a called 3.000 acre tract as described in a Deed to K2C Investments, LLC (Doc #: 2021-315090);

THENCE N 85°45'22" E, 292.17 ft., along the South line of said 3.000 acre K2C Investments, LLC tract (Doc #: 2021-315090) and a North line of the called 42.381 acre tract mentioned above to a found 5/8 inch iron rod for an interior corner thereof and the Southeast corner of said 3.000 acre tract;

THENCE N 04°12'47" W, 249.10 ft., along a partly fenced and East line of said 3.000 acre K2C Investments, LLC tract Doc #: 2021-315090) and a portion of a West line of the called 42.381 acre tract mentioned above to a set 5/8 inch iron rod for the Northerly Northwest corner of the tract of land herein described;

THENCE crossing over a portion of the called 42.381 acre tract mentioned above and along the Northerly lines of the tract of land herein described as follows:

- 1) N 70°43'41" E, 179.96 ft., to a set 5/8 inch iron rod and
- 2) N 66°07'26" E, 1,080.81 ft., to the **TRUE PLACE OF BEGINNING** and containing 35.130 acres of land.

BASIS OF BEARINGS & DISTANCES: Grid North, State Plane Coordinate System of 1983, Central Zone, Leica RTK Network. All distances and areas are grid and can be converted to surface by dividing by a combined scale factor of 0.0.999 936 954 38.



Steven M. Wisnoski      April 26, 2022  
Registered Professional Land Surveyor  
State of Texas No. 6006  
Job #: 2021-03-17-04



## Exhibit "B"

### Pecan Grove Estates





## **Exhibit "C"**

### **Pecan Grove Estates PUD: Development Standards**

#### **A. Standards for Residential lots:**

##### **Subdivision Homeowner's Association**

Pecan Grove will have an HOA which will be responsible for common areas of the subdivision, regulate parking off the street, provide for design covenant review/construction finishes.

##### **Permitted Uses**

- A. Single dwelling units
- B. Temporary construction buildings for use incidental to permitted construction work on the premises. Such buildings must be removed upon completion or abandonment of construction.
- C. Real Estate sales offices during the development and sales period for subdivision is permitted, but not to exceed two (2) years after completion of subdivision.
- D. Accessory units, customarily incidental to the above uses, and located on the same lot not involving the conduct of retail business except as allowed by the Zoning Ordinance, and provided that any accessory structure shall be located not less than five (5) feet from any side or rear lot line.
- E. Parkland and open space
- F. Water supply, sanitary sewer, storm sewer and similar utility facilities

##### **Additional Design Guidelines**

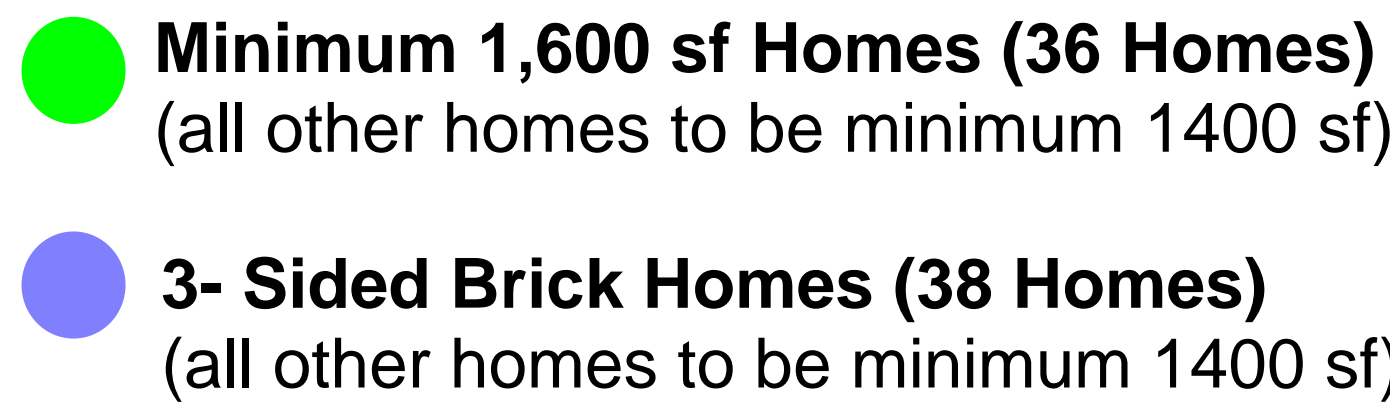
- A. 4' Sidewalks shall be included within the dedicated non-pavement right-of-way on both sides of all streets and on one side in cul-de-sacs.
- B. Street cross sections 2.52% instead of the standard 3%.
- C. Residential streets will serve more than 24 dwelling units.
- D. Cul-de-sac's will be longer than 400-feet in length and will have 50-foot radius right of way and a 40-foot radius pavement.
- E. Looped residential streets will not terminate in residential collectors, will also serve more than 24 dwelling units.
- F. Block lengths will be greater than 1,200 linear feet.

## **Development Standards**

- A. Height Restrictions
  - i. Thirty-five (35) feet high is the maximum height including roof gables, chimneys, vent stacks, or other mechanical equipment
- B. Building Setbacks
  - i. Front setback: There shall be a front setback having a depth of not less than twenty (20) feet.
  - ii. Rear setback: There shall be a rear setback having a depth of not less than ten (10) feet.
  - iii. Side Setback: There shall be side setbacks, on each side, having a width of no less than five (5) feet. When abutting a street, the minimum side setback shall be at least sixteen (16) feet (Street Side Setback).
  - iv. Cul-de-sac and knuckles shall have a minimum front setback of twenty (20) feet.
- C. Lot Dimensions
  - i. Lot Area for Single Dwelling Unit minimum shall be 6,000 square feet
  - ii. Lot Width for Single Dwelling Unit shall be a minimum of fifty (50) feet wide
  - iii. Lot Depth shall average a minimum of one hundred (100) feet in depth between the side lot lines
- D. Density
  - i. The maximum number of single dwelling units (DUs), shall not exceed 6 units per acre
- E. Parking
  - i. Two on-site parking spaces per single dwelling shall be required
- F. Exterior Lighting
  - i. All Street Lighting and Exterior Lighting of the dwellings shall be designed to direct light down onto the site and away from neighboring property. Lighting shall be designed to include cut-off shielding to minimize light pollution.
- G. Landscape Standards
  - i. Landscape designs shall be prepared to enhance the visual appeal of the built environment, screen undesirable views, strengthen the pedestrian scale, provide a buffer between auto and pedestrian environments, help define the site, provide congruency with the existing neighborhood, and break up large areas of hard surface.

- ii. Re-naturalization of all areas disturbed by the construction of the site and buildings is required. Re-naturalizing may include the following native plant materials: trees, shrubs, grasses, forbs.
- iii. Development shall minimize potable water consumption for irrigation.  
Reductions can be attributed to any combination of the following items:
  - 1. Predominate use (greater than fifty (50) percent) native plant species.
  - 2. Efficient irrigation systems (Water Sense labeled irrigation controllers, rain guards, check valves, drip irrigation, etc.).
  - 3. Use of captured rainwater for irrigation.
  - iv. Where landscaping is intended to provide a visual screen, the species, quantity, maturity (size), and spacing of the initial plantings shall be sufficient to provide a functional screen within a single growing season.
  - v. Landscaping shall be completed within three months of completion of home construction. Exceptions for weather delays to landscape completion may be considered.
  - vi. No evergreen tree with a mature width greater than twenty (20) feet shall be planted within fifteen (15) feet of a hardscaped area.
- H. Mobile homes and manufactured homes are not permitted in this District.






**PROPOSED SITE PLAN**  
 SCALE: 1:100

NO.	REVISIONS	DATE	BY	DRAFTING SGH	DESIGN PEM
				DATE	
				SCALE	
				AS SHOWN	

PECAN GROVE ESTATE  
NAVASOTA, TX. 77868  
CROSSTRAILS LAND CO.

MBC  
MANAGEMENT

7984 HWY. 6  
NAVASOTA, TX 77868  
Ph. (936) 825-1603  
Fax (936) 825-1624

# PROPOSED SITE PLAN

APPROVED:

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DRAWING NO.

C3





## REQUEST FOR CITY COUNCIL AGENDA ITEM # 10.

Agenda Date Requested	05/28/2024
Requested By	Lupe Diosdado, Development Services Director
Department	Development Services
Type	Report

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### Agenda Item

Consideration and possible action on a Chapter 380 Development Agreement between the City of Navasota and Crosstrails Development, LLC, for the development of Pecan Groves Estates, a single-family residential subdivision, for the property described as A0055-0 D Tyler, Tract 4, Acres 35.13, located in Navasota, Grimes County, Texas. [Lupe Diosdado, Development Services Director]

### Summary & Recommendation

#### Background:

On December 15, 2022, property owner Crosstrails Development, LLC, filed a petition with City of Navasota requesting the rezoning of 35.13 acres from A/O: Agriculture/Open Space District to Pecan Grove Estates PUD, a planned unit development. The developer intended to develop 130+ residential lots adjacent to the Pecan Lakes Estates subdivision. Subsequently, the Planning & Zoning Commission on January 12, 2023, followed by the City Council on January 23, 2023, approved the PUD as presented.

Over the last year, City staff have worked with the developer on two important factors: 1) to ensure the necessary public improvements are included to adequately serve the proposed subdivision and future growth, and 2) to promote compatibility with the adjacent Pecan Lakes Estates subdivision. On **February 26, 2024**, during a special workshop session, City staff presented the preliminary details of the proposed Development Agreement to City Council for discussion. During this special workshop, City Council asked a couple of questions of staff, but provided no feedback to staff to amend the proposed development. To promote economic development and to ensure both factors are met, the finalized agreement makes certain concessions related to parkland requirements while also cost sharing a percentage of critical sewer infrastructure upgrades and improvements. Below are the proposed deliverables included in the development agreement:

#### Developer Deliverables:

- HOA owned & maintained open/green space to include walking trails.
- 146 single-family lots with certain lots requiring a minimum of 1,400 and 1,600 square foot homes.
- The existing lift station & force main upgrades, including adding a backup natural gas generator, benefit this development and the Pecan Lakes Estates subdivision.
- Exterior home masonry requirements along the project's southern perimeter & corner lots match the adjacent Pecan Lakes Estates Phase 2.
- Connecting sidewalks to Pecan Lakes Estates Phase 2 via Birdie Ct. & Eagle View Dr. as well as paying \$15,000 sidewalk fee for a future August Horst Park sidewalk connection.

- 100% concrete streets to match the adjacent Pecan Lakes Estates Phase 2.

City of Navasota Deliverables:

Proposes to incentivize the development by cost sharing certain elements of the sanitary sewer upgrades & waiving applicable parkland fees.

- \$72,000 cost participation in natural gas backup generator.
- \$48,750 cost participation in engineering, design, & construction of lift station upgrades and 6" force main extension.
- 100% waiving of parkland dedication & parkland development fees.

The total amount to be paid to the developer is \$123,750. Reimbursements will be paid on a per-phase basis, based on completion of infrastructure. A copy of the final development agreement is attached for City Council review and consideration. If approved, the first reimbursement payment will take place in fiscal year 2024-2025 in the amount of \$41,000 based on an estimated 41 lots being proposed in Phase 1.

City staff recommends the City Council to take action on the Chapter 380 Development Agreement as presented.

**Action Requested by Council**

**Approve or deny the Chapter 380 Development Agreement as presented.**

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**Fiscal Impact**

**Source of Funds:**

**Account Number:**

**Amount Budgeted:**

**Amount Requested:**

**Budgeted Item Y/N?:** FY 24-25

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**Attachments**

Development Agreement

DA Exhibit A

DA Exhibit B

DA Exhibit C

**DEVELOPMENT AGREEMENT**

**BETWEEN  
THE CITY OF NAVASOTA, TEXAS  
AND  
CROSSTRAILS LAND CO., LLC**

## **DEVELOPMENT AGREEMENT**

**STATE OF TEXAS           §**  
  **§**  
**COUNTY OF GRIMES       §**

This Development Agreement ("Agreement") is between the CITY OF NAVASOTA, Texas, a Texas Home Rule City (the "CITY") and CROSSTRAILS DEVELOPMENT, LIMITED LIABILITY COMPANY, a Texas Limited Liability Company ("CROSSTRAILS"). In this Agreement, the CITY and CROSSTRAILS are sometimes individually referred to as a "Party" and collectively referred to as the "Parties."

### **RECITALS**

CROSSTRAILS owns approximately 35.13 acres of land (the "Land"), currently located within the corporate boundaries of the CITY, in Grimes County, Texas (the "County"). The Land is that tract or parcel of land described by metes and bounds in Exhibit "A" attached hereto and incorporated herein for all purposes. CROSSTRAILS desires that the Land be governed by this Agreement.

CROSSTRAILS intends to develop the Land for single-family residential purposes in accordance with the applicable ordinances and regulations of the CITY, and in accordance with this Agreement, the Land as it will be developed by CROSSTRAILS, and the other improvements to be constructed and obligations to be performed by CROSSTRAILS, are sometimes referred to herein as the "Project".

CROSSTRAILS intends to make a significant investment in: 1) developing the Land over the period of this Agreement; 2) upgrading the existing Phase 1 Pecan Lakes Estates lift station, to include a force main extension, replacement and upgrading of pumps and installation of a backup generator and associated upgrades; 3) installation of sidewalks connecting to Pecan Lakes Estates Phase 2.

CROSSTRAILS and the CITY wish to enter into this Agreement to encourage appropriate planning of the Project, provide for specific requirements of CROSSTRAILS and the CITY throughout the term of this Agreement, to provide for CROSSTRAILS's commitment concerning the sewer infrastructure necessary to serve the Project, and to provide assurances of a high-quality development that will benefit the present and future residents of the CITY and the County.

The CITY is authorized by §380.001, et seq., Texas Local Government Code, to promote state and local economic development and to stimulate business and commercial activity within the CITY and surrounding area. The CITY has determined that a substantial economic benefit will accrue to the CITY and the surrounding area if the Project, is successfully developed, leading to new housing that will attract commercial development.

Therefore, for and in consideration of good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, including the agreements set forth below, the CITY



and CROSSTRAILS agree as follows:

## **ARTICLE 1**

### **DEFINITIONS**

1.1 Definitions. Unless the context or the usage of the particular word or phrase requires a different interpretation, in addition to terms defined elsewhere herein, the following terms and phrases shall have the meanings indicated below:

Agreement: This Development Agreement between the City of Navasota, Texas and Crosstrails Development, Limited Liability Company.

Applicable Fees: The fees and charges to be paid by CROSSTRAILS to the CITY with respect to the permits, utility extensions, services, development of the Land, and other fees as provided for in this Agreement.

Applicable Rules: The CITY ordinances, codes, rules, regulations and official policies in effect as of the Vesting Date, which will be applicable to the development of the Land.

City: The City of Navasota, Texas, a Texas home rule City.

City Manager: The City Manager of the City of Navasota, Texas, or the City Manager's designee.

City Council: The City Council of the City of Navasota, Texas.

City Engineer: The Engineer for the City of Navasota, Texas.

County: Grimes County, Texas.

Term: The term of this Agreement, commencing on the Effective Date and continuing for five (5) years thereafter.

Land: Approximately 35.13 acres of land, currently situated in the corporate boundaries of the CITY of Navasota, Grimes County, Texas. The Land is that tract or parcel of land described by metes and bounds in Exhibit "A" attached hereto and incorporated herein for all purposes.

Crosstrails: Crosstrails Development, LLC, a Texas Limited Liability Company, and its successors and assigns under this Agreement.

Project: The Land, and existing and future improvements thereto, as it will be developed under this Agreement, and the other improvements to be constructed and obligations to be performed by CROSSTRAILS pursuant to this Agreement.

Street System: shall mean the street system, including paved streets and roads, entrance streets, arterial streets, main feeder streets and internal streets that will serve the Land.

Vesting Date: shall be the same date as the Effective Date of this Agreement.

## **ARTICLE 2**

### **PUBLIC BENEFITS, INFRASTRUCTURE AND AMENITIES**

2.1 Orderly Growth. The CITY desires that development within its corporate boundaries and extraterritorial jurisdiction occur in an orderly manner in order to protect the health, safety and welfare of its present and future citizens, protect property values and provide for the growth of the CITY's tax base. This Agreement will benefit the CITY by facilitating the planned development of an appropriate area of the CITY's corporate boundaries and extraterritorial jurisdiction, which will allow for thoughtful and high-quality planning, the development of necessary utility facilities and other infrastructure, the provision of other municipal services, and the development of a balanced community that includes residential uses.

2.2 Restrictive Covenant. It is understood and agreed that a Memorandum of Agreement shall be filed of record for the purpose of providing record notice of the existence of this Agreement in lieu of recording the executed original. Said Memorandum of Agreement shall be recorded in the Official Public Records of Grimes County, Texas, within a reasonable time by CITY with a copy thereof to be promptly furnished to CROSSTRAILS.

2.3 Environmental Protection. CROSSTRAILS will implement compliance with all federal, state and local natural resource laws and regulations, to the extent applicable, in the development and improvement of the Land.

## **ARTICLE 3**

### **WATER, WASTEWATER AND GAS**

3.1 Extension of Public Utilities to the Land. CROSSTRAILS desires to have the CITY's water, wastewater and gas utility systems serve the Land. The CITY has sufficient water, wastewater and gas utility capacity, and the CITY hereby agrees to provide water, wastewater and gas utility service to the Land, upon CROSSTRAILS'S extension of the water, wastewater and gas utility systems to the Land in accordance with the Applicable Rules.

3.2 Utility Improvements by CROSSTRAILS. CROSSTRAILS shall be responsible for the design, engineering, construction and all other costs related to the provision of water, wastewater and gas utility services to or within the boundaries of the Land. All design, engineering and construction shall be performed in accordance with the Applicable Rules and according to plans approved by the CITY. CROSSTRAILS shall be responsible for the design, engineering and construction of a six inch (6") force main extension along Fairway Drive, lift station pump and panel upgrades and natural gas backup generator installation and associated upgrades of the Pecan Lakes Estates Phase 1 lift station according to plans approved the CITY.

## **ARTICLE 4**

### **STREETS AND ROADS; LIGHTING; DRAINAGE AND STORM WATER CONTROL IMPROVEMENTS**

4.1 Street System. The street system serving and situated within the Land shall be constructed as shown on the final plat of the Land, to be submitted to the CITY at a later date. The street system shall be designed and constructed in accordance with this Agreement and the standards contained in the Applicable Rules. All streets constructed within the Land must be concrete in accordance with the CITY's unified design guidelines. Upon CROSSTRAILS'S dedication of the street improvements to the CITY, and express written acceptance of the street improvements by the CITY, the CITY shall be responsible for the maintenance of the street improvements, except to the extent any maintenance or repairs are covered by fiscal security required by Applicable Rules.

4.2 Street Lighting. CROSSTRAILS shall install street lighting in the Project in accordance with Applicable Rules.

4.3 Drainage and Storm Water Control Improvements. CROSSTRAILS, its successors and/or assigns will construct the Drainage and Storm Water Control Improvements on the Land in accordance with Applicable Rules. CROSSTRAILS will maintain and operate all storm water and other drainage facilities that are not dedicated to and accepted by the CITY, including all drainage easements within the Land.

## **ARTICLE 5**

### **ADDITIONAL OBLIGATIONS OF THE PARTIES**

5.1 CROSSTRAILS shall develop the Land for single-family residential purposes, said development to include 146 single-family home lots. The minimum square footage for each single family home located in the Land where the lot is 8,000 square feet or larger shall be 1,600 square feet, where the lot in the Land is under 8,000 square feet the minimum square footage for each single family home will be 1,400. Single family homes will have architectural restrictions to closely resemble the architectural styles in the adjacent Pecan Lakes Estates Phase 2 neighborhood. Additional restrictions will be placed on lots shown in Exhibit "C" constructed within the Land, these homes shall have three (3) exterior sides of brick or masonry stone, except for porches, covered entry ways, gables, above garage, exterior window trim and second floors. All open space/green space/parkland provided in the Land shall be owned and maintained by a homeowners association and must be publicly accessible. CROSSTRAILS shall also construct four foot (4') wide connecting sidewalk extensions from the Land to Pecan Lakes Estates Phase 2 sidewalks along Eagle View Dr. and Birdie Ct.

5.2 CROSSTRAILS shall pay the CITY a fee-in-lieu of sidewalk fee totaling Fifteen Thousand and No/100 Dollars (\$15,000), to fund future pedestrian connections.

5.3 For each single-family residential lot developed within the boundaries of the Land, the CITY shall pay CROSSTRAILS One Thousand and No/100 Dollars (\$1,000.00), not to exceed One Hundred Twenty-Three Thousand Seven Hundred Fifty dollars and No/100 (\$123,750.00) in the form of a grant pursuant to Chapter 380, Texas Local Government Code, within thirty (30) days following the substantial completion of each phase of infrastructure development. Completion of development is defined as having all infrastructure complete including roads and utilities in a manner that is acceptable to the City and suitable for single family construction.

5.4 CITY shall waive any applicable fees in lieu of parkland dedication or park development.

**ARTICLE 6**  
**PLATS, BUILDING CODES, BUILDING PERMITS, INSPECTION**

6.1 Plats. All development shall be governed by preliminary and final plats for portions of the Land that are approved, from time to time, by the CITY in accordance with this Agreement and the Applicable Rules.

6.2 Jurisdiction. CITY shall have exclusive jurisdiction over the review and approval of preliminary plats and final plats, which review and approvals shall be performed in accordance with the Applicable Rules and this Agreement. Nothing in this Agreement is intended to delegate or impair the performance by the CITY of its governmental functions.

6.3 Procedures. Preliminary plats and final plats shall be reviewed in accordance with the procedures set forth in the Applicable Rules.

6.4 Construction Inspection. The CITY shall have the right, from time to time, to inspect the construction of any public improvements for the purpose of identifying any improvements that are being constructed in violation of the Applicable Rules, Building Code and/or this Agreement. All inspections shall be performed by an inspector selected by the CITY and all inspection results shall be in writing. CROSSTRAILS shall be responsible for payment of the inspection fees as provided for in the Applicable Rules.

**ARTICLE 7**  
**TAX LEVY; OBLIGATIONS NOT DEBT**

In order to provide for the payment of its obligations under this Agreement, the CITY will, if necessary, levy, within the limits prescribed by law, for the current year and each succeeding year thereafter, while its obligations under this Agreement remain in effect, an ad valorem tax upon all taxable property within the CITY sufficient to pay the CITY's obligations under this Agreement, including the payment of interest and to create and provide for a sinking fund of not less than two percent (2%) of the principal amount of the CITY's obligations under this Agreement, with full allowance being made for tax delinquencies and the costs of tax collection, and such taxes, when collected shall be applied to the payment of the CITY's obligations under this Agreement and to no other purpose. The CITY hereby finds and declares that the existing and available taxing authority of the CITY for such purposes is adequate to permit a legally sufficient tax. The CITY acknowledges and agrees that the obligations created by this Agreement shall not constitute "debt" and shall be paid out of current revenues of the CITY; or in the alternative, shall be paid out of a specified fund, said fund being in the immediate control of the CITY and being in an amount sufficient to satisfy the CITY's obligations created herein; or further in the alternative, that sufficient provision and tax levy has been made by the party to create an interest and sinking fund adequate to pay at least 2% of the principal and any interest due each year.

**ARTICLE 8**  
**LAND DEVELOPMENT**

8.1 Governing Regulations. Except as otherwise provided in this Agreement, the CITY

ordinances, codes, rules, regulations and official policies applicable to the development of the Land during the term of this Agreement will be those CITY ordinances, building and construction codes, other codes, rules, regulations and official policies (collectively, "Applicable Rules") in force and as interpreted by the CITY by policy or practice on the Vesting Date, as defined in Section 1.1 above. No Applicable Rules adopted after the Vesting Date, whether by means of an ordinance, initiative, referendum, resolution, policy, order, or otherwise, are or will be applicable to the Project, unless otherwise provided in this Agreement or applicable state law, or the application is agreed to, in writing, by CROSSTRAILS and the CITY. For the term of this Agreement, the development and use of the Land will be controlled by the terms of this Agreement and the Applicable Rules. If there is any conflict between the Applicable Rules and the terms of this Agreement, the terms of this Agreement will control.

## **ARTICLE 9**

### **FEES; FISCAL SECURITY**

9.1 Fees. CROSSTRAILS agrees to timely pay any and all fees, costs, payments, taxes, expenses, deposits and plan review/inspection fees as set forth in the Applicable Rules, this Agreement, or otherwise required by law.

## **ARTICLE 10**

### **RESERVE**

10.1 Reserved

## **ARTICLE 11**

### **TERM, AUTHORITY AND VESTING OF RIGHTS**

11.1 Term.

11.1.1 Term. The term of this Agreement will commence on the Effective Date and continue for five (5) years thereafter ("Term"), unless sooner terminated under this Agreement. After the Term, the Agreement may be extended by mutual agreement of the Parties.

11.1.2 Extensions. The Parties agree that neither the CITY nor CROSSTRAILS is under any obligation to renew this Agreement after the Term.

11.1.3 Expiration. After the Term and any extension, this Agreement will be of no further force and effect, except that termination will not affect any right or obligation arising from any provision surviving this Agreement as provided herein.

11.1.4 Termination or Amendment. This Agreement may be terminated or amended as to the Land at any time by mutual written consent of the CITY and CROSSTRAILS or may be terminated or amended only as to a portion of the Land by the mutual written consent of the CITY and owners of only the portion of the Land affected by the amendment or termination.

11.2 Authority. This Agreement is entered under the statutory authority of Chapter 51, Chapter 212, Subchapter G, Section 212.171 et seq., and Chapter 380, Texas Local Government Code. The Parties intend that this Agreement authorize certain land uses and development on the Land; provide for the development plans and regulations for the Land; and provide exceptions to certain ordinances and regulations; and provide other terms and consideration.

11.3 Vesting of Rights. As of the Vesting Date, CROSSTRAILS has initiated the subdivision and development permit process for the Project. The CITY agrees that, in accordance with Chapter 245, Texas Local Government Code, the CITY will consider the approval of any further approvals necessary for the Project based solely on the Applicable Rules, as may be modified by this Agreement. Further, the CITY agrees that, upon approval of this Agreement, CROSSTRAILS has vested authority to develop the Land in accordance with the Applicable Rules, as modified by any exceptions contained in this Agreement.

11.4 Equivalent Substitute Obligation. If either Party is unable to meet an obligation under this Agreement due to a court order invalidating all or a portion of this Agreement, preemptive state or federal law, an imminent and bona fide threat to public safety that prevents performance or requires different performance, changed circumstances or subsequent conditions that would legally excuse performance under this Agreement, or any other reason beyond the Party's reasonable and practical control, the Parties will cooperate to revise this Agreement to provide for an equivalent substitute right or obligation as similar in terms to the illegal, invalid, or unenforceable provision as is possible and is legal, valid and enforceable, or other additional or modified rights or obligations that will most nearly preserve each Party's overall contractual benefit under this Agreement.

11.5 Cooperation. The CITY and CROSSTRAILS each agree to execute such further documents or instruments as may be necessary to evidence their agreements hereunder.

11.6 Litigation. In the event of any third party lawsuit or other claim relating to the validity of this Agreement or any actions taken by the Parties hereunder or in connection herewith, CROSSTRAILS and the CITY agree to cooperate in the defense of such suit or claim, and to use their respective best efforts to resolve the suit or claim without diminution of their respective rights and obligations under this Agreement. The filing of any third party lawsuit relating to this Agreement or the development of the Project will not delay, stop or otherwise affect the development of the Project or the CITY's processing or issuance of any approvals for the Project, unless otherwise required by a court of competent jurisdiction. THE CITY'S AGREEMENTS HEREUNDER AND PARTICIPATION IN THE DEFENSE OF SUCH A LAWSUIT ARE EXPRESSLY CONDITIONED ON CROSSTRAILS'S AGREEMENT TO PAY ANY AND ALL COSTS THAT THE CITY INCURS WITH RESPECT TO ANY SUCH SUIT. CROSSTRAILS AGREES TO DEFEND AND INDEMNIFY THE CITY FOR ANY LITIGATION EXPENSES, INCLUDING COURT COSTS AND ATTORNEYS FEES, RELATED TO DEFENSE OF THIS AGREEMENT, AND FOR ANY DAMAGES RELATED TO THE DEVELOPMENT OF THE PROJECT OR ANY ACTION OR INACTION OF THE CITY IN CONNECTION WITH THE AGREEMENT, ANY SUBSEQUENT RELATED AGREEMENT, OR THE PROJECT. The filing of any third party lawsuit relating to this Agreement or the development of the Project will not delay, stop or otherwise affect the development of the Project or the CITY's processing or

issuance of any approvals for the Project, unless otherwise required by a court of competent jurisdiction.

## **ARTICLE 12**

### **GENERAL PROVISIONS**

#### **12.1   Assignment; Binding Effect.**

12.1.1        This Agreement, and the rights and obligations of CROSSTRAILS hereunder, may be assigned by CROSSTRAILS to a subsequent purchaser of all or a portion of the undeveloped property within the Project provided that the assignee assumes all of the obligations of the Agreement. Any assignment must be in writing, specifically describe the property in question, set forth the assigned rights and obligations and be executed by the proposed assignee. A copy of the assignment document must be delivered to the CITY. Upon any such assignment, CROSSTRAILS will be released of any further obligations under this Agreement as to the property sold and obligations assigned.

12.1.2        If CROSSTRAILS assigns its rights and obligations hereunder as to a portion of the Project, then the rights and obligations of any assignee and CROSSTRAILS will be severable, and CROSSTRAILS will not be liable for the nonperformance of the assignee and vice-versa. In the case of nonperformance by one assignee, the CITY may pursue all remedies against that nonperforming assignee, but will not unreasonably impede development activities of any performing assignee as a result of that nonperformance.

12.1.3        The provisions of this Agreement will be binding upon, and inure to the benefit of the Parties, and their respective successors and assigns. This Agreement will not, however, be binding upon, or create any encumbrance to title as to, any ultimate consumer who purchases a fully developed and improved lot within the Project.

12.2    Severability. If any provision of this Agreement is illegal, invalid, or unenforceable, under present or future laws, it is the intention of the Parties that the remainder of this Agreement not be affected, and, in lieu of each illegal, invalid, or unenforceable provision, that a provision be added to this Agreement which is legal, valid, and enforceable and is as similar in terms to the illegal, invalid or enforceable provision as is possible.

12.3    Applicable Law and Venue. The interpretation, performance, enforcement and validity of this Agreement is governed by the laws of the State of Texas. Exclusive venue will be in a court of appropriate jurisdiction in Grimes County, Texas.

12.4    No Third Party Beneficiary. This Agreement is not intended, nor will it be construed, to create any third-party beneficiary rights in any person or entity who is not a Party, unless expressly otherwise provided.

12.5    Mortgagee Protection. This Agreement will not affect the right of CROSSTRAILS to

encumber all or any portion of the Land by mortgage, deed of trust or other instrument to secure financing for the Project. The CITY agrees as follows:

- 12.5.1 Neither entering into this Agreement, nor any breach of this Agreement, will affect any lien upon all or any portion of the Land.
- 12.5.2 The CITY will, upon written request of a Lender given in compliance with Section 12.16, provide the Lender with a copy of any written notice of default given to CROSSTRAILS under this Agreement within ten (10) days of the date such notice is given to CROSSTRAILS.
- 12.5.3 In the event of default by CROSSTRAILS under this Agreement, a Lender may, but will not be obligated to, cure any default during any cure period extended to CROSSTRAILS, either under this Agreement or under the notice of default.
- 12.5.4 Any Lender who comes into possession of any portion of the Land by foreclosure or deed in lieu of foreclosure will take such property subject to the terms of this Agreement. No Lender will be liable for any defaults or monetary obligations of CROSSTRAILS arising prior to the Lender's acquisition of title, but a Lender will not be entitled to obtain any permits or approvals with respect to that property until all delinquent fees and other obligations of CROSSTRAILS under this Agreement that relate to the property in question have been paid or performed.

12.6 Certificate of Compliance. Within thirty (30) days of written request by either Party given accordance with Section 12.16, the other Party will execute and deliver to the requesting Party a statement certifying that: (a) this Agreement is unmodified and in full force and effect or, if there have been modifications, that this Agreement is in full force and effect as modified and stating the date and nature of each modification; (b) there are no current uncured defaults under this Agreement, or specifying the date and nature of each default; and (c) any other information that may be reasonably requested. A Party's failure to deliver a requested certification within this 30-day period will conclusively be deemed to constitute a confirmation that this Agreement is in full force without modification, and that there are no uncured defaults on the part of the requesting Party. The CITY Manager will be authorized to execute any requested certificate on behalf of the CITY.

12.7 Default. If either Party defaults in its obligations under this Agreement, the other Party must, prior to exercising a remedy available to that Party due to the default, give written notice to the defaulting Party, specifying the nature of the alleged default and the manner in which it can be satisfactorily cured, and extend to the defaulting Party at least thirty (30) days from receipt of the notice to cure the default. If the nature of the default is such that it cannot reasonably be cured within the 30-day period, the commencement of the cure within the 30-day period and the diligent prosecution of the cure to completion will be deemed a cure within the cure period.

12.8 Remedies for Default. If either Party defaults under this Agreement and fails to cure the default within the applicable cure period, the non-defaulting Party will have all rights and remedies available under this Agreement or applicable law, including the right to institute legal action to



cure any default, to enjoin any threatened or attempted violation of this Agreement or to enforce the defaulting Party's obligations under this Agreement by specific performance or writ of mandamus, or to terminate this Agreement. All remedies available to a Party will be cumulative and the pursuit of one remedy will not constitute an election of remedies or a waiver of the right to pursue any other available remedy.

12.9 Reservation of Rights. To the extent not inconsistent with this Agreement, each Party reserves all rights, privileges, and immunities under applicable laws. However, notwithstanding any other provision herein, CROSSTRAILS hereby voluntarily elects to waive any and all rights granted to CROSSTRAILS under the Private Real Property Right Preservation Act, Texas Government Code, Chapter 2007, as amended.

12.10 Attorneys Fees. The prevailing Party in any dispute under this Agreement will be entitled to recover from the non-prevailing Party its reasonable attorney's fees, expenses and court costs in connection with any original action, any appeals, and any post-judgment proceedings to collect or enforce a judgment.

12.11 Waiver. Any failure by a Party to insist upon strict performance by the other Party of any provision of this Agreement will not, regardless of the length of time during which that failure continues, be deemed a waiver of that Party's right insist upon strict compliance with all terms of this Agreement. In order to be effective as to a Party, any waiver of default under this Agreement must be in writing, and a written waiver will only be effective as to the specific default and as to the specific period of time set forth in the written waiver. A written waiver will not constitute a waiver of any subsequent default, or of the right to require performance of the same or any other provision of this Agreement in the future.

12.12 Entire Agreement. This Agreement contains the entire agreement of the Parties, and there are no other agreements or promises, oral or written, between the Parties regarding the subject matter of this Agreement. This Agreement may be amended only by written agreement signed by the Parties.

12.13 Exhibits, Headings, Construction and Counterparts. All exhibits attached to this Agreement are incorporated into and made a part of this Agreement for all purposes. The paragraph headings contained in this Agreement are for convenience only and do not enlarge or limit the scope or meaning of the paragraphs. Wherever appropriate, words of the masculine gender may include the feminine or neuter, and the singular may include the plural, and vice-versa. Each of the Parties has been actively and equally involved in the negotiation of this Agreement. Accordingly, the rule of construction that any ambiguities are to be resolved against the drafting Party will not be employed in interpreting this Agreement or its exhibits. This Agreement may be executed in any number of counterparts, each of which will be deemed to be an original, and all of which will together constitute the same instrument. This Agreement will become effective only when one or more counterparts, individually or taken together, bear the signatures of all of the Parties.

12.14 Time. Time is of the essence of this Agreement. In computing the number of days for purposes of this Agreement, all days will be counted, including Saturdays, Sundays and legal

holidays; however, if the final day of any time period falls on a Saturday, Sunday or legal holiday, then the final day will be deemed to be the next day that is not a Saturday, Sunday or legal holiday.

12.15 Authority for Execution. The CITY certifies, represents, and warrants that the execution of this Agreement has been duly authorized and that this Agreement has been approved in conformity with CITY ordinances and other applicable legal requirements. CROSSTRAILS certifies, represents, and warrants that the execution of this Agreement is duly authorized in conformity with its bylaws and other legal requirements.

12.16 Notices. Any notices under this Agreement may be sent by hand delivery, facsimile (with confirmation of delivery) or certified mail, return receipt requested, to the Parties at the following addresses or as such addresses may be changed from time to time by written notice to the other Parties:

CITY:	Jason Weeks, City Manager City of Navasota 200 E. McAlpine Navasota, Texas 77868-3028 Telephone: (936) 825-6408 Facsimile: (936) 825-2403 jweeks@navasotatx.gov
Copy to:	Cary L. Bovey, Attorney at Law Bovey & Cochran, PLLC 2251 Double Creek Dr., Suite 204 Round Rock, TX 78664 (512) 904-9441 (512) 904-9445 Fax cary@boveycochran.com
CROSSTRAILS:	Crosstrails Development, LLC. 5917 Wild Horse Run, College Station, TX 77845 (832) 585 4140 brandon@crosstrailslandco.com
Copy to:	_____ _____ _____ _____

Either CITY or CROSSTRAILS may change its mailing address at any time by giving written notice of such change to the other in the manner provided herein at least ten (10) days prior to the date such change is effected. All notices under this Agreement will be deemed given on the earlier of the date personal delivery is affected or on the delivery date or attempted delivery date shown on the return receipt or facsimile confirmation.

12.17. Covenants Running with the Land. The conditions and covenants set forth in this Agreement and incorporated herein by the Exhibits shall run with the land and the benefits and burdens shall bind and inure to the benefit of the parties. CROSSTRAILS and every purchaser, assignee or transferee of an interest in the Land, or any portion thereof, shall be obligated and bound by the terms and conditions of this Agreement, and shall be the beneficiary thereof and a party thereto, but only with respect to the Land, or such portion thereof, sold, assigned or transferred to it. Any such purchaser, assignee or transferee shall observe and fully perform all of the duties and obligations of CROSSTRAILS contained in this Agreement, as such duties and obligations pertain to the portion of the Subject Property sold, assigned or transferred to it. After valid execution of this Agreement by the Parties, CROSSTRAILS shall record this Agreement and all exhibits hereto in the real property records of Grimes County, Texas.

12.18 Exhibits. The following exhibits are attached to this Agreement, and made a part hereof for all purposes:

Exhibit A	-	Metes and Bounds Description of the Land
Exhibit B	-	Cost Estimate for Infrastructure Improvements

IN WITNESS WHEREOF, the undersigned Parties have executed this Agreement on the dates indicated below, to be effective on the date the last party signs.

**CITY OF NAVASOTA**

By: \_\_\_\_\_  
Hon. William A. Miller, III, Mayor

Date: \_\_\_\_\_

**STATE OF TEXAS**       §  
                                     §  
**COUNTY OF GRIMES**   §

This instrument was acknowledged before me on the \_\_\_\_\_ day of \_\_\_\_\_, 2024, by William A. Miller, III, the Mayor of the City of Navasota, a Texas home-rule city, on behalf of the City.

\_\_\_\_\_  
Notary Public in and for the State of Texas

(NOTARY SEAL)

**CROSSTRAILS DEVELOPMENT, LIMITED  
LIABILITY COMPANY.**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

**STATE OF TEXAS**       §  
                                  §  
**COUNTY OF** \_\_\_\_\_ §

This instrument was acknowledged before me on the \_\_\_\_ day of \_\_\_\_\_, 2024,  
by Brandon J. Goodyk, \_\_\_\_\_ of Crosstrails Development, Limited Liability Company, a  
Texas Limited Liability Company on behalf of said company.

\_\_\_\_\_  
Notary Public in and for the State of Texas

(NOTARY SEAL)

**EXHIBIT A**

Metes and Bounds Description of the Land

**EXHIBIT B**

Cost Estimate for Infrastructure Improvements

**EXHIBIT C**

Map of homes constructed with a minimum of 3 sided brick.

**METES AND BOUNDS DESCRIPTION**  
**of a**  
**35.130 Acre Tract**  
**Daniel Tyler Survey, A-55, Grimes County, Texas**  
**April 26, 2022**

All that certain tract or parcel of land lying and being situated in Grimes County, Texas, out of the Daniel Tyler Survey, Abstract No. 55, being a part of a called 42.381 acre tract as described in a General Warranty Deed from J & H Navasota Development, LLC to PWP Land Co., LLC, dated March 29, 2021, of record in Document No. 2021-315007 of the Real Property Records of Grimes County, Texas and more fully described by metes and bounds as follows:

**COMMENCING** at a Point for the Northeast corner of the called 42.381 acre tract mentioned above, the Northwest corner of a called 2.01 acre tract as described in a Deed to Ralph Torres, Jr. (1327/814) and same being in the Southeast ROW of State Highway 105 (120 ft. ROW) from which a found 3/8 inch iron rod, at the Northerly base of a 10 inch treated fence corner post, brs. S 02°52'43" E, 0.14 ft. and a found broken concrete ROW monument brs. N 66°07'26" E, 689.24 ft.;

THENCE S 02°52'43" E, 267.78 ft., along a portion of the generally fenced and West line of said 2.01 acre Torres tract (1327/814) and a portion of an East line of the called 42.381 acre tract mentioned above to a 5/8 inch iron rod set for the Northerly Northeast corner and **TRUE PLACE OF BEGINNING** of the tract of land herein described;

THENCE S 02°52'43" E, 737.11 ft., along a portion of the generally fenced and West line of said 2.01 acre Torres tract (1327/814), the West line of a called 0.60 acre tract as described in a Deed to Ralph Torres, Jr. (1363/535), the West line of a called 2.87 acre tract as described in a Deed to Anthony J. Cunneen, et ux (Doc #: 2022-322382) and a portion of an East line of the called 42.381 acre tract mentioned above to a found 3/8 inch iron rod, at the Northwest base of an 8 inch treated fence corner post, for an interior corner thereof and the Southwest corner of said 2.87 acre Cunneen tract;

THENCE N 86°57'58" E, 208.56 ft., along the generally fenced and South line of said 2.87 acre Cunneen tract (Doc #: 2022-322382) and a North line of the called 42.381 acre tract mentioned above to a Point for a Northeast corner thereof, the Southeast corner of said 2.87 acre tract and same being in the West line of Lot 2, Block 1, Fly Away Field (Plat – 2020-308796), from which a found disturbed 3/8 inch iron rod, in concrete at the Easterly base of an 8 inch treated fence corner post, brs. S 67°22'21" E, 0.23 ft.;

THENCE S 02°50'55" E, 217.35 ft., along a portion of the generally fenced and West line of Lot 2, Block 1, Fly Away Field, the generally fenced and West line of Lot 3 as described in a Deed to Leonard Firth, et al (2020-309530) and an East line of the called 42.381 acre tract mentioned above to a Point for a Southeast corner thereof, the Southwest corner of Lot 3 and same being in the North line of a called 8.00 acre tract as described in a Deed to Christy Curry Garcia (1230/160), from which a found disturbed 3/8 inch iron rod, in concrete and at the Westerly base of an 8 inch treated fence corner post, brs. N 55°00'32" E, 1.32 ft.;

THENCE S 86°59'53" W, 309.23 ft., along a portion of the generally fenced and North line of said 8.00 acre Garcia tract (1230/160) and a South line of the called 42.381 acre tract mentioned above to a found ½ inch iron rod, in concrete and at the Northwest base of an 8 inch treated fence corner post, for an interior corner thereof and the Northwest corner of said 8.00 acre Garcia tract;

THENCE S 03°03'00" E, 406.48 ft., along a portion of the generally fenced and West line of said 8.00 acre Garcia tract (1230/160) and an East line of the called 42.381 acre tract mentioned above to a found ½ inch iron rod, at the Northeast base of a 10 inch treated fence corner post, for the Southerly Southeast corner thereof and a Northeast corner of Pecan Lake Estates, Phase 2 (Plat – 295779);

THENCE S 87°14'15" W, along a generally fenced and South line of the called 42.381 acre tract mentioned above, a North line of Pecan Lakes Estates, Phase 2 and **PASSING** at 1,060.67 ft. a found 5/8 inch iron rod in concrete and projecting 6 inch, for the Northwest corner thereof, the Northerly Northeast corner of Pecan Lakes Estates, Phase 3, Section 1 (Plat – 309888) and continuing along a generally fenced and North line thereof for a **TOTAL DISTANCE** of 1,352.58 ft. to a set 5/8 inch iron rod for the Southwest corner of the tract of land herein described, the Southeast corner of a called 1.567 acre tract as described in a Deed to J & H Development, LLC (Doc #: 2020-305736) and same being a Northeast corner of Pecan Lakes Drive;

THENCE N 04°14'38" W, 664.40 ft., along a portion of the East line of said 1.567 acre J & H Navasota Development tract (Doc #: 2020-305736) and a West line of the called 42.381 acre tract mentioned above to a found 5/8 inch iron rod for the Westerly Northwest corner thereof and the Southwest corner of a called 3.000 acre tract as described in a Deed to K2C Investments, LLC (Doc #: 2021-315090);

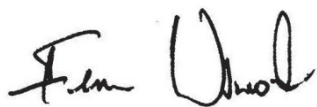
THENCE N 85°45'22" E, 292.17 ft., along the South line of said 3.000 acre K2C Investments, LLC tract (Doc #: 2021-315090) and a North line of the called 42.381 acre tract mentioned above to a found 5/8 inch iron rod for an interior corner thereof and the Southeast corner of said 3.000 acre tract;

THENCE N 04°12'47" W, 249.10 ft., along a partly fenced and East line of said 3.000 acre K2C Investments, LLC tract Doc #: 2021-315090) and a portion of a West line of the called 42.381 acre tract mentioned above to a set 5/8 inch iron rod for the Northerly Northwest corner of the tract of land herein described;

THENCE crossing over a portion of the called 42.381 acre tract mentioned above and along the Northerly lines of the tract of land herein described as follows:

- 1) N 70°43'41" E, 179.96 ft., to a set 5/8 inch iron rod and
- 2) N 66°07'26" E, 1,080.81 ft., to the **TRUE PLACE OF BEGINNING** and containing 35.130 acres of land.

BASIS OF BEARINGS & DISTANCES: Grid North, State Plane Coordinate System of 1983, Central Zone, Leica RTK Network. All distances and areas are grid and can be converted to surface by dividing by a combined scale factor of 0.0.999 936 954 38.



Steven M. Wisnoski      April 26, 2022  
Registered Professional Land Surveyor  
State of Texas No. 6006  
Job #: 2021-03-17-04





Scale: 1" = 200'  
Basis of Bearings & Distances  
Grid North, State Plane Coordinate System of  
1983, Central Zone, Leica RTK Network

STATE HIGHWAY 105

Point Of Commencement  
(Fd)  $\frac{3}{8}$ " IR brs  
S02°52'43"E, 0.14'

- NOTES:
- 1) All Deed references are of the Real Property Records of Grimes County, Texas.
  - 2) This survey is only valid if originally signed and embossed by the surveyor. Declaration is made to the original purchaser of this survey, Crosstrails Land Company, LLC. It is not transferable to additional institutions or subsequent owners.
  - 3) © 2022 by Wisnoski Land Surveying LLC. All Rights Reserved.
  - 4) The subject tract does not appear to be located within Zone "A" of FEMA's FIRM No. 48185C 0430C with an effective date of April 3, 2012.
  - 5) All distances & areas are grid and can be converted to surface by dividing by a combined scale factor of 0.999 936 954 38.
  - 6) Prepared in conjunction with University Title Co. commitment GF#: F220668.

The following easements do not appear to affect the subject tract:  
A) The City of Navasota's Clear Zone Easement (462-612, 707-55).  
B) The City of Navasota's 60 ft. non-exclusive access easement (941-843).  
C) Entergy Gulf States, Inc. (1006-316).

Situated in Grimes County, Texas, out of the Daniel Tyler Survey, Abstract No. 55 & being a part of a called 42.381 acre tract as described in a General Warranty Deed from J & H Navasota Development, LLC to PWP Land Co., LLC, dated March 29, 2021, of record in Document No. 2021-315007 of the Real Property Records of Grimes County, Texas.

35.130 Acres

LEGEND

- Concrete
- Septic Sprayers
- Water Well
- Water Meter
- Buried Propane Tank
- Propane Tank
- Electric Meter
- Tele-Fiber Box
- Guy Wire
- Power Pole
- Aerial Electric Line
- Fence
- B.L. Building Line
- U.E. Utility Easement

Called 1.567 Acres  
J&H Navasota  
Development, LLC  
(Doc #: 2020-305736)

Called 9.9 Acres  
Charles Greenwood  
(1061-421)

(Fd)  $\frac{5}{8}$ " IR  
Restricted Reserve "A"

(Fd)  $\frac{5}{8}$ " IR  
Restricted Reserve "B"

(Fd)  $\frac{5}{8}$ " IR  
Restricted Reserve "C"

PECAN LAKES ESTATES PHASE 2  
(Plat - 295779)

PECAN LAKES ESTATES PHASE 3  
SECTION 1  
(Plat - 309888)

Called 8.00 acres  
Christy Curry Garcia  
(1230-160)

Client: Crosstrails Land Company, LLC

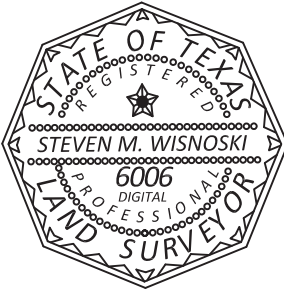
I, Steven M. Wisnoski, Registered Professional Land Surveyor No. 6006 of the State of Texas do hereby certify that this plat represents an on the ground survey made under my personal and direct supervision.

Steven M. Wisnoski  
R.P.L.S. 6006

Date: April 26, 2022

Job #:  
2021-03-17-04

Wisnoski Land Surveying LLC  
PO Box 1744  
Navasota, Texas 77868  
936-870-7100  
TBPELS Firm #: 10085300 ©





# BID PROPOSAL

Project: Phase 1 - Pecan Grove, Navasota Rev 8

Documents used: Preliminary Plans by MBC Management dated 7-17-23, Entergy Plans dated 6-2-23, Lift Station Plans dated January 2024

ITEM #	DESCRIPTION	QTY	UNIT	UNIT PRICE	SUBTOTAL
<b>LIFT STATION</b>					
1	Lift Station Engineering Design & Submittal to TCEQ	1	LS	\$ 25,000.00	\$ 25,000.00
2	Tie Into Existing Gas Line on Eagle View Drive	1	EA	\$ 5,000.00	\$ 5,000.00
3	1" Poly Gas Line to Lift Station	225	LF	\$ 25.00	\$ 5,625.00
4	1" Slick Bore for Gas Line Across Eagle View Drive	50	LF	\$ 40.00	\$ 2,000.00
5	Duplex Converter Pump and Panel Upgrade w/Installation for Lift Station - <a href="#">by Hahn Equipment</a>	1	LS	\$ 42,500.00	\$ 42,500.00
6	Natural Gas Emergency Backup Generator w/Installation - <a href="#">by Loftin</a>	1	LS	\$ 75,000.00	\$ 75,000.00
7	Concrete Foundation for Natural Gas Generator	1	LS	\$ 3,500.00	\$ 3,500.00
8	Remove and Replace Existing Fence as Required	50	LF	\$ 22.00	\$ 1,100.00
9	14"x3/8" Steel Casing by <a href="#">Wet Bore</a>	90	LF	\$ 225.00	\$ 20,250.00
10	Core 6" Force Main Into Existing Manhole	1	EA	\$ 3,000.00	\$ 3,000.00
11	3500 psi Water Blast and Coat w/ Raven 405-120 Mills	1	EA	\$ 7,500.00	\$ 7,500.00
12	6" Force Main ASTM D2241 SDR26 PR160 PVC	360	LF	\$ 50.00	\$ 18,000.00
13	6" MJ 45 Bend	2	EA	\$ 600.00	\$ 1,200.00
14	Hydroseeding Disturbed Areas	1	LS	\$ 1,500.00	\$ 1,500.00
15	Contingency for Lift Station Upgrades - <a href="#">For Field Unknowns or Material Increases Only</a>	1	LS	\$ 17,500.00	\$ 17,500.00
16	Repair Existing Manhole ( <a href="#">Alt Option 1</a> - 3500 psi Water Blast w/Raven 760 - 1/4" and Raven 405 - 120 Mills)	1	EA	\$ 13,000.00	\$ 13,000.00



17	Repair Existing Manhole (Alt Option 2 - 3500 psi Water Blast w/Raven 405 - 250 Mills)	1	EA	\$ 9,000.00	\$ 9,000.00
<b>LIFT STATION SUBTOTAL</b>					<b>\$ 250,675.00</b>

Here at Terra Bella Construction we understand that unexpected change orders are a grievance, we believe that transparency builds trust, and we strive for peace of mind and long-term relationships; so please take a moment to review the bid notes and exclusions below and let us know if there are any questions.

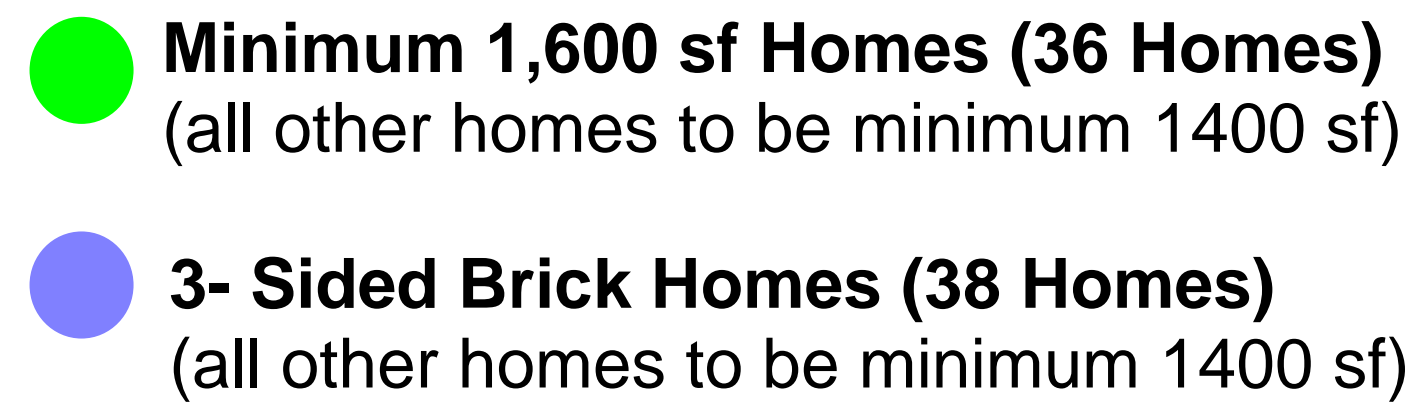
#### BID NOTES

- Due to the material volatility at the moment, material bid is only valid for 30 days.
- All subgrade/wet weather remediation will be charged separately.
- Terra Bella Construction not responsible for discrepancies between plan sets.
- Pricing assuming use of construction water from an onsite source.
- Sleeves or installation of other utilities or construction items may be included in bid at an additional cost at client's request and at the discretion of Terra Bella Construction.

#### EXCLUSIONS

- Anything not specifically listed in this proposal.
- Payment/Performance/Maintenance bonding requirements.
- Additional insurance to Terra Bella Construction's current limits.
- Construction materials testing.
- SWPPP/erosion control maintenance.
- As-built survey or other suveys done by an engineering/surveying firm.
- Permits required.
- For underground bore: wellpoints, locate and expose utilites under roadways, sawcut concrete/asphalt, remove/relocate existing utilities.
- Sleeves for other utilities (unless included in bid).
- Demolition/relocation/removal/disposal of above ground and underground utilities, structures, and pavement not specifically listed in proposal or not shown in documents provided.
- Importing construction water from offsite source.
- Rock, sandstone or similar ground material encountered (additional charges apply)
- Bypass pumping of sanitary sewage flow between manholes for proposed manhole install at existing lines.
- Traffic control (unless included in bid).
- Telecommunications conduit (plans not provided).





PROPOSED SITE PLAN  
SCALE: 1:100

NO.		REVISIONS		DATE	BY	DRAFTING SGH	DESIGN PEM	MANAGEMENT		FAX (908) 623-1624
						DATE		PROPOSED SITE PLAN		APPROVED:
						SCALE				DRAWING NO.
						AS SHOWN				C3

PROPOSED SITE  
PLAN





## REQUEST FOR CITY COUNCIL AGENDA ITEM # 11.

Agenda Date Requested	05/28/2024
Requested By	Lupe Diosdado, Development Services Director
Department	Development Services
Type	Report

---

### Agenda Item

Consideration and possible action approving a Cisco Collaboration Flex Plan Contract with DataVox, upgrading the City Hall Phone System, in the amount of \$55,406.13. [Lupe Diosdado, Development Services Director]

### Summary & Recommendation

During the March 18th City Council budget workshop, staff discussed the need to upgrade City Hall's 12-year-old phone system. Subsequently, the phone system experienced an outage that rendered voicemail features unavailable. Staff were only able to restore phone call functionality due to the age of the system. The attached proposal migrates the City Hall's phone system to Webex Calling, Cisco's latest cloud phone system solution. The proposal is only for the City Hall facility. Staff will work on migrating other city facilities to this system in future budget years. Webex includes the latest telephony features such as digital voicemail and soft phone applications that can be installed on users' computers and city-provided cell phones. The proposed upgrade includes a new on-premise call manager for the Navasota Police Department. Due to FBI call recording regulations, NPD dispatch phones cannot be located on the Webex cloud.

Phone System Upgrade Breakdown:

Cisco Licensing, New Deskphones, and Local Equipment upgrades for PD and Fax Lines - **\$35,338.78**

Datavox Professional Migration Services Fees - **\$20,067.35**

**Total: \$55,406.13**

Yearly reoccurring licensing costs for Cisco Cloud Webex: **\$12,737.75**

For the current fiscal year 2023-2024, City Council budgeted \$94,320 to upgrade the City's financial, accounting, and utility billing software from Incode version 9 to Incode 10. Due to an upgrade backlog/waitlist by Tyler Technologies, those funds will not be spent this fiscal year. Due to the immediate need to address telephone services, staff will utilize a portion of those unspent funds to purchase the proposed phone system upgrade, and request the difference in next year's proposed budget to fund Incode 10. Therefore, staff recommends City Council approve the Cisco Collaboration Flex Plan Contract with DataVox for the replacement telephone system at City Hall in the amount of \$55,406.13.

### Action Requested by Council

**Approve or deny the Cisco Collaboration Flex Plan Contract with DataVox in the amount of \$55,406.13.**

---

**Fiscal Impact**

**Source of Funds:** Unspent Incode 10 Funds  
**Account Number:** 100-596-910.00  
**Amount Budgeted:** \$94,320  
**Amount Requested:** \$55,406.13  
**Budgeted Item Y/N?:** N

---

**Attachments**

Contract

# Cisco Webex Cloud Calling

## Scope of Work

Prepared for: City of Navasota

Presented on: 5/20/2024

Version

Quote # DVXQ29118-03





Quote # DVXQ29118-03

## City of Navasota Cisco Webex Cloud Calling SOW

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### Revision History

Revision	Date	Name	Description of Change
Version 1	April 15, 2024	Brett Hodgden	Initial Version
Version 1.1	May 7, 2024	Brett Hodgden	Add CME Deployment
Version 1.2	May 20, 2024	Brett Hodgden	Adjusted Handset Type and Quantities

SOW Expires 30 Days from Date of Submittal

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Version SoW

5/20/2024

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## City of Navasota Cisco Webex Cloud Calling SOW

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### Contents

<b>1.0 Executive Summary</b>	<b>5</b>
1.1 Solution Summary	5
1.2 Primary Project Contacts	5
<b>2.0 DataVox In-Scope Services</b>	<b>5</b>
2.1 Project Initiation and Planning Phase	5
2.1.1 Webex Calling Initiation	5
2.1.2 Coordinate with Additional Vendor stakeholders	6
2.2 Project Execution Phase	6
2.2.1 Webex Calling	6
2.2.2 Setup Analog Gateway	6
2.2.3 Setup Enhanced Emergency Dialing	6
2.2.4 Communication Manager Express (CME)	6
2.3 Project Knowledge Transfer and Closing Phase	7
2.3.1 Webex Calling Training	7
2.3.2 Webex Calling Closing	7
2.4 Project Deliverables	7
<b>3.0 Project Management Services</b>	<b>7</b>
<b>4.0 Out-of-Scope Services</b>	<b>8</b>
<b>5.0 Assumptions and Responsibilities</b>	<b>10</b>
5.1 DataVox Assumptions	10
5.2 Customer Responsibilities	11
5.3 DataVox Responsibilities	12
<b>6.0 Completion Criteria</b>	<b>13</b>
6.1 Deliverables Acceptance	13
<b>7.0 Pricing and Payment Information</b>	<b>13</b>
7.1 Professional Services	13
7.2 Project Summary Pricing	13
7.3 Project Invoicing	14
<b>8.0 Change Management Process</b>	<b>14</b>

SOW Expires 30 Days from Date of Submittal



Quote # DVXQ29118-03

**City of Navasota Cisco Webex Cloud Calling SOW**

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<b>9.0 Termination</b>	<b>14</b>
<b>10.0 Terms and Conditions</b>	<b>14</b>
<b>11.0 Notices</b>	<b>14</b>

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5/20/2024

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## City of Navasota Cisco Webex Cloud Calling SOW

### 1.0 Executive Summary

DataVox will provide City of Navasota with professional services and licensing to migrate the existing on-premise Cisco Voice solution to the Cisco WebEx Calling cloud solution, along with a Communication Manager Express to accommodate the dispatchers, leveraging the existing call recording solution in place today.

#### 1.1 Solution Summary

This solution will bring City of Navasota up to latest Cisco WebEx Phone system with a full upgrade for all users, in addition to e911 and call recording solutions.

#### 1.2 Primary Project Contacts

The table lists the primary DataVox and City of Navasota contacts for this project.

DataVox		City of Navasota	
Name/Role	Contact Information	Name/Role	Contact Information
Casey Bryant / <b>Account Manager</b>	<b>Phone:</b> 713-881-7409 <b>Email:</b> caseyb@datavox.net	Hung Mai	<b>Phone:</b> 936-825-6408 <b>Email:</b> hmai@navasotatx.gov

### 2.0 DataVox In-Scope Services

This Scope of Work ("SOW") defines the services that DataVox will provide City of Navasota and the pricing for these services. DataVox has developed an initial architecture plan and design from the scoping discussions with City of Navasota. This Section lists the in-scope services that DataVox will provide City of Navasota at the following locations:

Location	Address
City of Navasota	Remote Implementation

#### 2.1 Project Initiation and Planning Phase

##### 2.1.1 Webex Calling Initiation

- Provision Webex Control Hub with Webex Calling basic settings and assign licenses to appropriate location
- Provide Voice VLAN network programming recommendations
- Provide firewall port requirements for IP Phone signaling and media

SOW Expires 30 Days from Date of Submittal

## **City of Navasota Cisco Webex Cloud Calling SOW**

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### **2.1.2 Coordinate with Additional Vendor stakeholders**

- Coordinate with Cisco Setup Assist for Webex Calling core implementation
- Coordinate with Dubber for Call Recording implementation

## **2.2 Project Execution Phase**

### **2.2.1 Webex Calling**

Work with Webex Setup Assist to perform the following

- Configure Webex Calling Dial Plan for Site
- Work with City of Navasota to assist in Import of DID telephone numbers provided Webex Control Hub and assign to the appropriate Location
- Program (75) user profiles in Webex Control Hub with appropriate licensing, telephony information, and designated roles/privileges
- Create model-specific IP Phone for user with registration by pre-determined MAC Address or 16-digit Activation Code
- Program (8) Workspace profiles in Webex Control Hub with appropriate licensing, and telephony information
- Create model-specific IP Phone for workspace with registration by pre-determined MAC Address or 16-digit Activation Code
- Configure Call Queue membership and call routing settings
- Configure Site Auto Attendant as required by Webex Calling with desired menu structure
- Configure Group Paging Membership
- Program Emergency Notification contact per location
- Customer shall perform 933 test to ensure appropriate internal notification received
- Program Webex Calling Trunk for connectivity and extension dialing to CME

### **2.2.2 Setup Analog Gateway**

- Program (1) VG400 Analog Gateway

### **2.2.3 Setup Enhanced Emergency Dialing**

- Program (6) City of Navasota provided Emergency Response Locations in RedSky E911 Portal
- Work with City of Navasota to enable and configure Enhanced Emergency Dialing for up to (6) Locations
- Program up to (3) wire map entries, per location, such as: Voice/Data IP Subnet, or access point BSSID

### **2.2.4 Communication Manager Express (CME)**

- Design and setup Cisco Unified Communications Manager Express (CME) per best practices
- Design dial-plan with extension dialing to Webex Calling via Webex "Local Gateway"
- Program, test, and deploy (2) analog trunks on CME at City of Navasota's site

SOW Expires 30 Days from Date of Submittal

## City of Navasota Cisco Webex Cloud Calling SOW

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- Program Cisco Unified Border Element (CUBE) functionality on CME to act as Webex “Local Gateway” for extension dialing to Webex Calling
- Program up to (5) phones in CME database per data provided by City of Navasota
- 
- Cut-over non-emergency Dispatch IP Phones to CME on a weekday, after-hours in (1) stage
- Weekday in-service support after CME cutover

### 2.3 Project Knowledge Transfer and Closing Phase

#### 2.3.1 Webex Calling Training

Provide details to access online training materials and guides for Users and Administrators

#### 2.3.2 Webex Calling Closing

Virtual administrator training class

Prepare project closing documentation

### 2.4 Project Deliverables

Each in-scope phase has specific deliverables attached.

As part of this SOW the following deliverables will be developed throughout the project with the involvement of City of Navasota's IT team.

- **Project Initiation and Planning** – This includes the project timeline.
- **Project Execution** – This includes results of the system testing.
- **Project Knowledge Transfer and Closing** – This includes applicable project wrap-up documentation such as: as-built files, configuration files, and administration and maintenance guides.
- End-user training guide
- DID Inventory and assignment
- IP Phone Inventory and assignment

#### NOTES:

- Custom documents and runbooks are outside this scope of work.
- Documentation not explicitly listed in this SOW can be provided at additional cost.
- All documents will be delivered electronically. It is Customer's responsibility to make the necessary print copies.

## 3.0 Project Management Services

This Section describes DataVox Project Management Services. DataVox follows the Project Management Institute (PMI) project management methodology, condensed into the following phases for the simplicity of presentation of phases in this SOW:

- Project Initiation and Planning
- Project Execution

SOW Expires 30 Days from Date of Submittal

## City of Navasota Cisco Webex Cloud Calling SOW

- Project Knowledge Transfer and Closing

DataVox offers three (3) Project Management Packages: Basic, Enhanced, and Premium. The following table lists the Project Management Package that DataVox will provide.

Project Management Package		Description
X	Basic	<ul style="list-style-type: none"><li>• Notification of resource assignment and scheduling.</li><li>• Provide equipment tracking and delivery notifications.</li><li>• Provide documentation and project sign-off.</li></ul>
	Enhanced	<ul style="list-style-type: none"><li>• Facilitate Kickoff Meeting.</li><li>• Facilitate Technical Discovery Meeting(s).</li><li>• Project planning using Microsoft Project.</li><li>• Ongoing project tracking and progress reporting.</li><li>• Provide documentation in a Project Wrap-Up Meeting.</li></ul>
	Premium	<ul style="list-style-type: none"><li>• Facilitate Kickoff Meeting.</li><li>• Facilitate Technical Discovery Meeting(s).</li><li>• Project planning using Microsoft Project.</li><li>• Ongoing project tracking and progress reporting.</li><li>• Provide a Communication and Implementation Plan.</li><li>• Risk and issues planning.</li><li>• Provide a Test Plan.</li><li>• Provide documentation and review lessons learned in a Project Wrap-Up Meeting.</li></ul>

As part of the project management process, DataVox will assign a business team to the project soon after official project award. At a minimum, the project team will include an Account Manager, Lead Systems Engineer, Project Manager, and Solution Architect. The Project Manager will incorporate additional resources in the project as required by the project.

All personnel will have the requisite skills necessary to fulfill the project scope. DataVox strives to keep the same project team intact throughout the project but reserves the right to make changes to the team as necessary. DataVox will notify the Customer of any changes made to the project resources.

## 4.0 Out-of-Scope Services

Changes to the initial agreed upon parameters are referred to as “out-of-scope.” Out-of-scope items require a written and signed Change Order to be processed and may be subject to additional charges. For more information regarding change orders, please refer to Section 10.0.

**NOTE:** There may be extenuating circumstances, which may arise during the project cutover, that require immediate action by the DataVox project team. In such circumstances, DataVox will make every effort to identify and discuss such out-of-scope items and obtain Customer approval, but in the event this is not possible, Customer agrees and acknowledges to sign off on any reasonable additions in a subsequent Change Order.

SOW Expires 30 Days from Date of Submittal

## City of Navasota Cisco Webex Cloud Calling SOW

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Any service that is not explicitly listed as “In-Scope”, is considered to be out-of-scope for this engagement and includes but is not limited to:

- ⊗ Site inspection activities such as a comprehensive analysis of Customer facility’s power, cooling humidity, airborne contaminant, vibration levels, and determination of whether the data center’s raised floor has sufficient structural capability to accommodate the weight of newly installed equipment.
- ⊗ Environmental compliance or site preparation.
- ⊗ Application integration or integration of third-party products or peripherals not included with the provided project bill of materials.
- ⊗ Assembly of racks or other computer room site preparation.
- ⊗ Any configuration of City of Navasota’s existing equipment, unless specifically stated in the In-Scope section of this document.
- ⊗ Manage the process of coordination with the Customer’s telecommunications service provider to order services or make changes to existing services.
- ⊗ Training classes not listed in this SOW.
- ⊗ Documentation not listed in this SOW.
- ⊗ Network configuration
- ⊗ Ordering circuits or managing orders from providers for data or voice
- ⊗ Troubleshooting manufacturer bugs that are not system critical (business severely impacted)
- ⊗ System testing beyond the DataVox standard testing and deployment methods described in this SOW (for example, additional tests and cut-overs)
- ⊗ Issues with provider equipment or service (for example, data or voice)
- ⊗ The configuration necessary on the customer’s mail server in order for the solution to work properly
- ⊗ On-site build and deployment of equipment (including, but not limited to, CUBE/Analog Gateways and IP Phones)
- ⊗ End-User or Administrator training
- ⊗ Existing dial-plan optimization
- ⊗ +E164 Dial-Plan optimization
- ⊗ Configuration of Advanced E911 Services provided by RedSky for more granular and Nomadic E911 capabilities (beyond what is included in the SoW)
- ⊗ Perform rack/stack and configure basic network connectivity and IP addressing for analog gateways
- ⊗ Update network DHCP Scope options for IP Phone registration at cut-over
- ⊗ Programming the network and firewall environment to support Local Gateway and IP Phone signaling and media traffic
- ⊗ Populate user database with feature requirements, extension, telephone number, and IP Phone Model required
- ⊗ Complete location mapping template with IP Address or subnet, emergency location, access point BSSID, switches, MAC Address, user list, trusted public and private IP ranges for Enhanced Emergency Dialing programming
- ⊗ Scheduling and Performing E911 testing
- ⊗ Remediation required for Enhanced E911 support on City of Navasota's network
- ⊗ Multiple cut-over phases
- ⊗ Migration of current voicemail messages or greetings

SOW Expires 30 Days from Date of Submittal

## City of Navasota Cisco Webex Cloud Calling SOW

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- ⊗ Migration of on-premise registered video systems
- ⊗ Configuration of 3<sup>rd</sup> Party SIP Devices (including, but not limited to, Voice/Video Doorbell/Intercoms, Conference Room Audio Systems)
- ⊗ Implementation or Upgrade of Call Accounting, Call Recording, or IP Faxing systems
- ⊗ Programming required on network or Call recording system for network SPAN recording

**IMPORTANT:** Miscellaneous items may be required for completion during project execution (e.g., copper or fiber patch cables, power cords, and optics.) If miscellaneous items are required beyond what is included in the Bill of Materials, these items will be provided by Customer or the items can be purchased from DataVox following the standard change management process.

## 5.0 Assumptions and Responsibilities

### 5.1 DataVox Assumptions

This section lists the project assumptions:

- DataVox will be given remote VPN access to City of Navasotas network for the duration of this SOW.
- DataVox will be given access to City of Navasota's network while onsite from a DataVox provided laptop.
- UPS systems, network racks and high voltage electrical work are to be provided by third parties unless explicitly stated in Section 2.0.
- DataVox assumes no responsibility for the configuration of the Customer's existing infrastructure environments. DataVox will provide design recommendations consistent with those used to configure the infrastructure listed in the Bill of Materials for this SOW, however, it is Customer's responsibility to configure and troubleshoot their existing infrastructure in order for the solution to work properly using the provided design recommendations.
  - **IMPORTANT:** Network consulting services to implement existing infrastructure design recommendations are available. These services are considered billable and outside the scope of work.
- Unless agreed to in advance and explicitly stated in this SOW, Cutovers at each site will be flash cutovers (i.e. not a phased cutover) performed during weekday afterhours (after 5:00 PM CST) unless otherwise detailed within this SOW.
- If the project requires manufacturer entitlement for technical support services or software update/upgrade licensing, it is City of Navasota's responsibility to provide the necessary vendor contract information and access to the DataVox project team.

SOW Expires 30 Days from Date of Submittal

## **City of Navasota Cisco Webex Cloud Calling SOW**

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- Customer will provide DataVox with uninterrupted and full access to the manufacturer/vendor licensing portal for the entire duration of the project. This access will include all necessary permissions and rights to fully utilize the portal's functions as needed for project completion.
- All licenses required for the project will be available on the portal and Customer will provide any necessary purchase orders or permissions to acquire additional licenses as needed.
- Customer will promptly address any issues related to the portal access, such as login problems, permission restrictions, or other technical difficulties, to ensure the smooth progress of the project.
- Any changes to the portal access, including changes in portal URLs, security settings, or administrative policies, will be communicated to DataVox by Customer immediately.
- Failure to comply with portal access requirements may result in project delays and additional labor hours for time spent troubleshooting Customer issues.
- City of Navasota is aware that Webex Calling is a cloud service delivered over the internet and that while sufficient bandwidth is required to facilitate calling, it does not guarantee call quality as the voice traffic traverses non-QoS enabled internet services and is not on an end-to-end private network
- The customer network will be programmed by the customer to facilitate Layer 3 discovery (Subnet mapping of the Voice VLAN) of the IP Phone by mapping the subnet to the ERL
- Layer 3 Discovery of IP Phones will utilize the IP Address of the phone to determine the assigned ERL of the phone to be used for the emergency call and notification

### **5.2 Customer Responsibilities**

- Participate in project meetings including, but not limited to: Kickoff, Design and Wrap-Up Meetings.
- Complete any necessary database information.
- Configure existing infrastructure using the provided design recommendations by DataVox, if recommended.
- Provide access to the network and existing customer documentation to facilitate project objectives.
- Provide access to Customer's technical team to collect information and answer questions about the current configuration and define any business requirements that will impact the configuration of any new equipment subject to this SOW.
- Provide any existing IP addressing and configuration standards used in the infrastructure.
- Approve the project plan.
- Provide adequate space, power, and cooling based on DataVox recommendations.
- Provide adequate storage of project equipment at the relevant installation sites.
- Provide adequate security of project equipment once delivered to the relevant installation site.
- Provide any necessary asset tagging.
- Provide adequate workspace for the DataVox project team while onsite at Customer's facility.
- Provide DataVox with uninterrupted and full access to the manufacturer/vendor licensing portal for the entire duration of the project. This access will include all necessary permissions and rights to fully utilize the portal's functions as needed for project completion.

SOW Expires 30 Days from Date of Submittal



## City of Navasota Cisco Webex Cloud Calling SOW

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- Submitting the list of DIDs to be migrated or for selecting new DID Ranges to be provided by the PSTN Provider
- Designate (1) direct-inward-dial (DID) telephone numbers, in addition to user and other service requirements, to be utilized for each Location's default Auto Attendant/Hunt Group
- Network preparation including providing sufficient internet bandwidth, provisioning Voice VLANs for IP Phones, providing PoE enabled network ports for IP Phones and programming of the network and security environment to allow IP Phones to communicate with the Webex Calling Cloud as required for signaling and media  
<[https://help.webex.com/en-us/b2exve/Port-Reference-Information-for-Cisco-Webex-Calling#id\\_101870](https://help.webex.com/en-us/b2exve/Port-Reference-Information-for-Cisco-Webex-Calling#id_101870)>
- Run CSCAN Assessment from Locations hosting IP Phones <<https://cscan.webex.com/>>
- Adhere to network programming recommendations
- Programming the network and firewall environment to support Local Gateway and IP Phone signaling and media traffic (including, but not limited to, QoS, DHCP, TFTP, firewall, proxy settings)
- Populate user database with feature requirements, extension, telephone number, and IP Phone Model required
- Complete location mapping template with IP Address or subnet, emergency location, access point BSSID, switches, MAC Address, user list, trusted public and private IP ranges for Enhanced Emergency Dialing programming
- Ensuring that the correct E911 address is programmed on the DID telephone numbers
- Customer shall perform 933 test to ensure appropriate internal notification received
- Performing E911 test calls with the Public Safety Answering Point (PSAP) to ensure E911 information is correct
- Perform rack/stack and configure basic network connectivity and IP addressing for analog gateways
- Ordering, provisioning, and delivery of all PSTN Circuits
- Providing required rack space, power, and infrastructure cabling for CME Gateway
- Any network programming required for RSPAN recording of CME registered IP Phones
- Update network DHCP Scope options for IP Phone registration at cut-over
- Participate in Migration and Test Plan execution
- Configuration of 3<sup>rd</sup> Party SIP Devices (including, but not limited to, Voice/Video Doorbell/Intercoms, Conference Room Audio Systems)
- Provide Voice VLAN Subnet Mapping and ERL information to DataVox for programming and assignment of DIDs to be used as ELINs assigned to the ERLs
- Network programming required to facilitate E911 deployment plan
- Scheduling and performing E911 testing with the appropriate Public Safety Answering Point (PSAP)

### 5.3 DataVox Responsibilities

- Participate in project meetings including, but not limited to: Kickoff, Design and Wrap-Up Meetings.
- Review physical requirements with Customer (e.g. power, space, cooling, and network).
- Provide Customer guidance in the completion of the necessary database information.

SOW Expires 30 Days from Date of Submittal





## City of Navasota Cisco Webex Cloud Calling SOW

- Completion of all in-scope services as defined in Section 2.0.

### 6.0 Completion Criteria

The services provided for within this SOW will be considered complete when:

- The services specified in **Section 2.0** are complete,
- The system testing is complete.
- Project deliverables are provided to Customer.

#### 6.1 Deliverables Acceptance

Unless multiple project milestones are designated within this SOW, upon project completion, DataVox will provide City of Navasota with a Delivery Acceptance Form that Customer shall sign and return to DataVox within ten (10) business days. If project milestones are created pursuant to this SOW, then a Delivery Acceptance Form will be required upon completion of each milestone. If Customer takes issue with the Delivery Acceptance Form, Customer shall inform DataVox within three (3) business days of receipt of the same. Customer acknowledges and agrees that if it fails to provide the signed or fails to provide its rejection within the above-stated timeframe, DataVox will assume that all deliverables are considered accepted and shall continue with the next relevant phase.

### 7.0 Pricing and Payment Information

The price to complete this engagement is based on the criteria and assumptions provided within this SOW.

Invoicing will occur according to the table below, subject to final credit approval.

#### 7.1 Professional Services

The professional services will be provided on a fixed cost basis based on the criteria and assumptions in this scope of work. Changes to the scope of the project or price of the services will follow the change management process specified in Section 8.0.

#### 7.2 Project Summary Pricing

This table provides a summary of the costs associated with the project based on the criteria and assumptions in this scope of work.

<b>SubTotal*</b>	\$55,406.13
<b>Tax</b>	\$0.00
<b>Shipping</b>	\$0.00
<b>Grand Total</b>	\$55,406.13
<b>Deposit Required</b>	\$22,162.45

<b>Annual Recurring SubTotal*</b>	\$12,737.75
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SOW Expires 30 Days from Date of Submittal



## City of Navasota Cisco Webex Cloud Calling SOW

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<b>Annual Recurring Total</b>	\$12,737.75
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\*Usage Based items will be billed monthly in arrears in addition to the above stated summary pricing. Cisco Telecommunication carrier taxes and fees are not outlined here and actual amount will be billed at time of invoice.

### 7.3 Project Invoicing

Project invoicing will occur as follows, subject to final credit approval:

- The deposit listed above will be billed upon the execution of this SOW and will be due immediately. The deposit must be received by DataVox prior to any project equipment being ordered and Kickoff Meeting.
- All equipment will be billed upon delivery to either DataVox's facility for staging or Customer's location.
- The remaining project balance will be progress-billed as services are completed and equipment is delivered.
- All invoices, other than the project deposit, are due net 30 days from invoice date.

### 8.0 Change Management Process

Either DataVox or the Customer may request a change to this SOW by executing a written change order signed by both DataVox and the Customer.

### 9.0 Termination

DataVox is committed to resolving any issues that Customer is experiencing with the equipment and services subject to this SOW.

Either party may terminate this Agreement for reasonable cause, after being afforded a thirty (30) day opportunity to cure.

If mutually agreed upon, both parties may terminate this Agreement for convenience at any time during the term of this Agreement. Customer shall be obligated to pay for any non-returnable equipment and services which have been rendered until such effective date of termination.

### 10.0 Terms and Conditions

The DataVox Standard Terms and Conditions shall govern the execution of this scope of work.

[https://www.datavox.net/DataVox Standard Terms and Conditions.pdf](https://www.datavox.net/DataVox%20Standard%20Terms%20and%20Conditions.pdf)

### 11.0 Notices

All notices required to be sent or given under this Agreement shall be sent in writing and shall be deemed duly given and effective (i) immediately, if delivered in person; (ii) the next business day, if delivered via electronic mail; (iii) if sent by registered mail, return receipt requested or first class postage

SOW Expires 30 Days from Date of Submittal



## **City of Navasota Cisco Webex Cloud Calling SOW**

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prepaid, two (2) business days after deposit in the mail; or (iv) if sent by internationally recognized overnight delivery service, one (1) business day after delivery to a recognized overnight delivery service. In each case, notice must be addressed to the party entitled to receive the same at the address specified below:

**If to Customer, then to:**

**Customer Name:** \_\_\_\_\_

**Attention:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**If to DataVox, then to**

**DataVox, Inc.**

**Attention: Greg Smith, Vice President of Sales**

**6650 W. Sam Houston Parkway S.**

**Houston, Texas 77072**

**Telephone: 713-881-7467**

**With a copy to:**

**Legal Department – DataVox**

**Attention: Anuja Deshpande, General Counsel**

**6650 W. Sam Houston Parkway S.**

**Houston, Texas 77072**

**Telephone: 713-881-7090**

**Email: [legalnotices@datavox.net](mailto:legalnotices@datavox.net)**

SOW Expires 30 Days from Date of Submittal



## City of Navasota Cisco Webex Cloud Calling SOW

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### Acceptance of Scope of Work

The use of signatures on this Scope of Work is to ensure agreement by City of Navasota on project objectives and the work to be performed by DataVox.

### Parties to Agreement

This Scope of Work (SOW) is made and entered into between DataVox, Inc., 6650 West Sam Houston Parkway South, Houston, Texas 77072 ("DataVox") and City of Navasota, 202 East Washington, Navasota, Texas 77868 ("Customer"), as of the date listed on the title page of this document.

### Terms

When (but only when) signed by Customer and an authorized representative of DataVox this shall be a binding, legal contract.

The prices, specifications, and conditions in this SOW are satisfactory, and are hereby accepted in their entirety. Customer hereby agrees to purchase the Equipment and authorizes DataVox to do the work, and provide the materials specified, and payment will be made as outlined in the Payment section of this document. The price quoted in this SOW is based upon the Equipment included in the attached Bill of Material. Any changes in the Equipment or installation may result in a change in the price. Any such change must be in writing and signed by all parties.

DataVox reserves the right to modify payment terms at any time based on a review of the Customer's credit.

THIS AGREEMENT, WHEN SIGNED BY BOTH PARTIES (BELOW), SHALL BE GOVERNED BY THE TERMS AND CONDITIONS SET FORTH IN THIS DOCUMENT. THE AGREEMENT IS INCORPORATED BY REFERENCE AS IF FULLY SET FORTH HEREIN. THERE ARE NO OTHER AGREEMENTS, OR WARRANTIES, ORAL OR WRITTEN, EXCEPT AS EXPRESSLY STATED IN THIS DOCUMENT. THIS AGREEMENT CANNOT BE MODIFIED EXCEPT IN WRITING AND SIGNED BY BOTH PARTIES.

Customer acknowledges having read and understood all of the terms and conditions specified in this SOW and acknowledges receipt of a complete executed copy of this SOW. Customer understands and agrees that this SOW and all of the terms and conditions hereof shall be a binding, enforceable contract when signed by Customer and by an authorized representative of DataVox.

SOW Expires 30 Days from Date of Submittal



Quote # DVXQ29118-03

## City of Navasota Cisco Webex Cloud Calling SOW

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### Approval Signatures

IN WITNESS WHEREOF, the duly authorized representatives of the parties hereto have caused this SOW to be duly executed.

#### DataVox, Inc.

By: \_\_\_\_\_  
(Signature)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

#### City of Navasota

By: \_\_\_\_\_  
(Signature)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: May 20, 2024 Technical validation provided by Brett Hodgden

Quote file name: DVXQ29118 Webex Calling

SOW Expires 30 Days from Date of Submittal

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Version SoW

5/20/2024

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6650 W. Sam Houston Pkwy S, Houston, TX 77072

t. (713)881-5300 [www.datavox.net](http://www.datavox.net)

**Quote #** DVXQ29118-03

**Date** May 20, 2024

**Expiration** 30 Days

**Prepared for:**

**City of Navasota**

202 East Washington  
Navasota, Texas 77868

Hung Mai

Email [hmai@navasotatx.gov](mailto:hmai@navasotatx.gov)

Phone 936-825-6408

**Customer ID #**

**Project #**

**Ship to Information:**

**City of Navasota**

202 East Washington  
Navasota, Texas 77868

attn: Hung Mai

Here is the quote you requested.

**DataVox Contact:**

Account Manager: Casey Bryant

Phone 713-881-7409

Email [caseyb@datavox.net](mailto:caseyb@datavox.net)

Prepared by: Brett Hodgden

Phone 713-881-7443

Email [bretth@datavox.net](mailto:bretth@datavox.net)



Contract Vehicle:

Texas DIR

DIR Vendor Number:

DataVox Texas DIR Vendor Number **176-025-1479-000**

DIR Contract Number:

**DIR-TSO-4167**

***This contract information must appear on the purchase order***

## Cisco Webex Cloud Calling

Part #	Description	Contract#	Service	Qty	Unit Price	Ext. Price
<b>Collaboration Flex for Webex Calling (3 Year Term - Paid Annually)</b>						
	<i>Annual Commitment</i>	DIR-TSO-4167				
A-FLEX-3	Collaboration Flex Plan 3.0	DIR-TSO-4167	---	1	\$0.00	\$0.00
SVS-FLEX-SUPT-BAS	Basic Support for Flex Plan	DIR-TSO-4167	---	83	\$0.00	\$0.00
A-FLEX-NUCL-P	NU Webex Calling Professional	DIR-TSO-4167	---	75	\$95.70	\$7,177.50
A-FLEX-NUCL-E	NU Webex Calling Workspace for Common Area	DIR-TSO-4167	---	8	\$57.45	\$459.60

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Part #	Description	Contract#	Service	Qty	Unit Price	Ext. Price
A-FLEX-WXAC-ADV	Webex Attendant Console	DIR-TSO-4167	---	1	\$594.75	\$594.75
A-AUD-OCP1-NU	Outbound Calling Plan - Named User	DIR-TSO-4167	---	83	\$42.00	\$3,486.00
A-FLEX-CALL-ASSIST	Cloud Calling Setup Assist	DIR-TSO-4167	---	83	\$10.00	\$830.00
A-FLEX-EP-CME	Communications Manager Express (CME)	DIR-TSO-4167		5	\$37.98	\$189.90
	<i>Usage Based - Billed Monthly in Arrears</i>	NA				
A-AUD-OCP1-U	Outbound Calling Plan- Uncommitted Usage Overage	NA	---		\$4.00	\$0.00
A-AUD-U-TN	Telephone number (TN) for Local Number- Uncommitted	NA	---		\$1.00	\$0.00
A-AUD-PSTN-INT	International Metered Calling for Local	NA	---			
A-AUD-U-TN-NL	Telephone number (TN) for Non Local Number- Uncommitted	NA	---		\$1.00	\$0.00
A-AUD-PSTN-INT-NL	International Metered Calling for Non Local	NA	---			
A-FLEX-ERC	Emergency Response Center Call fee per location search US	NA	---		\$43.00	\$0.00
	<i>Miscellaneous</i>	NA				
A-FLEX-C-PRO	Webex Calling Entitlement	DIR-TSO-4167	---	75	\$0.00	\$0.00
A-FLEX-CL-CA	Webex Calling Common Area Entitlement	DIR-TSO-4167	---	8	\$0.00	\$0.00
A-FLEX-LGW-CUBE	CUBE for Webex Calling (2)	DIR-TSO-4167	---	42	\$0.00	\$0.00
A-FLEX-P-CALL	Prem to Webex Calling / UCM Cloud	DIR-TSO-4167	---	83	\$0.00	\$0.00
A-FLEX-FILESTG-ENT	File Storage Entitlement	DIR-TSO-4167	---	1,500	\$0.00	\$0.00
A-FLEX-PROPACK-ENT	Pro Pack for Cisco Control Hub Entitlement	DIR-TSO-4167	---	75	\$0.00	\$0.00
A-FLEX-MSG-NU-ENT	Messaging Named User Entitlement (1)	DIR-TSO-4167	---	75	\$0.00	\$0.00
A-FLEX-WXAC-A-ENT	Webex Attendant Console Entitlement	DIR-TSO-4167	---	1	\$0.00	\$0.00
					<b>SubTotal</b>	<b>\$12,737.75</b>

### IP Phones

CP-6851-3PCC-K9=	Cisco 6851 Phone for MPP, Grey	DIR-TSO-4167	---	75	\$117.84	\$8,838.00
CP-68KEM-3PCC=	Cisco KEM for 6800 series MPP	DIR-TSO-4167		4	\$109.71	\$438.84
CP-6800-PWR-NA=	CISCO 6800 NA POWER ADAPTER	DIR-TSO-4167		4	\$28.95	\$115.80
CP-7832-3PCC-K9=	Cisco 7832 Conference Phone for MPP	DIR-TSO-4167		2	\$404.34	\$808.68
CP-8832-3PCC-K9	Cisco 8832 for North America, charcoal, with accessories	DIR-TSO-4167		1	\$698.79	\$698.79
CP-8832-POE	Cisco IP Conference Phone 8832 PoE Accessories for Worldwide	DIR-TSO-4167		1	\$0.00	\$0.00

Part #	Description	Contract#	Service	Qty	Unit Price	Ext. Price
CP-8851-K9=	Cisco IP Phone 8851	DIR-TSO-4167		3	\$392.45	\$1,177.35
CP-8800-A-KEM=	8800 Series Audio KEM, 28 Button	DIR-TSO-4167		2	\$375.79	\$751.58
CP-PWR-CUBE-4=	IP Phone power transformer for the 8800 phone series	DIR-TSO-4167		2	\$49.07	\$98.14
CP-PWR-CORD-NA=	Power Cord, North America	DIR-TSO-4167		2	\$6.51	\$13.02
					<b>SubTotal</b>	<b>\$12,940.20</b>

#### VG400 8-Port FXS Analog Gateway

VG400-8FXS	Cisco VG400 Analog Voice Gateway	DIR-TSO-4167	---	1	\$2,836.19	\$2,836.19
CON-SNT-VG4008X	SNTC-8X5XNBD Cisco VG400 Analog Voice Gateway	DIR-TSO-4167	12	1	\$335.76	\$335.76
FL-VG4XX-CC	Cloud Calling license for Cisco VG4xx Series	DIR-TSO-4167	---	1	\$248.41	\$248.41
SL-VG400-UC-K9	Unified Communication License for VG400 Series	DIR-TSO-4167	---	1	\$0.00	\$0.00
SL-VG400-SEC-K9	Unified Communication Security License for Cisco VG400	DIR-TSO-4167	---	1	\$212.60	\$212.60
CAB-AC	AC Power Cord (North America), C13, NEMA 5-15P, 2.1m	DIR-TSO-4167	---	1	\$0.00	\$0.00
PWR-VG400-AC	AC Power Supply for Cisco VG400	DIR-TSO-4167	---	1	\$0.00	\$0.00
ACS-4220-RM-19	19 inch rack mount kit for Cisco ISR 4220 & VG400	DIR-TSO-4167	---	1	\$81.62	\$81.62
SVG400UK9-179	Cisco VG400 Series IOS XE Universal Image	DIR-TSO-4167	---	1	\$0.00	\$0.00
					<b>SubTotal</b>	<b>\$3,714.58</b>

#### C8200 CME and CUBE

C8200-1N-4T	Cisco Catalyst C8200-1N-4T Router	DIR-TSO-4167	---	1	\$2,555.03	\$2,555.03
CON-SNTP-C82001N4	SNTC-24X7X4 Cisco Catalyst C8200	DIR-TSO-4167	12	1	\$759.90	\$759.90
MEM-C8200-8GB	Cisco Catalyst 8200 Edge 8GB memory	DIR-TSO-4167	---	1	\$0.00	\$0.00
M2USB-16G	Cisco Catalyst 8000 Edge M.2 USB 16GB	DIR-TSO-4167	---	1	\$0.00	\$0.00
C-RFID-1R	Cisco Catalyst 8000 Edge RFID - 1RU	DIR-TSO-4167	---	1	\$0.00	\$0.00
C8200-RM-19-1R	Cisco Catalyst 8200 Rack mount kit - 19" 1R	DIR-TSO-4167	---	1	\$0.00	\$0.00
NETWORK-PNP-LIC	Network Plug-n-Play Connect for zero-touch device deployment	DIR-TSO-4167	---	1	\$0.00	\$0.00
C8200-PIM-BLANK	Cisco Catalyst 8200 Edge PIM Blank	DIR-TSO-4167	---	1	\$0.00	\$0.00
TE-R-SW	TE agent for IOSXE on Enterprise Routing	DIR-TSO-4167	---	1	\$0.00	\$0.00
C8000-HSEC	U.S. Export Restriction Compliance license for C8000 series	DIR-TSO-4167	---	1	\$0.00	\$0.00
CAB-AC	AC Power Cord (North America), C13, NEMA 5-15P, 2.1m	DIR-TSO-4167	---	1	\$0.00	\$0.00



Part #	Description	Contract#	Service	Qty	Unit Price	Ext. Price
SC8KBEUK9-1712	UNIVERSAL	DIR-TSO-4167	---	1	\$0.00	\$0.00
IOSXE-AUTO-MODE	IOS XE Autonomous or SD-Routing mode for Unified image	DIR-TSO-4167	---	1	\$0.00	\$0.00
NIM-2FXS/4FXOP	2-Port FXS/FXS-E/DID and 4-Port FXO Network Interface Module	DIR-TSO-4167	---	1	\$1,001.64	\$1,001.64
DNA-P-T0-A-3Y	Cisco DNA Advantage On-Prem Lic 3Y - upto 25M (Aggr, 50M)	DIR-TSO-4167	---	1	\$1,529.93	\$1,529.93
SVS-PDNA-ADV	Embedded Support for SW - Tiered DNA Advantage On-Prem	DIR-TSO-4167	---	1	\$0.00	\$0.00
DSTACK-T0-A	Cisco DNA Advantage Stack - upto 25M (Aggr, 50M)	DIR-TSO-4167	---	1	\$0.00	\$0.00
NWSTACK-T0-A	Cisco Network Advantage Stack - upto 25M (Aggr, 50M)	DIR-TSO-4167	---	1	\$0.00	\$0.00
TE-EMBED-WANI	Cisco ThousandEyes WAN Insights Embedded	DIR-TSO-4167	---	1	\$0.00	\$0.00
SDWAN-UMB-ADV	Cisco Umbrella for DNA Advantage	DIR-TSO-4167	---	1	\$0.00	\$0.00
DNAC-ONPREM-PF	Cisco DNA Center On Prem Deployment Option for WAN	DIR-TSO-4167	---	1	\$0.00	\$0.00
C82-1N-4T-PF	C8200-1N-4T Platform Selection for DNA Subscription	DIR-TSO-4167	---	1	\$0.00	\$0.00
IOSXE-AUTO-MODE-PF	IOS XE Autonomous or SD-Routing mode for Unified image	DIR-TSO-4167	---	1	\$0.00	\$0.00
					<b>SubTotal</b>	<b>\$5,846.50</b>

#### Professional Services

DVX-EE-PROSVC-STD	DataVox Professional Services - Webex Calling	NA			\$20,067.35	\$20,067.35
					<b>SubTotal</b>	<b>\$20,067.35</b>
SHIP-STD-ESTIMATE	Standard ground shipping estimate. The customer will be billed for actual shipping charges if they are greater than the estimate provided.	NA		1	\$99.75	\$99.75

Recurring Amounts:

<b>SubTotal</b>	\$55,406.13
<b>Tax</b>	\$0.00
<b>Total</b>	<b>\$55,406.13</b>

*\$12737.75 Billed Yearly*

**Deposit Required \$22,162.45**



Purchase Notes

- A 15% restocking fee will be applied to all returned equipment. Custom built designs and configurations may not be returnable.

Acceptance of Proposal

When (but only when) signed by Customer shall this be a binding, legal contract. The prices, specifications, and conditions in this quote are satisfactory and are hereby accepted in their entirety. Customer hereby agrees to purchase the equipment and, if applicable, authorizes DataVox to perform the work and provide the materials specified, and payment will be made as outlined above. Any changes in the equipment or installation may result in a change in the price.

THIS QUOTE, WHEN SIGNED BY CUSTOMER SHALL BE GOVERNED BY THE TERMS AND CONDITIONS FOUND AT [http://www.datavox.net/DataVox\\_Standard\\_Terms\\_and\\_Conditions.pdf](http://www.datavox.net/DataVox_Standard_Terms_and_Conditions.pdf). THERE ARE NO OTHER AGREEMENTS OR WARRANTIES, ORAL OR WRITTEN, EXCEPT AS EXPRESSLY STATED IN THIS DOCUMENT. THIS AGREEMENT CANNOT BE MODIFIED EXCEPT IN WRITING SIGNED BY BOTH PARTIES. Customer acknowledges having read and understood all of the terms and conditions printed herein as well as those found in the online document and acknowledges receipt of a complete executed copy of this quote.

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

## Cisco Collaboration Flex Plan Contract

### Contract Term and Termination

The original term of this Cisco Collaboration Flex Plan Contract ("Agreement") is 36 months and upon expiration of the original term, this Agreement shall automatically renew for successive 12 month period(s), unless Customer provides forty-five (45) days' written notice prior to the end of the then-current subscription term. The billing for this Agreement will be Annually.

Customer may not terminate this Agreement for convenience.

### Application of Credits During Renewal Periods

If applicable, any Transfer Credits or Competitive Credits that were applied during the original term of this Agreement shall be applied to any automatic renewal periods.

If Customer declines to participate in any automatic renewal periods, the applicable Transfer or Competitive credits, if any, will not be carried forward on any future renewal periods.

If applicable, the SWSS Residual Credits will not apply to any future renewal periods.

### Price During Renewal Periods

Cisco reserves the right to change the price of a subscription offer at the time of renewal. If the price of a subscription offer changes prior to the start of any renewal term, DataVox will notify Customer of the price change reasonably in advance of such renewal.

### Terms and Conditions

In addition to the *DataVox Standard Terms and Conditions* found at <https://www.datavox.net/terms-and-conditions/>, the following Cisco terms and conditions apply to this Agreement:

Cisco Cloud and Software Terms and Conditions:

<https://www.cisco.com/c/en/us/about/legal/cloud-and-software/software-terms.html>

Cisco International Dialing Rates (subject to change at the discretion of Cisco):

<https://www.webex.com/content/dam/wbx/us/documents/pdf/us-international-rates.pdf#US>



Cisco Collaboration Flex Plan Contract

Approval Signature

IN WITNESS WHEREOF, the duly authorized representatives of the parties hereto have caused this Contract to be duly executed

DataVox, Inc.

City of Navasota (“Customer”)

By: \_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Signature)

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



## REQUEST FOR CITY COUNCIL AGENDA ITEM # 12.

Agenda Date Requested	05/28/2024
Requested By	Lupe Diosdado, Development Services Director
Department	Development Services
Type	Ordinance

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### Agenda Item

Consideration and possible action on Ordinance No. 1049-24, providing for the disannexation of 32.948 Acres from the A0046 J Moore, Tract 61-9, from the corporate boundaries of the City of Navasota. [Lupe Diosdado, Development Services Director]

### Summary & Recommendation

On August 23, 2023, Summit Precast, LP purchased 34 acres of property located within the corporate limits of Navasota, adjacent to their current facility. City staff met with Michael Ogorchock, the owner, in late 2023 to discuss the company's IDA (Industrial Development Agreement) and recent acquisition of the property. During this discussion it was determined the best way forward to update the IDA would be to de-annex a significant portion of the recently acquired property, while at the same time still maintaining an enclosed City limits border around the Industrial District. The proposed ordinance de-annexes 32.948 acres out of the 34 acres, leaving an approximate sixty foot (60') wide strip within City limits to maintain the City's current City limits border around the Industrial District.

City staff recommends the City Council to approve Ordinance No. 1049-24 as presented.

### Action Requested by Council

**Approve or deny Ordinance No. 1049-24, providing for the disannexation of 32.948 Acres from the A0046 J Moore, Tract 61-9, from the corporate boundaries of the City of Navasota.**

---

### Attachments

Ordinance No. 1049-24  
Exhibit A  
Exhibit B

**ORDINANCE NO. 1049-24**

**AN ORDINANCE PROVIDING FOR THE DISANNEXATION OF THE AREA OF LAND DESCRIBED HEREIN FROM THE CITY OF NAVASOTA, TEXAS; PROVIDING THAT SUCH AREA SHALL BE DISCONTINUED AS A PART OF THE CITY OF NAVASOTA, TEXAS; PROVIDING FOR THE AMENDMENT OF THE OFFICIAL MAP OF THE CITY BOUNDARIES AND ADDITIONAL ACTS NECESSARY TO GIVE EFFECT TO THIS ORDINANCE; PROVIDING FOR AN EFFECTIVE DATE; PROVIDING FOR A SEVERABILITY CLAUSE; PROVIDING FOR AN OPEN MEETINGS CLAUSE.**

**WHEREAS,** the City of Navasota, Texas is a home rule municipality; and

**WHEREAS,** Section 43.142 of the Texas Local Government Code authorizes a home rule municipality to disannex an area in the municipality according to rules as may be provided by the charter of the municipality and not inconsistent with the procedural rules prescribed by Chapter 43, Texas Local Government Code; and

**WHEREAS,** Article II, Section 2(a) of the Navasota City Charter authorizes the City Council to alter the boundaries of the city limits, including by disannexation, by adoption of an ordinance disannexing an area from the City limits; and

**WHEREAS,** in accordance with Section 43.142 of the Texas Local Government Code and Article II, Section 2(aa) of the Navasota City Charter, the City Council of the City of Navasota, Texas desires to disannex the area of land described in Exhibit "A," save and to except the area of land described in Exhibit "B" which shall remain within the corporate boundaries of the City, said Exhibits "A" and "B" being attached hereto and incorporated herein for all purposes;

**NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY  
OF NAVASOTA, TEXAS,**

**Section 1.** That the area of land described in Exhibit "A," save and except the area of land described in Exhibit "B" which shall remain within the corporate boundaries of the City, said Exhibits "A" and "B" being attached hereto and incorporated herein for all purposes, which is situated in the City of Navasota, Grimes County, Texas, is hereby disannexed from and discontinued as a part of the City of Navasota, Texas, and the corporate boundaries of the City of Navasota, Texas are hereby changed to reflect the disannexation of said area.

**Section 2.** That the official map and boundaries of the City of Navasota, Texas, heretofore adopted and amended be and is hereby amended so as to exclude the aforementioned area as part of the City of Navasota, Texas.

**Section 3.** That the City Secretary is hereby directed and authorized to perform or cause to be performed all acts necessary to correct the official map of the City of Navasota, Texas to exclude the area hereby disannexed as authorized by law.

**Section 4.** That this Ordinance shall become effective after its passage, and the aforementioned area ceases to be a part of the City of Navasota, Texas on the effective date of this Ordinance.

**Section 5.** That the City Secretary is hereby directed and authorized to file a certified copy of this Ordinance, and related order, in the Office of the County Clerk, and to perform all other acts necessary to notify the appropriate entities of the City's



disannexation of territory by this Ordinance.

**Section 6.** If any section, subsection, sentence, phrase, word, paragraph or provision of this Ordinance be found to be illegal, invalid or unconstitutional for any reason whatsoever, said illegality, invalidity or unconstitutionality shall not affect any other section, subsection, sentence, phrase, word, paragraph or provision of this Ordinance or the application of any other section, subsection, sentence, phrase, word, paragraph or provision of any other Ordinance of the City. The City Council declares that it would have adopted the valid portions of this Ordinance without the invalid part, and as to this end the provisions of this Ordinance are declared to be severable.

**Section 7.** That the meeting at which this Ordinance was enacted was open to the public as required by the Texas Open Meetings Act, and that notice of the time, place, and subject matter of the meeting was given as required by the Texas Open Meetings Act.

**PASSED AND APPROVED ON THIS THE 28<sup>TH</sup> DAY OF MAY, 2024.**

---

**BERT MILLER, MAYOR**

**ATTEST:**

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**SUSIE M. HOMEYER, CITY SECRETARY**

1) THE BEARINGS SHOWN HEREON ARE BASED ON NAD83 TEXAS CENTRAL ZONE.

2) THE SURVEYOR HAS NOT ABSTRACTED THE SUBJECT PROPERTY.

3) THIS SURVEY RELIES ON THE TITLE COMMITMENT FROM FIRST NATIONAL TITLE INSURANCE COMPANY, (G.F. No. 2302505, EFFECTIVE DATE JULY 24 2023, FOR ALL MATTERS OF RECORDS.

4) SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP TITLE EVIDENCE, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

5) GRIMES COUNTY MAY REQUIRE THIS TRACT TO BE PLATTED OF RECORD

PROPERTY SUBJECT TO THE FOLLOWING:

f. All encumbrances and building lines as shown by the plat recorded in Volume 1456, Page 681, Real Property Records of Grimes County, Texas.

g. Right-of-way as shown in instrument from Tony Olander, et al to The State of Texas, dated February 9, 1953, filed in Volume 216, page 604, Deed Records of Grimes County, Texas. DOES NOT AFFECT SUBJECT TRACT

h. Blanket easement dated September 23, 1991, granted to Gulf States Utilities Company, as set out in Volume 682, Page 395 of the Real Property Records of Grimes County, Texas; as affected by Right-of-Way instrument to Entergy Texas, Inc., dated February, 2000, recorded in Volume 1314, Page 613, Real Property Records of Grimes County, Texas. DOES NOT AFFECT SUBJECT TRACT

i. Drainage easement from Lennie Jones to County of Grimes, dated November 12, 2001, recorded in Volume 1001, Page 133, Real Property Records of Grimes County, Texas.

j. Drainage easement from Gerald McAlexander to County of Grimes, dated February 22, 2001, recorded in Volume 1002, Page 749, as affected by instrument recorded in Volume 1456, Page 681, Real Property Records of Grimes County, Texas.

k. Right-of-Way and easement granted to Entergy Gulf States, Inc., as set out in Volume 1161, Page 215, as affected by instrument dated September 30, 2008, recorded in Volume 1283, Page 214, both of the Real Property Records of Grimes County, Texas.

l. Right-of-way as shown in instrument from Robert Fojtik and Rosemary Fojtik to Entergy Texas, Inc., dated February 9, 2008, filed in Volume 1314, Page 617, Real Property Records of Grimes County, Texas. DOES NOT AFFECT SUBJECT TRACT

## SURVEY OF

34.00 ACRES OUT OF THE FOJTIK TRACT  
AND LOT 4 OF THE MCALEXANDER SUBDIVISION

LOCATED IN THE J MOORE SURVEY, ABSTRACT NO. 46

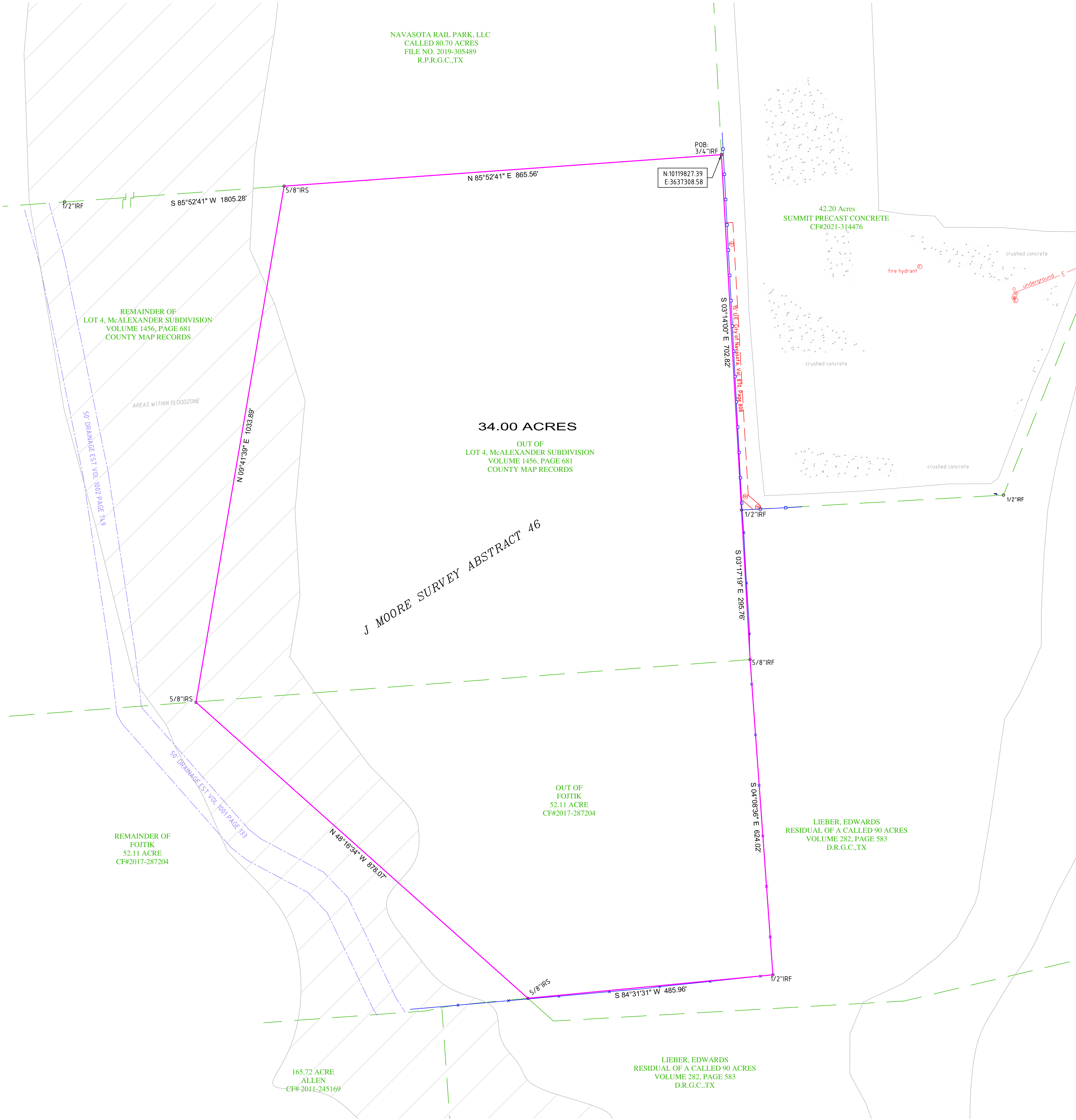
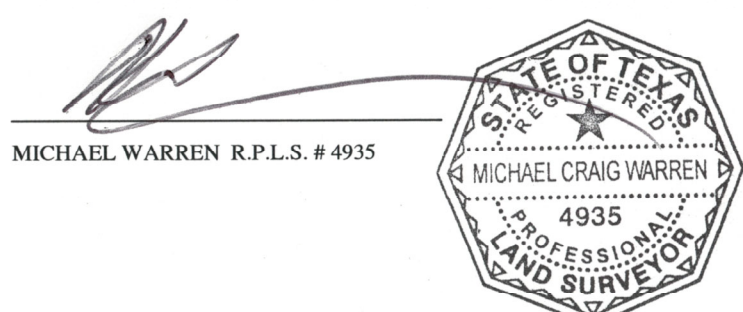
BASED ON THE DEED THEREOF RECORDED IN

COUNTY CLERK'S FILE 2017-287204

THE DEED RECORDS GRIMES COUNTY, TEXAS

REF : SUMMIT PRECAST G. F. 2302505 DATE : AUG 15 2023

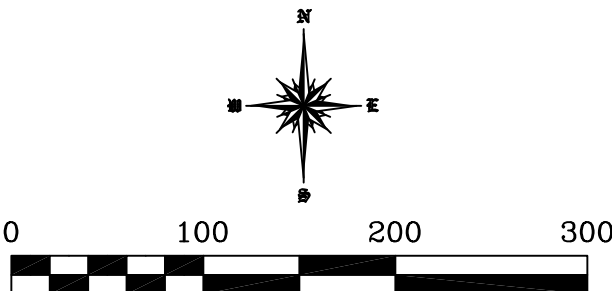
I HEREBY CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND, AND TO THE BEST OF MY KNOWLEDGE, THIS PLAT CORRECTLY REPRESENTS THE FACTS AT THE TIME OF THE SURVEY AND THAT THERE ARE NO VISIBLE ENCROACHMENTS, OVERLAPS, DISCREPANCIES, OR CONFLICTS EXCEPT AS SHOWN HEREON.



- ROAD SIGN
- IRRIGATION CONTROL
- GRATE INLET
- GAS VALVE
- WATER VALVE
- LIGHT POLE
- POWER POLE
- ELECTRIC TRANS. BOX
- FIRE HYDRANT
- SANITARY SEWER
- STORM SEWER
- TELEPHONE PED
- CABLE BOX/PED
- FLAG POLE
- FIBER OPTIC MARKER
- TRAFFIC SIGNAL
- PIPELINE MARKER
- WATER METER
- MANHOLE
- METER POLE

LINE & SYMBOL	LEGEND
1) IRF=IRON ROD FOUND	
2) IRS=IRON ROD SET, CAPPED "SURVEYER"	
3) UIR=UTILITY RECORDS OF GRIMES COUNTY TEXAS	
4) M.R.G.C.T.S=MAP RECORDS OF GRIMES COUNTY TEXAS	
5) BL=BUILDING LINE	
6) UIR=UTILITY EASEMENT	
7) DR=DRAINAGE EASEMENT	

THIS SURVEY IS BEING CERTIFIED TO THE RECIPIENTS NAMED ABOVE AND NO LICENSE OR CERTIFICATION HAS BEEN CHECKED AS TO CONFORMANCE WITH THE ORIGINAL TRANSACTION WHICH SHALL BE THE RESPONSIBILITY OF THE RECIPIENT FROM THE DATE OF THE SURVEY AS SHOWN ABOVE. UNLESS OTHERWISE STATED NO FLOODPLAIN CHECK WAS PERFORMED.



1) THE BEARINGS & GRID COORDINATES SHOWN HEREON ARE BASED ON NAD83 TEXAS CENTRAL ZONE.

2) THE SURVEYOR HAS NOT ABSTRACTED THE SUBJECT PROPERTY.

3) THIS SURVEY RELIES ON THE TITLE COMMITMENT FROM FIRST NATIONAL TITLE INSURANCE COMPANY, G.F. No. 2302505, EFFECTIVE DATE JULY 24 2023, FOR ALL MATTERS OF RECORDS.

4) SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP, TITLE EVIDENCE, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

## SURVEY OF

1.052 ACRES OUT OF THE SUMMIT PRECAST CONCRETE TRACT

LOCATED IN THE J MOORE SURVEY, ABSTRACT NO. 46

BASED ON THE DEED THEREOF RECORDED IN

COUNTY CLERK'S FILE 2023-335029

THE DEED RECORDS GRIMES COUNTY, TEXAS

REF: SUMMIT PRECAST, G.F. NA DATE: MAR 25 2024

I HEREBY CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND, AND TO THE BEST OF MY KNOWLEDGE, THIS PLAT CORRECTLY REPRESENTS THE FACTS AT THE TIME OF THE SURVEY AND THAT THERE ARE NO VISIBLE ENCROACHMENTS, OVERLAPS, DISCREPANCIES, OR CONFLICTS EXCEPT AS SHOWN HEREON.

MICHAEL WARREN R.P.L.S. # 4935

MICHAEL CRAIG WARREN  
4935  
PROFESSIONAL  
SURVEYOR

NAVASOTA RAIL PARK, LLC  
CALLED 80.70 ACRES  
FILE NO. 2019-305489  
R.P.R.G.C.,TX

42.20 Acres  
SUMMIT PRECAST CONCRETE  
CF#2021-314476

REMAINDER OF  
LOT 4, McALEXANDER SUBDIVISION  
VOLUME 1456, PAGE 681  
COUNTY MAP RECORDS

50' DRAINAGE EST VOL. 1002 PAGE 149

REMAINDER OF  
FOJTIK  
52.11 ACRE  
CF#2017-287204

50' DRAINAGE EST VOL. 1001 PAGE 153

N 09°41'39" E  
58.98'  
S 48°16'34" E 955.66'  
N 48°16'34" W 878.07'

SUMMIT PRECAST  
CONCRETE  
34.00 ACRES  
CF# 2023-335029

1.052 ACRES

LIEBER, EDWARDS  
RESIDUAL OF A CALLED 90 ACRES  
VOLUME 282, PAGE 583  
D.R.G.C.,TX

N:10118208.02  
E:3637410.26

prob:  
1/2"IRF

S 84°31'31" W  
68.15'

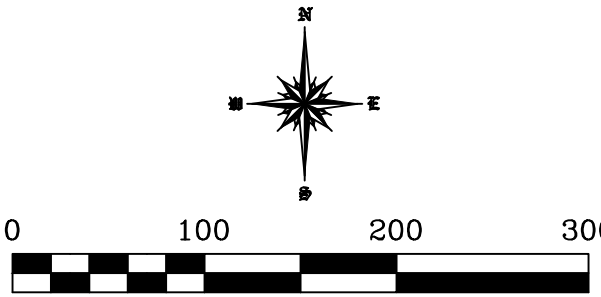
S 84°31'31" W 417.82'

165.72 ACRE  
ALLEN  
CF# 2011-245169

LIEBER, EDWARDS  
RESIDUAL OF A CALLED 90 ACRES  
VOLUME 282, PAGE 583  
D.R.G.C.,TX

LINE & SYMBOL LEGEND
1) BRS= BROWN ROD FOUND
2) IRS= IRON ROD SET
3) CAPED= SURVEY TECH
3) D.R.G.C.TX= DEED RECORDS OF GRIMES COUNTY TEXAS
4) M.O.G.C.S.= MAP RECORDS OF GRIMES COUNTY TEXAS
5) BL= BUILDING LINE
6) E= EASEMENT
7) DE= DRAINAGE EASEMENT

THIS SURVEY IS BEING CERTIFIED TO THE RECORDS NAMED ABOVE AND NO LICENSE OR CERTIFICATION HAS BEEN OBTAINED IN CONNECTION WITH THE ORIGINAL TRANSACTION WHICH SHALL TAKE PLACE WITHIN NINETY (90) DAYS FROM THE DATE OF THE SURVEY AS SHOWN ABOVE, UNLESS OTHERWISE STATED NO RECORDS CHECK WAS PERFORMED





## REQUEST FOR CITY COUNCIL AGENDA ITEM # 13.

Agenda Date Requested	05/28/2024
Requested By	Lupe Diosdado, Development Services Director
Department	Development Services
Type	Ordinance

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### Agenda Item

Consideration and possible action on Ordinance No. 1050-24, annexing 32.948 acres located in the Extraterritorial Jurisdiction of the City of Navasota, Texas, into the Navasota Industrial District. [Lupe Diosdado, Development Services Director]

### Summary & Recommendation

On August 23, 2023, Summit Precast, LP purchased 34 acres of property located within the corporate limits of Navasota, adjacent to their current facility. City staff met with Michael Ogorchock, the owner, in late 2023 to discuss the company's IDA (Industrial Development Agreement) and recent acquisition of the property. During this discussion it was determined the best way forward to update the IDA would be to de-annex a significant portion of the recently acquired property, while at the same time still maintaining an enclosed City limits border around the Industrial District.

In order to include the recently acquired property in the company's IDA, the property must be annexed into the Industrial District and a revised IDA will be issued to Summit Precast. The proposed ordinance annexes 32.948 acres into the Industrial District. This ordinance is contingent upon Ordinance No. 1050-24, de-annexing 32.948 from Navasota's City limits being approved.

City staff recommends approving Ordinance No. 1050-24.

### Action Requested by Council

**Approve or deny Ordinance No. 1050-24, annexing 32.948 acres located in the Extraterritorial Jurisdiction of the City of Navasota, Texas, into the Navasota Industrial District.**

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### Attachments

Ordinance No. 1050-24  
Exhibit A  
Exhibit B

**ORDINANCE NO. 1050-24**

**AN ORDINANCE ANNEXING A PART OF THE AREA LOCATED IN THE  
EXTRATERRITORIAL JURISDICTION OF THE CITY OF NAVASOTA, TEXAS, INTO THE  
NAVASOTA INDUSTRIAL DISTRICT.**

**WHEREAS**, it is the established policy of the City Council of the City of Navasota, Texas, to adopt such reasonable measures, from time to time, as are permitted by law and which will tend to enhance the economic stability and growth of the City and its environs by attracting the location of new, and the expansion of existing industries therein; and

**WHEREAS**, in furtherance of such policy the City Council did, during the year 1979, by the final passage of Ordinance No. 146-79 enter into certain agreements attendant thereto, create an industrial district within the City's extraterritorial jurisdiction as provided for under Article 970a Sec. 5 of the Civil Statutes of the State of Texas (now codified in Texas Local Government Code, Section 42.044), for the primary purpose of thereby establishing an area within the sole municipal control of the City of Navasota, Texas, but outside the corporate limits thereof, to be developed as an industrial district, primarily devoted to the use and occupancy by industrial plants; and

**WHEREAS**, Ordinance No. 146-79 has been amended by the enactment of Ordinance Nos. 337-93, 397-97, and 397-98, each annexing a part of the area located within the City's extraterritorial jurisdiction into the Navasota Industrial District, such ordinances being enacted in compliance with the provisions of Section 42.044, Texas Local Government Code and other applicable law; and

**WHEREAS**, Summit Precast Concrete LP, in order to expand its Navasota, Texas operation, has purchased a parcel of land adjacent to the Navasota Industrial District; and

**WHEREAS**, Section 5 of Ordinance No. 337-93 authorizes the City Council, from time to time as permitted by law, to enlarge or diminish the Navasota Industrial District;

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF NAVASOTA, TEXAS, THAT:**

**SECTION 1.** The hereinafter described unincorporated area lying within and subject to the extraterritorial jurisdiction of the City of Navasota, Texas, as established by Section 42.001 *et seq.* of the Texas Local Government Code, is hereby annexed into the Industrial District of the City of Navasota, Texas, to wit:

All that certain 34.00 acre tract of land, more or less, out of the John Moore Survey, Abstract No. 46, Grimes County, Texas, being more particularly described in Exhibit "A," save and except the 1.052 acre tract of land described in Exhibit "B" which shall remain outside of the Industrial District, said Exhibits "A" and "B" being attached hereto and incorporated herein for all pertinent purposes.

**SECTION 2.** Should any portion of the area herein designated as part of the Industrial District of the City of Navasota, Texas, be not actually situated within the extraterritorial jurisdiction of



the City of Navasota, Texas, and not therefore capable of being so designated, such fact shall not affect the validity of this designation as to the remaining portions of said area.

### **SECTION 3. SEVERABILITY CLAUSE**

It is hereby declared to be the intention of the City Council that the phrases, clauses, sentences, paragraphs and sections of this Ordinance are severable, and if any phrase, clause, sentence, paragraph or section of this Ordinance shall be declared unconstitutional or invalid by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality or invalidity shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this Ordinance, since the same would have been enacted by the City Council without the incorporation of this Ordinance of any such unconstitutional or invalid phrase, clause, sentence, paragraph or section.

### **SECTION 4. REPEALER CLAUSE**

Any provision of any prior ordinance of the City whether codified or uncoded, which are in conflict with any provision of this Ordinance, are hereby repealed to the extent of the conflict, but all other provisions of the ordinances of the City whether codified or uncoded, which are not in conflict with the provisions of this Ordinance, shall remain in full force and effect.

### **SECTION 5. EFFECTIVE DATE**

This Ordinance shall become effective from and after its passage, approval and adoption, and its publication as may be required by law.

### **SECTION 6. NOTICE OF MEETING**

Notice of the time and place, where and when said Ordinance would be considered by the City Council at a public meeting was given in accordance with applicable law, prior to the time designated for meeting.

**PASSED AND APPROVED THIS THE 28<sup>TH</sup> DAY OF MAY 2024.**

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**BERT MILLER, MAYOR**

**ATTEST:**

---

**SUSIE M. HOMEYER, CITY SECRETARY**

## SURVEY OF

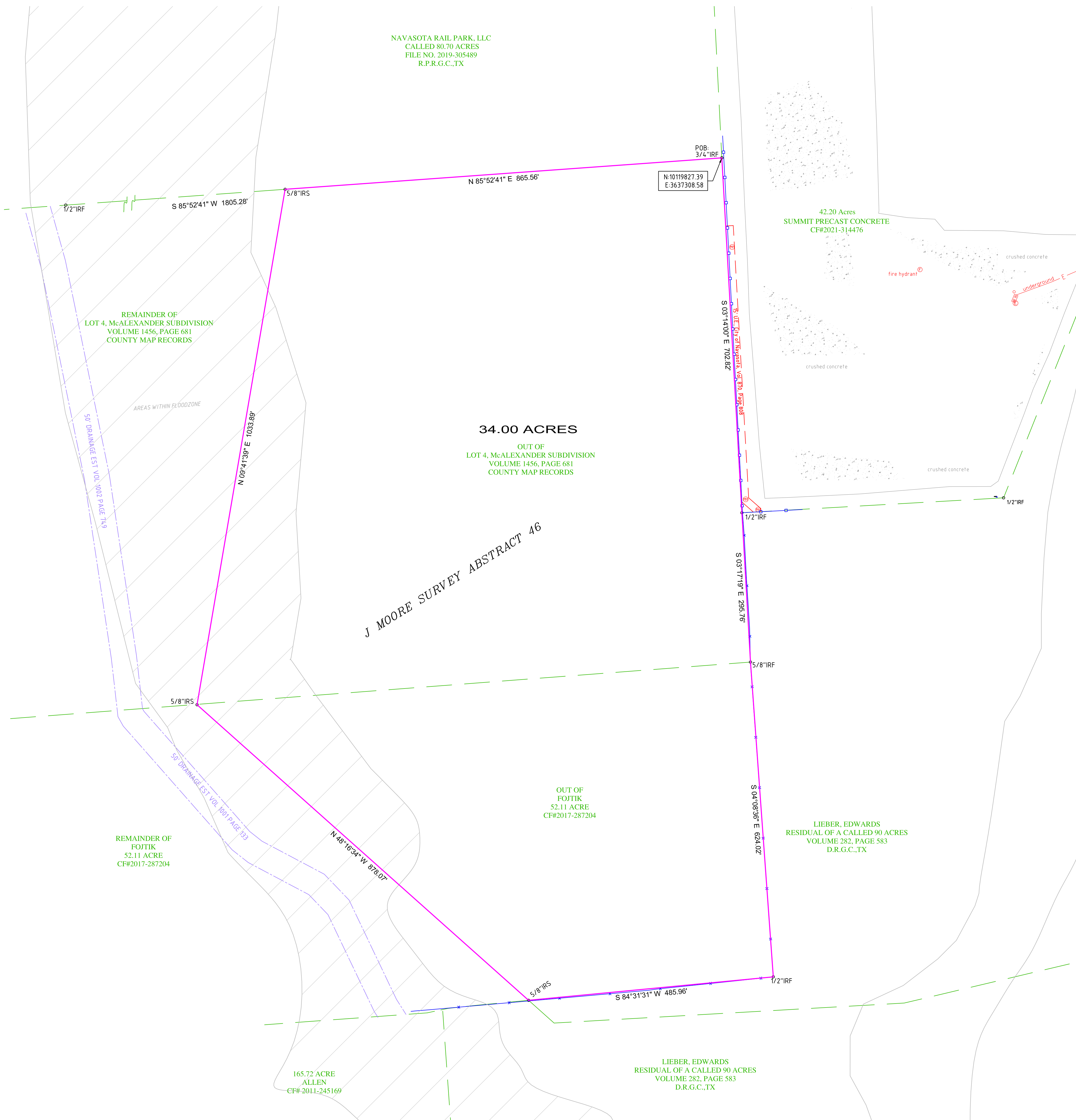
34.00 ACRES OUT OF THE FOJTIK TRACT  
AND LOT 4 OF THE MCALEXANDER SUBDIVISION

LOCATED IN THE J MOORE SURVEY, ABSTRACT NO. 46  
 BASED ON THE DEED THEREOF RECORDED IN

COUNTY CLERK'S FILE 2017-287204

THE DEED RECORDS GRIMES COUNTY, TEXAS

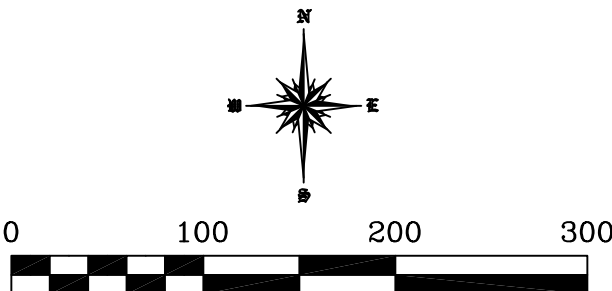
MICHAEL WARREN R.P.L.S. # 4935



- 🚦 ROAD SIGN
- 🔗 IRRIGATION CONTROL
- 🔌 GRATE INLET
- ⛽ GAS VALVE
- 💧 WATER VALVE
- 💡 LIGHT POLE
- ⚡ POWER POLE
- 🔌 ELECTRIC TRANS. BOX
- 🚒 FIRE HYDRANT
- 🚰 SANITARY SEWER
- 🚰 STORM SEWER
- 📞 TELEPHONE PED
- 📡 CABLE BOX/PED
- 🚲 FLAG POLE
- 🚲 FIBER OPTIC MARKER
- 🚦 TRAFFIC SIGNAL
- 🚲 PIPELINE MARKER
- 🔌 WATER METER
- 🚰 MANHOLE
- 🚲 METER POLE

LINE & SYMBOL LEGEND
1) IRF= IRON ROD FOUND
2) IRI= IRON ROD SET, CAPPED "SURVTECH"
3) D.R.g.C.TX= DEED RECORDS OF GRIMES COUNTY TEXAS
4) M.R.g.C.TX= MAP RECORDS OF GRIMES COUNTY TEXAS
5) BL= BUILDING LINE
6) UE= UTILITY EASEMENT
7) DE= DRAINAGE EASEMENT

THIS SURVEY IS BEING CERTIFIED TO THE RECIPIENTS NAMED ABOVE AND NO LICENSE OR CERTIFICATION HAS BEEN CREATED EXCEPT IN CONJUNCTION WITH THE ORIGINAL TRANSACTION, WHICH SHALL TAKE PLACE WITHIN NINETY (90) DAYS FROM THE DATE OF THE SURVEY AS SHOWN ABOVE. UNLESS OTHERWISE STATED NO FLOODPLAIN CHECK WAS PERFORMED



P.O. BOX 1080 \ CONROE, TEXAS 77305-1008  
936-539-5444 \ FAX 936-539-5442  
email: SURVTECH@SURVCORP.COM  
TBPELS No. 10005100

1) THE BEARINGS & GRID COORDINATES SHOWN HEREON ARE BASED ON NAD83 TEXAS CENTRAL ZONE.

2) THE SURVEYOR HAS NOT ABSTRACTED THE SUBJECT PROPERTY.

3) THIS SURVEY RELIES ON THE TITLE COMMITMENT FROM FIRST NATIONAL TITLE INSURANCE COMPANY, G.F. No. 2302505, EFFECTIVE DATE JULY 24 2023, FOR ALL MATTERS OF RECORDS.

4) SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP, TITLE EVIDENCE, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

## SURVEY OF

1.052 ACRES OUT OF THE SUMMIT PRECAST CONCRETE TRACT

LOCATED IN THE J MOORE SURVEY, ABSTRACT NO. 46

BASED ON THE DEED THEREOF RECORDED IN

COUNTY CLERK'S FILE 2023-335029

THE DEED RECORDS GRIMES COUNTY, TEXAS

REF: SUMMIT PRECAST, G.F. NA DATE: MAR 25 2024

I HEREBY CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND, AND TO THE BEST OF MY KNOWLEDGE, THIS PLAT CORRECTLY REPRESENTS THE FACTS AT THE TIME OF THE SURVEY AND THAT THERE ARE NO VISIBLE ENCROACHMENTS, OVERLAPS, DISCREPANCIES, OR CONFLICTS EXCEPT AS SHOWN HEREON.

MICHAEL WARREN R.P.L.S. # 4935



NAVASOTA RAIL PARK, LLC  
CALLED 80.70 ACRES  
FILE NO. 2019-305489  
R.P.R.G.C.,TX

42.20 Acres  
SUMMIT PRECAST CONCRETE  
CF#2021-314476

REMAINDER OF  
LOT 4, McALEXANDER SUBDIVISION  
VOLUME 1456, PAGE 681  
COUNTY MAP RECORDS

50' DRAINAGE EST VOL. 1002 PAGE 149

REMAINDER OF  
FOJTIK  
52.11 ACRE  
CF#2017-287204

50' DRAINAGE EST VOL. 1001 PAGE 153

N 09°41'39" E  
58.98'  
S 48°16'34" E 955.66'  
N 48°16'34" W 878.07'

SUMMIT PRECAST  
CONCRETE  
34.00 ACRES  
CF# 2023-335029

1.052 ACRES

LIEBER, EDWARDS  
RESIDUAL OF A CALLED 90 ACRES  
VOLUME 282, PAGE 583  
D.R.G.C.,TX

N:10118208.02  
E:3637410.26

prob:  
1/2"IRF

S 84°31'31" W  
68.15'

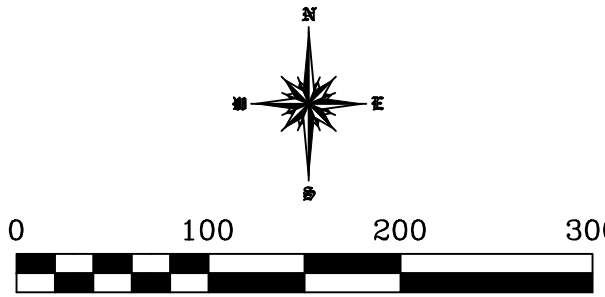
S 84°31'31" W 417.82'

165.72 ACRE  
ALLEN  
CF# 2011-245169

LIEBER, EDWARDS  
RESIDUAL OF A CALLED 90 ACRES  
VOLUME 282, PAGE 583  
D.R.G.C.,TX

LINE & SYMBOL LEGEND
1) BRS= BROWN ROD FOUND
2) IRS= IRON ROD SET
3) CAPED= SURVEY TECH
3) D.R.G.C.TX= DEED RECORDS OF GRIMES COUNTY TEXAS
4) M.O.G.C.S.= MAP RECORDS OF GRIMES COUNTY TEXAS
5) BL= BUILDING LINE
6) E= EASEMENT
7) DE= DRAINAGE EASEMENT

THIS SURVEY IS BEING CERTIFIED TO THE RECORDS NAMED ABOVE AND NO LICENSE OR CERTIFICATION HAS BEEN OBTAINED IN CONNECTION WITH THE ORIGINAL TRANSACTION WHICH SHALL TAKE PLACE WITHIN NINETY (90) DAYS FROM THE DATE OF THE SURVEY AS SHOWN ABOVE, UNLESS OTHERWISE STATED NO RECORD OR CHECK WAS FORWARDED



"A Land Surveying Company"  
P.O. BOX 1080 | CORPUS, TEXAS 77405-1080  
936-539-5444 | FAX 936-539-5442  
email: SURVTECH@SURVTECH.COM  
TRESPASS No. 10005100





## REQUEST FOR CITY COUNCIL AGENDA ITEM # 14.

Agenda Date Requested	05/28/2024
Requested By	Lupe Diosdado, Development Services Director
Department	Development Services
Type	Resolution

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### Agenda Item

Consideration and possible action on Resolution No. 770-24, accepting the water, sewer, gas, street and underground storm water drainage improvements in Washington Park, Block J, Lots 1-12, except entrance signage, common areas, detention pond and open channel storm drainage improvements, in the City of Navasota, Texas. [Lupe Diosdado, Development Services Director]

### Summary & Recommendation

On December 7, 2022, BSR Properties VII, LLC, purchased Washington Park, Block J, Lots 1-12. Since then, City staff have worked with BSR to extend Roosevelt Street pavement and utilities along said block. The extension of the roadway and other required utilities will allow for the construction of 12 new single-family homes. The infrastructure expansion is substantially complete and has been inspected in accordance with applicable standards. The Resolution attached for City Council consideration formally accepts the water, sewer, gas, street and underground storm improvements for public dedication. City staff recommends approving Resolution No. 770-24.

### Action Requested by Council

**Approve or deny Resolution No. 770-24, accepting the water, sewer, gas, street and underground storm water drainage improvements in Washington Park, Block J, Lots 1-12, except entrance signage, common areas, detention pond and open channel storm drainage improvements, in the City of Navasota, Texas.**

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### Attachments

Resolution No. 770-24

**RESOLUTION NO. 770-24**

**A RESOLUTION ACCEPTING THE WATER, SEWER, GAS, STREET AND UNDERGROUND STORM WATER DRAINAGE IMPROVEMENTS IN WASHINGTON PARK, BLOCK J, LOTS 1-12, EXCEPT ENTRANCE SIGNAGE, COMMON AREAS, DETENTION POND AND OPEN CHANNEL STORM DRAINAGE IMPROVEMENTS, IN THE CITY OF NAVASOTA, TEXAS**

**WHEREAS**, Washington Park, Block J, is a twelve (12) lot subdivision developed by BSR Properties VII, LLC; and

**WHEREAS**, water, sewer, gas, street, and underground storm drainage improvements were constructed by the developer; and

**WHEREAS**, said water, sewer, gas, street, and underground storm drainage improvements have been offered for dedication to public use forever; and

**WHEREAS**, the water, sewer, gas, street, and underground storm drainage improvements have been inspected by the City and found to be constructed in accordance with the City's Standards and Specifications; and

**WHEREAS**, the City of Navasota desires to formally accept the water, sewer, gas, street and underground storm drainage improvements of Washington Park, Block J, Lots 1-12, except entrance signage, common areas, detention pond and open channel storm drainage improvements;

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

The City of Navasota hereby accepts the water, sewer, gas, street, and underground storm drainage improvements of Washington Park, Block J, Lots 1-12, and specifically exempts from acceptance the entrance signage, all common areas, detention pond and open channel storm drainage improvements in the City of Navasota, Texas and authorizes the Mayor to execute any necessary documentation.

**PASSED AND APPROVED ON THIS THE 28<sup>th</sup> DAY OF MAY, 2024.**

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**BERT MILLER, MAYOR**

**ATTEST:**

---

**SUSIE M. HOMEYER, CITY SECRETARY**



## REQUEST FOR CITY COUNCIL AGENDA ITEM # 15.

Agenda Date Requested 05/28/2024  
Requested By Jason Weeks, City Manager  
Department Development Services  
Type Report

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### Agenda Item

Consideration and possible action to authorize the City Manager to execute a contract with Hawes Hill & Associates LLP to perform certain professional services with respect to annual reporting and other necessary functions for Tax Increment Reinvestment Zone 1 in Navasota, Texas. [Jason Weeks, City Manager]

### Summary & Recommendation

With the formation of the Navasota TIRZ Board, and the creation of Tax Increment Reinvestment Zone 1, there are annual reporting and other TIRZ related administrative functions necessary to remain compliant with the State. Hawes Hill & Associates, LLP, has the expertise and experience to ensure all applicable requirements are met. The proposed contract outlines the services to be rendered on an as-needed basis, with an expenditure cap of \$30,000 per fiscal year. Hawes Hill & Associates would bill the city for services rendered. The fee structure is \$300/hr for professional services and \$150/hr for administrative support.

The City of Navasota formally worked with Hawes Hill & Associates to create Navasota's first TIRZ and the Navasota TIRZ Board, as well as extending the boundaries of TIRZ 1, in late 2023.

Staff recommends approving the contract with Hawes Hill & Associates as presented.

### Action Requested by Council

**Approve or deny the contract with Hawes Hill & Associates, LLP**

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### Attachments

Contract

**AGREEMENT BY AND BETWEEN  
CITY OF NAVASOTA, TEXAS AND HAWES HILL & ASSOCIATES LLP**

This Agreement is made by and between CITY OF NAVASOTA, TEXAS (the "Client") and HAWES HILL & ASSOCIATES LLP (the "Consultant").

**WITNESSETH:**

WHEREAS, the Client desires that the Consultant provide certain professional services related to the administration of a Tax Increment Reinvestment Zone (TIRZ);

WHEREAS, the Consultant has the employees, office operations, and knowledge to ably provide the professional services required by the Client;

NOW THEREFORE, Client and Consultant, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, do agree as follows:

**I.  
Services**

The Consultant hereby agrees to provide, furnish, or perform certain professional services related to tax increment financing and including the services described on Exhibit A, attached hereto. Such services herein collectively are referred to as the "Services".

**II.  
Performance of Services**

Consultant shall have the right to determine the method, details, and means of performing the Services. The Client, however, shall be entitled to ensure satisfactory performance, including the rights to inspect, to stop work, to make suggestions or recommendations as to the details of the work, and to propose modifications to the Services. Consultant will provide all required resources and personnel to complete the Services and use its best efforts to accommodate work schedule requests in a timely manner.

**III.  
Compensation and Reimbursement to  
Consultant**

For and in consideration of the professional services rendered by the Consultant as specified in Exhibit A, of this Agreement, the Client agrees to pay the Consultant in accordance with the hourly rates identified below for Services billed on a monthly basis. Total fees to be paid to Consultant under this Agreement shall not exceed THIRTY THOUSAND DOLLARS (\$30,000) as total compensation for TIRZ Administration Services and other compensation for additional services, to be paid to Consultant as further detailed in Exhibit A - Scope of Services.

Hourly Rates:

- Professional Services: \$300/hour
- Administrative Support: \$150/hour

Reimbursable out-of-pocket expenses and other expenses and charges incurred by Consultant in performing the Services under this Agreement shall be made on a monthly basis upon submission by the Consultant of invoices and other documentation setting forth such expenses and charges. The Schedule of Reimbursable Expenses of Hawes Hill & Associates LLP for the performance of the Services by the Consultant under this Agreement as set forth in Exhibit "B" attached hereto for reference are hereby approved by the Client. The Client expressly disclaims any liability for reimbursement to the Consultant of any amounts in excess of those approved in writing by the Client.

Consultant shall tender to the Client a detailed invoice of the services performed each month during the term of this Agreement. Payments on account of services rendered shall be made within thirty (30) days after the Client receives Consultant's detailed invoice. In the event of a disputed or contested invoice, the Client may withhold any such disputed or contested amount without penalty.

#### **IV.**

#### **Right of Ownership**

All data, information, maps, books, reports, files, photography, artwork, software, equipment, and materials purchased, created or maintained by the Client or purchased, created or maintained by the Consultant on behalf of the Client shall remain the property of the Client. It shall be clearly marked as property of the Client in such manner that it may at any time be removed from the premises of the Consultant.

#### **V.**

#### **Laws to be Observed**

In performing its obligations under this Agreement, the Consultant at all times shall observe and comply with all federal and state laws, local laws, ordinances, orders, and regulations of the federal, state, county, or city governments. The federal, state, and local laws, ordinances, and regulations which affect those engaged or employed in the work, or the equipment used in the work, or which in any way affects the conduct of the work, shall be at all times in effect, and no pleas of misunderstanding will be considered on account of ignorance thereof.

#### **VI.**

#### **Successors and Assigns**

This Agreement shall bind and benefit the respective parties and their legal successors, and shall not be assignable, in whole or in part, by any party hereto without first obtaining the written consent of the other party.

#### **VII.**

#### **Independent Contractors**

The Consultant shall be an independent contractor to the Client, and nothing in this Agreement shall be deemed to cause this Agreement to create an agency, partnership, or joint venture between the parties. This Agreement shall not be interpreted or construed as creating or establishing the relationship of employer and employee between the Client and the Consultant, or any of the Consultant's employees or agents.

**VIII.**  
**Conflict of Interest**

In keeping with Consultant's duties to the Client, Consultant agrees that it shall not, directly or indirectly, become involved in any conflict of interest, or upon discovery thereof, allow such a conflict to continue. Moreover, Consultant agrees that it shall promptly disclose to the Client any facts which might involve any reasonable possibility of a conflict of interest.

**IX.**  
**Term and Termination**

This Agreement shall become effective when duly approved by the Client and the Consultant. Either party may terminate this Agreement at any time by giving the other party at least thirty (30) days' prior written notice thereof, specifying in such notice the effective date of such termination. In the event of termination, it is understood and agreed that only the amounts due the Consultant for services provided and expenses incurred to the date of termination will be due and payable. No penalty will be assessed for termination of this Agreement.

**X.**  
**Amendment or Modification**

Except as otherwise provided in this Agreement, this Agreement shall be subject to change, amendment, or modification only upon the written consent of the parties hereto, executed by authorized representatives of both parties to this Agreement.

**XI.**  
**Miscellaneous**

1. Choice of Law. This Agreement shall be construed and given effect in accordance with the laws of the State of Texas, including all matters of construction, validity, performance and enforcement. The venue for all disputes and related purposes shall be in Grimes County, Texas.
2. Binding Effect; Assignment. This Agreement shall be binding upon and inure to the benefit of the Client and the Consultant, their respective successors and assigns; provided however, that neither party hereto may assign or transfer any of its rights or obligations hereunder without the prior written consent of the other party.
3. Entire Agreement. This instrument contains the entire agreement between the parties relating to the rights herein granted and obligations herein assumed. Any oral or written representations or modifications concerning this Agreement shall be of no force or effect except for a subsequent modification in writing signed by all parties thereto.
4. Waiver. A waiver by either party of a breach of any of the terms or provisions of this Agreement shall not operate or be construed as a waiver of any subsequent breach.

**XII.**

**Engaging in Business with Sudan, Iran or Foreign Terrorist Organizations**

Pursuant to Section 2252.152, Texas Government Code, Consultant warrants, represents, verifies and agrees that Consultant is not identified on a list prepared and maintained by the Texas Comptroller of Public Accounts as a company that engages in business with Sudan, Iran or a foreign terrorist organization.

**XIII.**

**No Boycott of Israel**

No Boycott of Israel: By acceptance of this Agreement, Consultant hereby certifies and verifies that neither Consultant, nor any affiliate, subsidiary, or parent company of Consultant, if any (the "Consultant Companies"), boycotts Israel, and Consultant agrees that Consultant and Consultant Companies will not boycott Israel during the term of this Agreement. For purposes of this Agreement, the term "boycott" shall mean and include terminating business activities or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with Israel, or with a person or entity doing business in Israel or in an Israeli controlled territory.

(EXECUTION PAGE FOLLOWS)

**XIII.**  
**Acceptance**

This instrument may be executed in two (2) counterpart originals, each of which has the full force and effect of an original.

**AGREED AND ACCEPTED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2024**

ON BEHALF OF  
HAWES HILL & ASSOCIATES LLP

ON BEHALF OF  
CITY OF NAVASOTA, TEXAS

\_\_\_\_\_  
David W. Hawes, Managing Partner  
Hawes Hill & Associates LLP  
PO Box 22167  
Houston, TX 77227-2167  
[dhawes@haweshill.com](mailto:dhawes@haweshill.com)  
713-595-1200  
281-888-6314 fax

BY: \_\_\_\_\_



## **Exhibit “A”**

### **Scope of Professional Consulting and Management Services**

Hawes Hill & Associates special district services are designed with the capacity to address many of the needs associated with creation, amendment and administration of a tax increment reinvestment zone, including those skills needed regularly as well as other specialties as needed. As part of this Agreement, the Client shall have access to staff with the necessary expertise and background to address the services identified below, as needed, on an hourly basis.

#### **General Administration**

- Provide full professional management, administrative and technical support services to the Zone.
- Provide guidance and recommendations to the Board of Directors and other relevant entities as it relates to best practices in project development and implementation, partnership opportunities, leveraging of resources and other matters related to Zone implementation.
- Serve as the Clients’ liaison and advocate with public agencies.
- Recognize and address community needs and economic opportunities, such as an assessment of existing conditions and needs, a zone-wide strategic plan to identify and prioritize capital projects and other opportunities, and/or detailed special area studies to transform specific corridors or areas.

#### **Development Agreements**

- Assist developers in matching characteristics of development projects with the goals of the Zone and needs of the community.
- Negotiate with private developers on behalf of the Zone in coordination with Client legal counsel as it relates to production of development agreements.
- Draft terms of development agreements in coordination with legal counsel.
- Coordinate and work with City to prepare financing packages to reimburse developers for eligible project-related costs defined in each developer reimbursement agreement. This includes, but is not limited to, providing the City with necessary zone information, verifying eligible project costs and providing information briefings to elected officials.
- Monitor developer activities during and following construction to ensure development agreement procedures are followed and reporting requirements are met.

#### **Mapping & GIS**

- Provide specialized mapping and geographic information services as needed by the Zone and for the benefit of the general public.

#### **Board Management and Administration**

- Prepare resolutions, agreements and other official documents as may be required and, where appropriate, in coordination with Board legal counsel.
- Develop and implement an orientation program to assist new Board members to carry out their duties and responsibilities and to understand applicable policies, procedures, processes, and pertinent laws.
- Coordinate and arrange meetings associated with the respective Boards of Directors and their committees, including preparation of meeting agendas, ensuring proper notification is made in accordance with state statutes and other governing documents that apply, and assembly and distribution of reports and information packets to Board members in advance of meetings.
- Provide support to the Board throughout the meeting, including providing detail as needed on items for action or discussion, advising the Board where appropriate, and taking and subsequently preparing minutes of Board meetings.

### **Information and Communications Management**

- Represent, to the extent appropriate and in coordination with Board leadership, the Board of Directors in discussions and correspondence with elected officials and other public partners/entities, contractors, developers, property owners, citizens, and others regarding planned and actual Zone projects.
- Respond to correspondence or other inquiries from property owners, real estate agents and brokers, potential partner entities and other interested parties with respect to issues or activities relevant to the Zone or the Board.
- Prepare (or cause to be prepared by the appropriate entity) reports, maps, charts and exhibits as requested or pertinent to the Boards of Directors.
- Monitor regulations and comply with reporting requirements of Secretary of State, City, and other regulatory bodies.

### **Financial Administration (Maintained by the City)**

- Review accounting and financial information of the Zone and provide a summary report to the Board (*Note: financials including accounts are maintained by the City*)
- Review/approve Zone invoices.
- Prepare and administer the annual budget for the Zone, including tracking income and monthly expenses, monitoring expenses, and preparing budget reports.
- Coordinate with financial consultants, City, and others on preparation of documents and related information, including annual reports of taxable value within the Zone, financial forecasts and projections for the Zone or a specific project/area, Agreed Upon Procedures associated with development agreements, and others as needed.
- Arrange for the annual independent audit (if required) of the Zone and provide necessary supporting information and documentation as needed.

### **Capital Improvements**

- Collaborate and brainstorm with public and/or private partners to bring high quality design principles, concepts and projects to the Zone.
- Promote design of infrastructure and other capital projects with the capacity to provide needed service but also spur private investment and increase overall economic opportunity, including active collaboration with design and engineering consultants employed by the Zone as well as projects proposed by other public or private entities.
- Collaborate with the City and other potential public sector partners to resolve infrastructure issues as they arise and in a manner that can spur private investment/reinvestment .

### **Contract Administration and Project Management**

- Prepare requests for proposals or qualifications for professional services and bids for contract services as needed and as determined by the Boards of Directors.
- Analyze proposals and bids from prospective contractors and provide summary analyses for consideration of the Boards of Directors in decision-making.
- Provide management oversight for all contractors, including such service providers as engineering/project management consultants, legal counsel, bookkeepers and financial advisors, public infrastructure construction contractors, security services, landscape services, and others that the Clients may employ from time to time.
- Report progress on projects to the board including necessary changes, major milestones, and general feedback as appropriate.

**Exhibit "B"**

**Schedule of Reimbursable Expenses  
Hawes Hill & Associates, LLP**

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**REIMBURSABLE OUT-OF-POCKET EXPENSES**

(The following schedule is effective August 1, 2021)

In-house photocopies	<i>Black &amp; white</i>
	8½ x 11, \$0.15 per page
	8½ x 14, \$0.20 per page
	11 x 14, \$0.25 per page
	<i>Color</i>
	8½ x 11, \$0.50 per page
	8½ x 14, \$0.65 per page
	11 x 14, \$0.70 per page
Data copies	Flash Drive -- \$10.00
GIS mapping	\$150.00 per hour plus actual costs for printing, paper, ink and special mounting.
Binding supplies	<i>Cover stock and binding combs</i> , \$1.00 per set.
Supplies	Special supplies required for a specific project are billed at actual cost.
Delivery services	Billed at actual cost.
Postage	Billed at actual cost.
Mileage	Maximum rate per mile allowed under IRS regulations.



## REQUEST FOR CITY COUNCIL AGENDA ITEM # 16.

Agenda Date Requested	05/28/2024
Requested By	Michael Mize, Police Chief
Department	Police Department
Type	Report

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### Agenda Item

NRA Grant Presentation. [Mike Mize, Chief of Police]

### Summary & Recommendation

The Navasota Police Department (NPD) applied and was awarded a National Rifle Association (NRA) Grant to exclusively purchase training ammunition. The NPD was awarded a total of \$2,019.50 and 10 hearing protection earmuffs. NPD purchased 2000 rounds of .223 ammo, 8000 rounds of 9mm ammo for a total of 10000 rounds of ammunition. This ammo will be put to use for multiple types of training, including stress-induced training for the officers this summer, as well as the Navasota Citizens University class.

### Action Requested by Council

No action

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## REQUEST FOR CITY COUNCIL AGENDA ITEM # 17.

Agenda Date Requested	05/28/2024
Requested By	Susie Homeyer, City Secretary
Department	Administration
Type	Ordinance

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### Agenda Item

Consent agenda: The following items may be acted upon with one motion and a vote. No separate discussion or action is necessary unless requested by the Mayor or City Council members, in which event the item will be removed from the Consent Agenda for separate discussion and/or action by the City Council as part of the regular agenda. [City Council]

Consent agenda items are:

- A. Approve the second reading of Ordinance No. 1045-24, relating to speed zones which specifically designates additional areas in the City of Navasota in which rates of speed of thirty (30) miles per hour or more are authorized.
- B. Approve the second reading of Ordinance No. 1046-24, relating to speed zones which specifically designates additional areas in the City of Navasota in which rates of speed of thirty (30) miles per hour or more are authorized.

### Summary & Recommendation

Consent agenda items may be acted upon with one motion and a vote. No separate discussion or action is necessary unless requested by the Mayor or City Council members, in which event the item will be removed from the Consent Agenda for separate discussion and/or action by the City Council as part of the regular agenda.

- A. Staff has placed the second reading of Ordinance No. 1045-24, on the consent agenda.
- B. Staff has placed the second reading of Ordinance No. 1046-24, on the consent agenda.

### Action Requested by Council

**Approve or deny the second reading of Ordinance No. 1045-24, relating to speed zones which specifically designates additional areas in the City of Navasota in which rates of speed of thirty (30) miles per hour or more are authorized; and the second reading of Ordinance No. 1046-24, relating to speed zones which specifically designates additional areas in the City of Navasota in which rates of speed of thirty (30) miles per hour or more are authorized.**

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### Attachments

Ordinance No. 1045-24  
Ordinance No. 1046-24



**ORDINANCE NO. 1045-24**

**AN ORDINANCE RELATING TO SPEED ZONES WHICH SPECIFICALLY DESIGNATES ADDITIONAL AREAS IN THE CITY OF NAVASOTA IN WHICH RATES OF SPEED OF THIRTY (30) MILES PER HOUR OR MORE ARE AUTHORIZED; RESCINDING ALL PARTS OF ORDINANCES IN CONFLICT HERewith.**

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF NAVASOTA, TEXAS:**

**SECTION I.** That any and all conflicting ordinances or parts of ordinances relating to speed zones on State Highway 90 ("SH 90") in the City of Navasota are hereby rescinded, and the following are additional specifically designated areas in which a rate of speed of thirty (30) miles per hour or more is authorized.

- A.) SH 90, for traffic moving in the easternly direction for 0.450 miles from the State Highway 6 ("SH 6") SB Frontage Road to the Navasota City Limit, the speed limit shall be forty (40) miles per hour. Within the limits of said forty (40) mile per hour speed zone, from approximately 650 feet east of SH 6 SB Frontage Road to approximately 120 feet west of the Navasota City Limit, the speed limit shall be thirty (30) miles per hour when so signed for a school zone.
- B.) SH 90, for traffic moving in a westerly direction for 0.450 miles from the Navasota City Limit to the SH 6 SB Frontage Road, the speed limit shall be forty (40) miles per hour. Within the limits of said forty (40) mile per hour speed zone, from approximately 120 feet west of the Navasota City Limit to approximately 650 feet east of SH 6 SB Frontage Road, the speed limit shall be thirty (30) miles per hour when so signed for a school zone.

**SECTION II. WHEREAS,** the preservation of the general welfare of the public necessitates immediate action, this Ordinance shall be effective from and after the date of its passage on second reading as provided by the Charter of the City of Navasota, Texas.

**PASSED AND APPROVED THIS THE 13<sup>TH</sup> DAY OF MAY, 2024.**

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**BERT MILLER, MAYOR**

**ATTEST:**

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**SUSIE M. HOMEYER, CITY SECRETARY**

**PASSED AND APPROVED ON SECOND READING THIS THE 28<sup>TH</sup> DAY OF MAY,  
2024.**

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**BERT MILLER, MAYOR**

**ATTEST:**

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**SUSIE M. HOMEYER, CITY SECRETARY**



**ORDINANCE NO. 1045-24**

**AN ORDINANCE RELATING TO SPEED ZONES WHICH SPECIFICALLY DESIGNATES ADDITIONAL AREAS IN THE CITY OF NAVASOTA IN WHICH RATES OF SPEED OF THIRTY (30) MILES PER HOUR OR MORE ARE AUTHORIZED; RESCINDING ALL PARTS OF ORDINANCES IN CONFLICT HERewith.**

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF NAVASOTA, TEXAS:**

**SECTION I.** That any and all conflicting ordinances or parts of ordinances relating to speed zones on State Highway 90 ("SH 90") in the City of Navasota are hereby rescinded, and the following are additional specifically designated areas in which a rate of speed of thirty (30) miles per hour or more is authorized.

- A.) SH 90, for traffic moving in the easternly direction for 0.450 miles from the State Highway 6 ("SH 6") SB Frontage Road to the Navasota City Limit, the speed limit shall be forty (40) miles per hour. Within the limits of said forty (40) mile per hour speed zone, from approximately 650 feet east of SH 6 SB Frontage Road to approximately 120 feet west of the Navasota City Limit, the speed limit shall be thirty (30) miles per hour when so signed for a school zone.
- B.) SH 90, for traffic moving in a westerly direction for 0.450 miles from the Navasota City Limit to the SH 6 SB Frontage Road, the speed limit shall be forty (40) miles per hour. Within the limits of said forty (40) mile per hour speed zone, from approximately 120 feet west of the Navasota City Limit to approximately 650 feet east of SH 6 SB Frontage Road, the speed limit shall be thirty (30) miles per hour when so signed for a school zone.

**SECTION II. WHEREAS,** the preservation of the general welfare of the public necessitates immediate action, this Ordinance shall be effective from and after the date of its passage on second reading as provided by the Charter of the City of Navasota, Texas.

**PASSED AND APPROVED THIS THE 13<sup>TH</sup> DAY OF MAY, 2024.**

---

**BERT MILLER, MAYOR**

**ATTEST:**

---

**SUSIE M. HOMEYER, CITY SECRETARY**

**PASSED AND APPROVED ON SECOND READING THIS THE 28<sup>TH</sup> DAY OF MAY,  
2024.**

---

**BERT MILLER, MAYOR**

**ATTEST:**

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**SUSIE M. HOMEYER, CITY SECRETARY**



## REQUEST FOR CITY COUNCIL AGENDA ITEM # 18.

Agenda Date Requested 05/28/2024  
Requested By Jason Weeks, City Manager  
Department Administration  
Type Report

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### Agenda Item

Executive Session: The City Council will conduct an Executive Session in accordance with (a) Section 551.071, Texas Government Code -- Consultation with Attorney -- Consultation with legal counsel regarding City of Navasota water and sewer utility service area(s), including but not limited to Public Utility Commission of Texas Docket No. 54806 re: G & W Water Supply Corporation, and associated matters; and (b) Section 551.071 - Consultation with Attorney - Consultation with Legal Counsel regarding City of Grand Prairie et al v. The State of Texas, Defendant; and 2020 Long Tail Trail Investments, LLC, Intervenor; Cause No. D-1-GN-23-007785; 261st Judicial District Court, Travis County, Texas. [Jason Weeks, City Manager]

### Summary & Recommendation

City staff has determined there is a need for City Council to meet in Executive Session in accordance with (a) Section 551.071, Texas Government Code -- Consultation with Attorney -- Consultation with legal counsel regarding City of Navasota water and sewer utility service area(s), including but not limited to Public Utility Commission of Texas Docket No. 54806 re: G & W Water Supply Corporation, and associated matters; and (b) Section 551.071 - Consultation with Attorney - Consultation with Legal Counsel regarding City of Grand Prairie et al v. The State of Texas, Defendant; and 2020 Long Tail Trail Investments, LLC, Intervenor; Cause No. D-1-GN-23-007785; 261st Judicial District Court, Travis County, Texas.

The time is \_\_\_\_\_ p.m.

### Action Requested by Council

**Conduct an Executive Session in accordance with (a) Section 551.071, Texas Government Code -- Consultation with Attorney -- Consultation with legal counsel regarding City of Navasota water and sewer utility service area(s), including but not limited to Public Utility Commission of Texas Docket No. 54806 re: G & W Water Supply Corporation, and associated matters; and (b) Section 551.071 - Consultation with Attorney - Consultation with Legal Counsel regarding City of Grand Prairie et al v. The State of Texas, Defendant; and 2020 Long Tail Trail Investments, LLC, Intervenor; Cause No. D-1-GN-23-007785; 261st Judicial District Court, Travis County, Texas.**

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## REQUEST FOR CITY COUNCIL AGENDA ITEM # 19.

Agenda Date Requested 05/28/2024  
Requested By Jason Weeks, City Manager  
Department Administration  
Type

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### Agenda Item

Reconvene in open session. [City Council]

### Summary & Recommendation

The time is \_\_\_\_\_p.m.

### Action Requested by Council

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