CITY OF ANGLETON
CITY COUNCIL AGENDA
120 S. CHENANGO STREET, ANGLETON, TEXAS 77515
TUESDAY, APRIL 22, 2025 AT 6:00 PM

Mayor | John Wright
Mayor Pro-Tem | Travis Townsend
Council Members | Cecil Booth, Christiene Daniel, Tanner Sartin
City Manager | Chris Whittaker
City Secretary | Michelle Perez

NOTICE IS HEREBY GIVEN PURSUANT TO V.T.C.A., GOVERNMENT CODE, CHAPTER 551, THAT THE CITY COUNCIL FOR THE CITY OF ANGLETON WILL CONDUCT A MEETING, OPEN TO THE PUBLIC, ON TUESDAY, APRIL 22, 2025, AT 6:00 P.M., AT THE CITY OF ANGLETON COUNCIL CHAMBERS LOCATED AT 120 S. CHENANGO STREET ANGLETON, TEXAS 77515.

DECLARATION OF A QUORUM AND CALL TO ORDER

PLEDGE OF ALLEGIANCE

INVOCATION

CITIZENS WISHING TO ADDRESS CITY COUNCIL

The Presiding Officer may establish time limits based upon the number of speaker requests, the length of the agenda, and to ensure meeting efficiency, and may include a cumulative time limit. Citizens may speak at the beginning or at the time the item comes before council in accordance with Texas Government Code Section 551.007. No Action May be Taken by the City Council During Public Comments.

CEREMONIAL PRESENTATIONS

1. Presentation of the Professional Municipal Clerk Week Proclamation.
2. The recognition of Council Member Cecil Booth for his dedicated service on City Council.

CONSENT AGENDA

All of the following items on the Consent Agenda are considered to be self-explanatory by the Council and will be enacted with one motion. There will be no separate discussion of these items unless requested by the Mayor or a Council Member; in which event, the item will be removed from the consent agenda and considered separately.

3. Discussion and possible action to approve the City Council minutes for April 08, 2025.
4. Discussion and possible action to approve Resolution No. 20250422-004 adopting the Houston-Galveston Area Council of Governments - City of Angleton Hazard Mitigation Plan.

REGULAR AGENDA

5. Update, discussion and possible action on the King Municipal Operations Center Project by Brent Bowles with iAD Architects.

6. Discussion and update on city fire hydrants.

7. Discussion and update on the Texas Department of Transportation (TxDOT)-Transportation Alternative Grant Project.

8. Discussion and update on Steet Bond Package III.

EXECUTIVE SESSION

The City Council will hold executive session pursuant to the provisions of Chapter 551 Texas Government Code, in accordance with the authority contained therein:

9. Discussion and possible action on the deliberation of real property; pursuant to Section 551.072 of the Texas Government Code.

10. Discussion and possible action to deliberate the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee pursuant to Section 551.074 of the Texas Government Code. (Angleton Better Living Corporation, Parks and Recreation Board, Board of Adjustment and Council appointments).

OPEN SESSION

The City Council will now adjourn Executive Session, reconvene into Open Session pursuant to the provisions of Chapter 551 Texas Government Code and take action, if any, on item(s) discussed during Closed Executive Session.

COMMUNICATIONS FROM MAYOR AND COUNCIL

ADJOURNMENT

If, during the course of the meeting and discussion of any items covered by this notice, City Council determines that a Closed or Executive Session of the Council is required, then such closed meeting will be held as authorized by Texas Government Code, Chapter 551, Section 551.071 - consultation with attorney; Section 551.072 - deliberation regarding real property; Section 551.073 - deliberation regarding prospective gift; Section 551.074 - personnel matters regarding the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee; Section 551.076 - deliberation regarding security devices or security audit; Section 551.087 - deliberation regarding economic development negotiations; Section 551.089 - deliberation regarding security devices or security audits, and/or other matters as authorized under the Texas Government Code. If a Closed or Executive Session is held in accordance with the Texas Government Code as set out above, the City Council will reconvene in Open Session in order to take action, if necessary, on the items addressed during Executive Session.

CERTIFICATION

I, Michelle Perez, City Secretary, do hereby certify that this Notice of a Meeting was posted on the City Hall bulletin board, a place convenient and readily accessible to the general public at all times and to the City's website, www.angleton.tx.us, in compliance with Chapter 551, Texas Government Code. The said Notice was posted on the following date and time: Thursday, April 17, 2025, by 6:00 p.m. and remained so posted continuously for at least 72 hours preceding the scheduled time of said meeting.

/S/ Michelle Perez
Michelle Perez, TRMC, CMC
City Secretary

Public participation is solicited without regard to race, color, religion, sex, age, national origin, disability, or family status. In accordance with the Americans with Disabilities Act, persons with disabilities needing special accommodation to participate in this proceeding, or those requiring language assistance (free of charge) should contact the City of Angleton ADA Coordinator, Colleen Martin, no later than seventy-two (72) hours prior to the meeting, at (979) 849-4364 ext. 2132, email: cmartin@angleton.tx.us.

Office of the MAYOR
City of Angleton, Texas
Proclamation

WHEREAS, this annual observance offers an opportunity to recognize and honor the Office of the Professional Municipal Clerk and the critical and essential role they provide to our communities, and

WHEREAS, Municipal clerks are the backbone of local government operations, often working behind the scenes to oversee key functions like recordkeepoing, election management, legislative documentation, and maintaining public trust through transparency and accountability, and

WHEREAS, Professional Municipal Clerks have pledged to be ever mindful of their neutrality and impartiality, rendering equal service to all.

WHEREAS, Professional Municipal Clerks continually strive to improve the administration of the affairs of the Office of the Professional Municipal Clerk through participation in education programs, seminars, workshops and the annual meetings of their state, provincial, county and international professional organizations.

NOW, THEREFORE, be it resolved, the City of Angleton, does hereby extend appreciation to our professional Municipal Clerks—City Secretary Michelle Perez, Assistant City Secretary Desiree Henson—and to all Professional Municipal Clerks for the vital services they perform and their exemplary dedication to the communities they represent and proclaim the week of May 4th to May 10th as:

“Professional Municipal Clerks Week”

PROCLAIMED this 22nd day of April, 2025.

CITY OF ANGLETON, TEXAS

____

John Wright
Mayor

AGENDA ITEM SUMMARY FORM

MEETING DATE: April 22, 2025

PREPARED BY: Michelle Perez

AGENDA CONTENT: Discussion and possible action to approve the City Council minutes for April 08, 2025.

AGENDA ITEM SECTION: Consent Agenda

BUDGETED AMOUNT: N/A **FUNDS REQUESTED:** N/A

FUND: N/A

EXECUTIVE SUMMARY:

Approval of the City Council minutes for April 08, 2025.

RECOMMENDATION:

Approve the City Council minutes for April 08, 2025.

CITY OF ANGLETON

CITY COUNCIL MINUTES

120 S. CHENANGO STREET, ANGLETON, TEXAS 77515

TUESDAY, APRIL 08, 2025 AT 6:00 PM

THE FOLLOWING REPRESENTS THE ACTIONS TAKEN BY THE ANGLETON CITY COUNCIL IN THE ORDER THEY OCCURRED DURING THE MEETING. THE CITY COUNCIL OF ANGLETON, TEXAS CONVENED IN A MEETING ON TUESDAY, APRIL 8, 2025, AT 6:00 P.M., AT THE CITY OF ANGLETON COUNCIL CHAMBERS LOCATED AT 120 S. CHENANGO STREET ANGLETON, TEXAS 77515.

DECLARATION OF A QUORUM AND CALL TO ORDER

With a quorum present, Mayor Pro-Tem Townsend called the Council Meeting to order at 6:00 P.M.

PRESENT
Mayor Pro-Tem Travis Townsend
Council Member Cecil Booth
Council Member Tanner Sartin
Council Member Christiene Daniel
Vacant Position No. 3

City Attorney Grady Randle
City Secretary Michelle Perez

ABSENT
Mayor John Wright
City Manager Chris Whittaker

PLEDGE OF ALLEGIANCE

Council Member Sartin led the Pledge of Allegiance.

INVOCATION

Council Member Booth led the invocation.

CITIZENS WISHING TO ADDRESS CITY COUNCIL

Mike Challenger, Richwood Resident, addressed the Council and the public and stated he is running for Port Freeport Commissioner Position No. 3 and listed his qualifications.

Jodi Depriest, Angleton Resident, addressed Council and stated she is a personal trainer, fitness instructor, nutritionist, and she teaches classes at the recreation center. She would like to add more classes to the recreation center and bring revenue into the city.

CEREMONIAL PRESENTATIONS

1. Presentation of the National Animal Control Officer Appreciation Week Proclamation.

   Mayor Pro-Tem Townsend presented the National Animal Control Officer Appreciation Week Proclamation to Angleton Animal Services.

2. Presentation of the National Public Safety Telecommunicators Week Proclamation.

   Mayor Pro-Tem Townsend presented the National Public Safety Telecommunicators Week Proclamation to the Telecommunicators for Angleton Police Department.

3. Presentation of employee service award.

   Colleen Martin, Director of Human Resources, recognized the employee service award for Raphael Hernandez for five years of service and Thomas Hall for fifteen years of service with the City of Angleton.

4. Ceremonial Presentation of April 2025 Keep Angleton Beautiful Yard of the Month and Business of the Month.

   Jason O'Mara, Interim Director of Parks and Recreation, presented Yard of the Month to Bruce and Pella Branch and Business of the Month to Brazoria County Alliance for Children.

CONSENT AGENDA

5. Discussion and possible action to approve the City Council minutes for January 28, February 11, February 26, March 11, and March 25, 2025.

6. Discussion and possible action to approve Resolution No. 20250408-006 suspending the effective date proposed by CenterPoint Energy Resources Corp., Texas Division, to increase rates under the gas reliability infrastructure program for 45 days and authorize the city's continued participation in a coalition of cities known as the "Alliance of CenterPoint Municipalities-Texas Coast Utilities Coalition".

7. Discussion and possible action to waive fees for the Juneteenth Mass Gatherings permit and authorize use of Bates Park pavilion.

8. Discussion and possible action to waive the Mass Gathering permit fees for the Angleton Girls Softball Association's 10U State Tournament and authorize closure of Bates Park.

   Upon a motion by Council Member Booth and seconded by Council Member Daniel, Council approved Consent Agenda items 5. Discussion and possible action to approve the City Council minutes for January 28, February 11, February 26, March 11, and March 25, 2025; 6. Discussion and possible action to approve Resolution No. 20250408-006 suspending the effective date proposed by CenterPoint Energy Resources Corp., Texas Division, to increase rates under the gas reliability infrastructure program for 45 days and authorize the city's continued participation in a coalition of cities known as the "Alliance of CenterPoint Municipalities-Texas Coast Utilities Coalition"; 7. Discussion

and possible action to waive fees for the Juneteenth Mass Gatherings permit and authorize use of Bates Park pavilion; and 8. Discussion and possible action to waive the Mass Gathering permit fees for the Angleton Girls Softball Association's 10U State Tournament and authorize closure of Bates Park. The motion passed on a 4-0 vote. Mayor Wright was absent.

PUBLIC HEARINGS AND ACTION ITEMS

9. Conduct a public hearing, discussion, and possible action to receive comments regarding the 2025 Standards of Care the Angleton Parks and Recreation Department will operate for youth recreational programs and to approve Ordinance No. 20250408-009 amending and adopting the 2025 Standards of Care for Youth Programs by revising Chapter 17 – Parks and Recreation, Article 1. – In Genera, Section 17-3 Standards of care for youth recreational programs.

Jason O'Mara, Interim Director of Parks and Recreation, addressed Council and stated that the City of Angleton seeks to promote to protect the health, safety, and well-being of the children of the City of Angleton, Texas. Based on Section 42.041 of the Texas Human Resources Code, the City of Angleton is not required to obtain a license from the Department of Family and Protective Services to operate an elementary age (ages 5-13) recreation program provided that the governing body of the City of Angleton annually adopts standards of care by ordinance after a public hearing. On May 14, 2024, the City Council held a public hearing regarding standards of care for its recreation program for elementary-age children (ages 5 through 13) and thereafter passed and approved Ordinance No. 20240514-014 that adopted such standards of care. The Standards of Care for 2025 for the elementary-age recreation youth programs operated by the City of Angleton are included as Exhibit "A" and will replace the standards of care adopted in 2024 codified in Section 17-3, Chapter 17 Parks and Recreation of the Code of Ordinances of the City of Angleton. Staff will provide the standards of care to the parents of each program participant which will outline at a minimum of staffing ratios; staff qualifications; facility, health, and safety standards, and mechanisms for monitoring and enforcing the adopted local standards; and inform parents that the program is not licensed by the state and the program will not be advertised as a child-care facility.

Upon a motion by Council Member Daniel and seconded by Council Member Sartin, Council approved to open the public hearing at 6:17 PM. The motion passed on a 4-0 vote. Mayor Wright was absent.

Upon a motion by Council Member Daniel and seconded by Council Member Sartin, Council approved to close the public hearing at 6:19 PM. The motion passed on a 4-0 vote. Mayor Wright was absent.

Upon a motion by Council Member Daniel and seconded by Council Member Booth, Council approved Ordinance No. 20250408-009 amending and adopting the 2025 Standards of Care for Youth Programs by revising Chapter 17 – Parks and Recreation, Article 1. – In General, Section 17-3 Standards of care for youth recreational programs. The motion passed on a 4-0 vote. Mayor Wright was absent.

REGULAR AGENDA

10. Discussion and possible action to close the Angleton Recreation Center to host the My Neighbor Day event on December 5-7, 2025, to serve Brazoria County residents.

    Jason O'Mara, Interim Director of Parks and Recreation, addressed Council and stated in October of 2024 the Better Life in Sight Foundation partnered with the City of Angleton and Remote Area Medical (RAM) to host a healthcare event called My Neighbor Day in the Angleton community. The event was held at the Angleton Recreation Center and offered eye care, dental, and medical care at no charge to the patients. Data from the event proved that the event was a true success and was well received by Angleton and the surrounding community. Over 200 individuals visited the health clinic throughout the events with 73 people from Angleton city limits. Due to event success and the growing need to serve the greater community, Better Life in Sight is seeking support from the City of Angleton on hosting the My Neighbor Day event in December 2025 and permission to use the Angleton Recreation Center. To facilitate the event, the Angleton Recreation Center will need to be closed to the public from December 5 at 12:00 PM to December 8 at 5:00 AM. To mitigate the impact of the closure, the Better Life in Sight Foundation has agreed to contribute $1,961 to the Recreation Center, covering the estimated revenue loss based on past attendance data.

    Upon a motion by Council Member Daniel and seconded by Council Member Booth, Council approved to close the Angleton Recreation Center to host the My Neighbor Day event on December 5-7, 2025, to serve Brazoria County residents. The motion passed on a 4-0 vote. Mayor Wright was absent.

11. Discussion and possible action to award Bid No. 2025-04 Texian Trail Subdivision Drainage Improvements to Scope Twenty-Eight, LLC for an amount not to exceed $211,327.10.

    Hector Renteria, Director of Public Works, presented the agenda item.

    Upon a motion by Council Member Booth and seconded by Council Member Sartin, Council approved to award Bid No. 2025-04 Texian Trail Subdivision Drainage Improvements to Scope Twenty-Eight, LLC for an amount not to exceed $211,327.10. The motion passed on a 4-0 vote. Mayor Wright was absent.

12. Discussion and possible action on the Final Plat of the Ashland Project Sapphire Springs Trail Street Dedication/Number 4.

    Otis Spriggs, Director of Development Services, introduced the agenda item.

    Upon a motion by Council Member Booth and seconded by Council Member Sartin, Council approved the Final Plat of the Ashland Project Sapphire Springs Trail Street Dedication/Number 4. The motion passed on a 4-0 vote. Mayor Wright was absent.

13. Discussion and possible action on the Final Plat of Ashland Section 3, located east of Sections 1 & 2 off Almadine Dr.

    Otis Spriggs, Director of Development Services, introduced the agenda item.

    Upon a motion by Council Member Booth and seconded by Council Member Daniel, Council approved the Final Plat of Ashland Section 3, located east of Sections 1 & 2 off Almadine Drive. The motion passed on a 4-0 vote. Mayor Wright was absent.

14. Discussion and possible action on the Final Plat of Ashland Development Section 4, located south of Section 3.

    Otis Spriggs, Director of Development Services, introduced the agenda item.

    Upon a motion by Council Member Booth and seconded by Council Member Daniel, Council approved the Final Plat of Ashland Development Section 4, located south of Section 3. The motion passed on a 4-0 vote. Mayor Wright was absent.

15. Discussion and possible action on the Final Plat of Ashland Development Section 5, located directly east of Section 4.

    Otis Spriggs, Director of Development Services, introduced the agenda item.

    Upon a motion by Council Member Daniel and seconded by Council Member Booth, Council approved the Final Plat of Ashland Development Section 5, located directly east of Section 4. The motion passed on a 4-0 vote. Mayor Wright was absent.

16. Discussion and possible action on the Final Plat of Ashland Section 6, located south of future Sapphire Springs Trail.

    Otis Spriggs, Director of Development Services, introduced the agenda item.

    Upon a motion by Council Member Daniel and seconded by Council Member Sartin, Council approved the Final Plat of Ashland Section 6, located south of future Sapphire Springs Trail. The motion passed on a 4-0 vote. Mayor Wright was absent.

17. Discussion and possible action regarding the proposed updates to the Angleton Parks & Recreation Department Cost Recovery policy.

    Jason O'Mara, Interim Director of Parks and Recreation addressed Council and stated on March 11, 2025, staff presented an updated Cost Recovery Policy to City Council, introducing new standards that incorporate both direct costs, originally included in the 2020 policy, and indirect costs to better capture additional expenses associated with programs and events. Following the presentation of the revised policy and a newly proposed cost recovery worksheet, the Council recommended gathering community feedback. To engage residents, staff held a public meeting on April 1, 2025, where 23 Angleton residents attended to review the proposed updates and discuss the pyramid methodology for cost recovery. Attendees participated in an activity to categorize

current programs and events within the cost recovery pyramid, and their input is summarized in the Cost Recovery Public Meeting Data chart included in your packet. Overall, participants provided positive feedback on the structured approach to cost recovery, expressing appreciation for having a clear and transparent method for determining cost recovery rates. Many residents valued the opportunity to contribute their perspectives and found the tiered methodology helpful in understanding how programs are categorized.

On February 3, 2025, the Senior Citizens Commission recommended an alternative approach to cost recovery for senior trips. Instead of shifting these programs to a 25% cost recovery rate under Tier 2: Considerable Community Benefit, they suggested implementing a gas or bus usage fee while keeping the trips in Tier 1.

On February 20, 2025, the Angleton Better Living Corporation (ABLC) expressed support for incorporating indirect costs and recommended moving forward with the updated policy and revised cost recovery spreadsheet.

On March 4, 2025, the Parks Board reviewed the updated policy, discussed the methodology for classifying programs within the pyramid tiers, and endorsed the proposed updates.

Upon a motion by Council Member Daniel and seconded by Council Member Booth, Council approved the proposed updates to the Angleton Parks & Recreation Department Cost Recovery policy to be effective October 1, 2025. The motion passed on a 4-0 vote. Mayor Wright was absent.

18. Update, discussion, and possible action on city special events.

Martha Eighme, Director of Communications, addressed Council and stated in response to citywide budget constraints for FY2024–25, the Communications and Marketing Department submitted a proposal recommending temporarily suspending the Concerts in the Park series and the Freedom Fireworks event. This proposal aimed to help offset the General Fund deficit and included a strategy to contribute a $100,000 transfer from Fund 11 – Community Events Fund to the General Fund by the end of the fiscal year. In March, Finance Director Susie Hernandez presented an agenda item for acceptance of the budgets for the Special Revenue Funds and associated transfers. At that time, the Council approved the $100,000 fund balance transfer from Fund 11.

Concert in the Park - Following Council feedback expressing interest in hosting a limited number of concerts, staff began exploring options for a scaled-back concert series. After receiving Angleton Independent School District's (AISD) football schedule on April 1, staff engaged Jim Luna and the production team, who helped find entertainers to coordinate potential dates. Staff are proposing three Friday evening concerts in September—9/5, 9/12, and 9/19—to take advantage of a one-time stage delivery and set-up while securing reduced rates on portable restrooms. Conversations with potential sponsors are underway to support the modified series.

Staff are also pursuing options to move forward with Freedom Fireworks on Saturday, June 28. Although this event was originally removed from the budget, early sponsor interest suggests a scaled-back show in the $20,000 range would be feasible with 50% or more in sponsorship support. The 2024 show was $28,500.

New Artisan Market, set for August 30–31 at the Brazoria County Fairgrounds. Since its announcement in mid-March, the event had already received 45 vendor applications, indicating strong interest. Modeled after the growth and success of Angleton Market Days, this juried event will feature original handmade goods, culinary creations, and small-batch products, laying the groundwork for a new signature event and future revenue growth.

Upon a motion by Council Member Daniel and seconded by Council Member Booth, Council approved syncing the music through an app to have a grander firework display. The motion passed on a 4-0 vote. Mayor Wright was absent.

EXECUTIVE SESSION

The City Council convened into Executive Session at 7:51 P.M. pursuant to the provisions of Chapter 551 Texas Government Code, in accordance with the authority contained therein:

19. Discussion and possible action on the deliberation of real property; pursuant to Section 551.072 of the Texas Government Code.

OPEN SESSION

The City Council adjourned Executive Session at 8:16 P.M. and reconvened into Open Session pursuant to the provisions of Chapter 551 Texas Government Code and take action, if any, on item(s) discussed during Closed Executive Session.

19. Discussion and possible action on the deliberation of real property; pursuant to Section 551.072 of the Texas Government Code.

No action taken.

COMMUNICATIONS FROM MAYOR AND COUNCIL

Council Member Booth thanked Precinct 1 County Commissioner Jay Burridge for the cleanup next to Masterson Park.

ADJOURNMENT

The meeting was adjourned at 8:17 P.M.

These minutes were approved by Angleton City Council on this the 22nd day of April, 2025.

CITY OF ANGLETON, TEXAS

John Wright
Mayor

ATTEST:

Michelle Perez, TRMC, CMC
City Secretary

THE HEART OF BRAZORIA COUNTY ANGLETON

AGENDA ITEM SUMMARY FORM

MEETING DATE: 04/22/2025

PREPARED BY: Jamie Praslicka

AGENDA CONTENT: Discussion and possible action to approve Resolution No. 20250422-004 adopting the Houston-Galveston Area Council of Governments - City of Angleton Hazard Mitigation Plan.

AGENDA ITEM SECTION: Consent Agenda

BUDGETED AMOUNT: N/A

FUNDS REQUESTED: N/A

FUND: N/A

EXECUTIVE SUMMARY:

The Office of Emergency Management is seeking approval for the 2024 Hazard Mitigation Plan. In collaboration with the Houston-Galveston Area Council, the City of Angleton has developed and implemented its own Hazard Mitigation Plan, which takes into account the potential hazards that Angleton could face. Previously, the City of Angleton was part of the Brazoria County Hazard Mitigation Plan, but it has since taken steps to become independent and develop its own plan. Previously, the City of Angleton was included in the Brazoria County Hazard Mitigation Plan, but since then, it has taken steps to become independent of its plan.

The City Council originally approved the 2024 Hazard Mitigation Plan on April 23, 2024. However, due to the extended time the plan remained under FEMA evaluation, FEMA has requested that the plan be re-approved by Council. The original resolution number is 20240423-011_4/23/2024 and is attached for your reference.

Note: No changes have been made to the plan since its original approval.

RECOMMENDATION:

Approval of Resolution No. 20250422-004 adopting the Houston-Galveston Area Council of Governments - City of Angleton Hazard Mitigation Plan.

RESOLUTION NO. 20250422-004

A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF ANGLETON, TEXAS, ADOPTING THE HOUSTON-GALVESTON AREA COUNCIL OF GOVERNMENTS – CITY OF ANGLETON HAZARD MITIGATION PLAN, AND VESTING THE MAYOR WITH THE RESPONSIBILITY, AUTHORITY, AND MEANS TO INFORM ALL CONCERNED PARTIES OF THIS ACTION; FINDING THAT THE MEETING COMPLIED WITH THE OPEN MEETINGS ACT; AND DECLARING AN EFFECTIVE DATE.

WHEREAS, certain areas of the City of Angleton are subject to periodic flooding and other natural hazards with the potential to cause damage to people and properties within the area; and

WHEREAS, the City of Angleton desires to prepare and mitigate for such circumstances; 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 Plan as a condition of receipt of certain future federal mitigation funding after November 1, 2004; and

WHEREAS, the Houston-Galveston Area Council of Governments (H-GAC) in partnership with the City of Angleton Office of Emergency Management, in order to meet this requirement, have initiated and completed the development of a Hazard Mitigation Plan for the City of Angleton

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

SECTION 1. That the findings set out in the preamble of this resolution are in all things approved and adopted.

SECTION 2. That the City Council of the City of Angleton, Texas adopts the Houston-Galveston Area Council of Governments – City of Angleton Hazard Mitigation Plan; and vests the Mayor of the City of Angleton, with the responsibility, authority, and the means to:

(a) Inform all concerned parties of this action

(b) Develop an addendum to this Hazard Mitigation Plan if the city's unique situation warrants such an addendum.

SECTION 3. That the City Council of the City of Angleton, Texas appoints the Mayor of the City to ensure that the Hazard Mitigation Plan is reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan is developed and presented to the City of Angleton City Council for consideration.

SECTION 4. That the City Council of the City of Angleton, Texas agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

SECTION 5. That the meeting at which this resolution was approved was in all things conducted in strict compliance with the Texas Open Meetings Act, Texas Government Code Chapter 551.

SECTION 6. This resolution shall be effective immediately upon passage.

PASSED AND APPROVED ON THIS THE 22nd DAY OF APRIL 2025.

CITY OF ANGLETON, TEXAS

____
John Wright
Mayor

ATTEST:

____
Michelle Perez, TRMC, CMC
City Secretary

RESOLUTION NO. 20240423-011

A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF ANGLETON, TEXAS, ADOPTING THE HOUSTON-GALVESTON AREA COUNCIL OF GOVERNMENTS – CITY OF ANGLETON HAZARD MITIGATION PLAN, AND VESTING THE MAYOR WITH THE RESPONSIBILITY, AUTHORITY, AND MEANS TO INFORM ALL CONCERNED PARTIES OF THIS ACTION; FINDING THAT THE MEETING COMPLIED WITH THE OPEN MEETINGS ACT; AND DECLARING AN EFFECTIVE DATE.

WHEREAS, certain areas of the City of Angleton are subject to periodic flooding and other natural hazards with the potential to cause damage to people and properties within the area; and

WHEREAS, the City of Angleton desires to prepare and mitigate for such circumstances; and

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SECTION 2. That the City Council of the City of Angleton, Texas adopts the Houston-Galveston Area Council of Governments – City of Angleton Hazard Mitigation Plan; and vests the Mayor of the City of Angleton, with the responsibility, authority, and the means to:

(a) Inform all concerned parties of this action

(b) Develop an addendum to this Hazard Mitigation Plan if the city's unique situation warrants such an addendum.

SECTION 3. That the City Council of the City of Angleton, Texas appoints the Mayor of the City to ensure that the Hazard Mitigation Plan is reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan is developed and presented to the City of Angleton City Council for consideration.

SECTION 4. That the City Council of the City of Angleton, Texas agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

SECTION 5. That the meeting at which this resolution was approved was in all things conducted in strict compliance with the Texas Open Meetings Act, Texas Government Code Chapter 551.

SECTION 6. This resolution shall be effective immediately upon passage.

PASSED AND APPROVED ON THIS THE 23rd DAY OF APRIL 2024.

CITY OF ANGLETON, TEXAS

John Wright
Mayor

ATTEST:

Michelle Perez, TRMC
City Secretary

City of Angleton Hazard Mitigation Plan 2024

Prepared by: The Houston-Galveston Area Council
Amanda Ashcroft, AICP

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List of Acronyms

ASL	above sea level
ASTDR	Agency for Toxic Substances and Disease Registry
BCA	Benefit Cost Analysis
CDBG-MIT	Community Development Block Grant Mitigation
CDC	Centers for Disease Control and Prevention
COLE	Coefficient of Linear Extent
CPZ	Community Protection Zone
CRF	Community Risk Factor
CRS	Community Rating System
DBIR	Data Breach Investigations Report
DDoS	Distributed Denial of Service
DMA 2000	Disaster Mitigation Act of 2000
EAL	expected annual loss
EDT	Eastern Daylight Time
EID	Emerging Infectious Diseases
EM	Emergency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Fire Intensity Scale
FMA	Flood Mitigation Assistance
FPF	Federal Policy Fee
FSA	Farm Service Agency
GIS	Geographic Information Systems
GLO	Texas General Land Office
H-GAC	The Houston-Galveston Area Council
HLR	Historic loss ratio
HMA	Hazard Mitigation Assistance
HMC	Hazard Mitigation Committee
HMAP	Hazard Mitigation Action Plan
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
ICC	Increased Cost of Compliance
K	Susceptibility of the soil to water erosion
LEP	Linear Extensibility Percent
LHMP	Local Hazard Mitigation Plan
LS	Combined effects of slope length and steepness
MRLC	Multi-Resolution Land Characteristics
NCC	Network Control Center
NCEI	National Center for Environmental Information
NCHH	National Center for Healthy Housing
NDFD	National Digital Forecast Database

NFIP	National Flood Insurance Program
NHC	National Hurricane Center
NLCD	National Land Cover Database
NLDN	National Lightning Detection Network
nmi	nautical miles
NOAA	National Oceanic and Atmospheric Administration
NRI	National Risk Index
NSSL	NOAA's National Severe Storms Laboratory
NWS	National Weather Service
P	probability
PMT	Plan Maintenance Team
PT	Planning Team
PVI	Pandemic Vulnerability Index
R	Rainfall and runoff factor
RHMP	Regional Hazard Mitigation Plan
RL	repetitive loss
RUSLE	Revised Universal Soil Loss Equation
S	severity
SED	State Executive Director
SFHA	special flood hazard areas
SPC	Storm Prediction Center
SRL	severe repetitive loss
SVI	Social Vulnerability Index
TCEQ	Texas Commission on Environmental Quality
TDEM	Texas Division of Emergency Management
TWRA	Texas Wildfire Risk Assessment
TxWrap	Texas Wildfire Risk Assessment Portal
USDA	United States Department of Agriculture
USDM	United States Drought Monitor
USLE	Universal Soil Loss Equation
VPI	Vulnerable Population Index
WSSI	Winter Storm Severity Index
WUI	wildland urban interface

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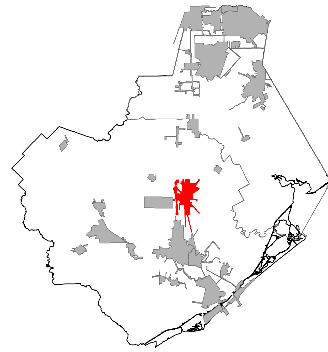
Appendix B	H-GAC Maps
Appendix C	Critical Facilities
Appendix D	Meeting Documentation
Appendix E	Survey Results
Appendix F	Plan Adoption

Section 1: Introduction

This section includes the introduction of the plan. This section contains background context, the planning need, purpose, scope, and organization of the plan.

Section 1: Introduction

In 2011, Brazoria County's Hazard Mitigation Plan (HMP) was updated as part of a seven-county Regional Hazard Mitigation Plan (RHMP) led by H-GAC. In 2018, due to new regulations and planning recommendations, Brazoria County prepared a countywide multi-jurisdictional HMP, of which the City of Angleton was a participating jurisdiction. The City of Angleton partnered with the Houston-Galveston Area Council (H-GAC) for a new Local Hazard Mitigation Plan (LHMP) for 2024.



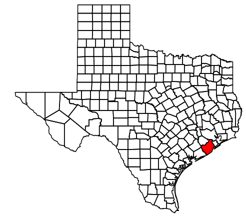


Image source: https://en.wikipedia.org/wiki/Angleton,_Texas

History

On April 28, 2006, the Federal Emergency Management Agency (FEMA) and the Texas Division of Emergency Management (TDEM) approved the first Regional Hazard Mitigation Plan which was later updated in 2011. These RHMPs were a collaboration between 85 local governments to identify regional hazards, vulnerabilities, and 300+ mitigation projects that could be implemented within the region. The 2018, due to new regulation and planning recommendations, Brazoria County, in which the City of Angleton was a participating jurisdiction to the plan, prepared a new countywide multijurisdictional Hazard Mitigation Plan that included a more robust assessment of natural hazards, newly uncovered vulnerabilities, more advanced analysis techniques, and a more effective and informed mitigation strategy. In 2022 The City of Angleton was awarded a LHMP Program grant through H-GAC from the Texas General Land Office (GLO) to develop a new HMP for the city.

Purpose of Plan

The purpose of The City of Angleton's LHMP is to reduce the loss of life and property within the city, lessen the negative impacts of natural disasters, and increase the resiliency of the community to hazards. Vulnerability to several natural hazards has been identified through a risk assessment, public input, research, and analysis. These hazards threaten the safety of residents and have the potential to damage or destroy both public and private property, disrupt the local economy, and impact the overall quality of life of individuals who live, work, and play in the city. While natural hazards cannot be eliminated, the effective reduction of a hazard's impact can be accomplished through thoughtful planning and action.

The concept and practice of reducing risks to people and property from known hazards is generally referred to as hazard mitigation. One of the most effective tools a community can use to reduce hazard vulnerability is developing, adopting, and updating a hazard mitigation plan as needed. A hazard mitigation plan establishes the broad community vision and guiding principles for reducing hazard risk, including the development of specific mitigation actions designed to eliminate or reduce identified vulnerabilities.

Planning Need

HMPs should serve as a living document that outlines the communities' long-term strategies to reducing damage to life, and property, and increasing the resilience to the natural hazards it is affected by. HMPs must be updated every 5 years per the Disaster Mitigation Act of 2000 (DMA 2000). This plan serves as the 2024 LHMP for the City of Angleton. The 2024 City of Angleton HMP adhered to the FEMA updated policy guide (FP-206-21-0002), Released on April 19, 2022. The new policy guide became effective on April 19, 2023. Updates included but were not limited to expanding outreach efforts to include those from various community lifelines within the in the planning process, extensive mapping updates to critical facilities, community lifelines, and other data to visually highlight vulnerabilities to identified hazards, updating the process for risk and capability assessments, and including new hazards to incorporate based on recent events such as winter storms and the Covid-19 Pandemic of 2020.

Scope of Plan

This HMP includes the following participating jurisdictions:

- City of Angleton

The HMP profiles the following hazards:

- Hurricanes, Tropical Storms & Tropical Depressions
- Flooding
- Winter Weather
- Tornado
- Extreme Heat
- Wildfire
- Drought & Expansive Soils
- Severe Thunderstorm & Lightning
- Hail
- Windstorm
- Erosion
- Emerging Infectious Diseases
- Cybersecurity

Plan Organization

The 2024 City of Angleton HMP contains 8 sections:

Section 1 is the introduction of the plan. This section contains background context, the planning need, purpose, scope, and organization of the HMP.

Section 2 identifies the planning process, which involves a description of the HMP methodology and development process, identifying Planning Team members, Hazard Mitigation Committee members, roles and responsibilities of those members, stakeholder involvement efforts, meeting dates and summaries, and plan development resources.

Section 3 contains the community profile, which provides a history of hazard events, an overview of the planning area, geographic setting, land use and land cover, population demographics, vulnerable population information, housing and household arrangements, loss estimations, critical facilities, repetitive loss, and severe repetitive loss properties, NFIP and CRS participation, and NFIP policies in force information.

Section 4 outlines the risk assessment procedures and identifies hazards ranked by risk that affect the City of Angleton.

Section 5 includes the capability assessment, which includes a summary and description of the existing plans, programs, and regulatory mechanisms that support hazard mitigation within the planning area.

Section 6 is broken down into subsections for each hazard of concern to the city identified during the risk assessment. It contains descriptions of identified hazards, hazard location, extent, history of events, probability of future events, and climate change impacts. Additionally, vulnerability is addressed for all hazards and includes a probable risk level, an estimate of property and crop damages, number of events, fatalities and injuries, average annual events, changes in frequency, and estimated annualized losses, where applicable.

Section 7 covers the mitigation strategy summary, which provides the mitigation goals, objectives, and action items included in the Hazard Mitigation Action Plan in response to identified hazards.

Section 8 provides and overview of plan maintenance procedures which includes information on monitoring, evaluating, and updating the plan, and a description of how this plan will be incorporated into existing programs.

The appendices cover the hazard summary data (Hazus), H-GAC created maps, a comprehensive list of critical facilities, meeting documentation, and plan adoption.

Appendix A- Hazus Results
Appendix B- H-GAC Maps
Appendix C- Critical Facilities
Appendix D- Meeting Documentation
Appendix E- Survey Results
Appendix F- Plan Adoption

Section 2: Planning Process

This section summarizes the planning process, which involves a description of the HMP methodology and development process, identifying Planning Team members, Hazard Mitigation Committee members, roles and responsibilities of those members, stakeholder involvement efforts, meeting dates and summaries, and plan development resources.

Section 2: Planning Process

Overview

Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to people and property from hazards and their effects. It includes long-term solutions that reduce the impact of disasters in the future. A core assumption of hazard mitigation is that pre-disaster investments will significantly reduce the demand for post-disaster assistance by alleviating the need for emergency response, repair, recovery, and reconstruction[1].

Hazard mitigation planning is the process of identifying natural hazards, assessing hazard vulnerability and risk, understanding community capabilities and resources, and determining how to minimize or manage those risks. In partnership with the City of Angleton, H-GAC approached the hazard mitigation planning process by establishing a Planning Team (PT) and a Hazard Mitigation Committee (HMC) as outlined in the tables below. The PT included H-GAC staff and the point of contact for the 's Office of Emergency Management. The HMC was comprised of representatives from the City of Angleton and a wide range of stakeholders within the city and surrounding areas. All members identified were asked to participate in the HMC or attend an HMP meeting throughout the planning process via email, website(s), the H-GAC website, and social media. All meetings hosted for this plan update were open to the public.

The PT outlined roles and expectations during the Kickoff meeting, which included the following:

1) *Participate in the process.*
   a) It must be documented in the plan that each participating jurisdiction participates in the process that generated the plan. At each meeting of the Hazard Mitigation Committee for this planning process, we will be documenting attendance, participation, and the collection of any handouts or worksheets provided to you. If you cannot attend the scheduled Hazard Mitigation Committee meeting, attendance can be supplemented with a 1-1 meeting with H-GAC staff.
2) *Consistency Review.*
   a) Review of existing documents pertinent to each jurisdiction
3) *Action Review.*
   a) For plan updates, a review of the strategies from your prior action plan to determine those that have been accomplished and how they were accomplished; and why those that have not been accomplished were not completed.
4) *Update Localized Risk Assessment.*
   a) Each jurisdiction will complete the Risk Identification/Risk Assessment by either working individually and averaging scores among all participating jurisdictions, working together as a group, or a combination of both to remove hazards not associated with the defined jurisdictional area or determining if any hazards need to be added or updated.
5) *Capability assessment.*
   a) Each planning partner must identify and review their individual regulatory, technical, and financial capabilities with regards to the implementation of hazard mitigation actions.
6) *Personalize mitigation recommendations & create an Action Plan.*
   a) Identify and prioritize mitigation recommendations specific to each jurisdiction's defined area.
7) *Incorporate Public Participation.*
   a) Representatives from a broad range of sectors, community lifelines, organizations that support underserved communities, the public and community-based organizations need to be given the opportunity to provide input on, and participate in, the planning process. The Hazard Mitigation Committee will assist with various tasks, when needed, for these types of events.

Planning Team

The City of Angleton and H-GAC established the Planning Team in February 2023 during a pre-kickoff meeting in preparation for the full kickoff meeting held on March 16, 2023. Members were asked to attend all public meetings either in person or online (if applicable). Online materials, surveys, forms, and documentation are provided in Appendix D. Representatives from the 's Office of Emergency Management served as liaisons between H-GAC and stakeholders, staff, and members of the public who were unable to attend the meetings.

Table 2.1: City of Angleton Planning Team Members

Representative Name & Position/Title	Jurisdiction
Glenn LaMont, Emergency Management Coordinator (retired)	City of Angleton
Jamie Praslicka, Emergency Management Coordinator (current)	City of Angleton
Cheryl Mergo, Senior Manager	H-GAC
Amanda Ashcroft, AICP, Planner	H-GAC

Hazard Mitigation Committee

The City of Angleton and H-GAC established the Hazard Mitigation Committee in February 2023 in preparation for the kickoff meeting held on 3/16/2023. Members were asked to participate in the HMC via email by the 's Emergency Management Coordinator. A concentrated effort was made to include those who oversee, or aid, underserved populations to participate in this planning process. Members of the HMC were asked to attend all public meetings either in person or online (if applicable). Online materials, surveys, forms, and documentation are provided in Appendix D. Representatives from the city's Office of Emergency Management served as liaisons between H-GAC and stakeholders, staff, and members of the public who were unable to attend the meetings.

Table 2.2: City of Angleton Hazard Mitigation Committee Members

Representative Name	Organization	Title
Anthony Norris	City of Angleton	Fire Captain
Beth Reimschissel	UTMB	Administrator, Angleton Danbury Campus Associate Chief Nursing & Patient Care Services Officer
Breah Knape	ActionS, Inc of Brazoria County	Executive Director
Bryan Sidebottom	City of Lake Jackson	Assistant Chief - Emergency Operations | Deputy EOC Coordinator
Chamane M. Barrow	Brazoria County Center for Independent Living	
Chris Whittaker	City of Angleton	Manager
Corey Lukasheay	City of Angleton	Fire Department Lieutenant
Glenn LaMont	City of Angleton	Emergency Management Coordinator
Jamie Praslicka	City of Angleton	Emergency Management Coordinator
Hector Renteria	City of Angleton	Assistant Public Works Director
John Deptuch	City of Angleton	Safety & Facilities Coordinator
John Peterson	HDR	Engineer
Karen Gibson	Angleton Drainage District	Office Manager
KJ Rabe	The Coalition for Barrier Free Living, Inc., Brazoria County Center for Independent Living	Senior Independent Living-Community Integration Specialist (Sr. IL-CIS)

Otis Spriggs	City of Angleton	Director of Development Services/ Planner
Pam Goodson	Brazoria County Center for Independent Living	Independent Living Program Manager
Roberto Muñoz	Angleton ISD	Assistant Superintendent of Student Services
Sara Grether Richards	Country Village Care	Owner
Stephenie Pharr	UTMB	Director, Ambulatory Care Services
Will Blackstock	City of Clute	Director of Parks and Recreation / Deputy Emergency Management Coordinator
Cheryl Mergo	Senior Manager	H-GAC
Amanda Ashcroft, AICP	Planner	H-GAC

Meeting Dates & Details

Members of the HMC, as well as stakeholders, met regularly to identify hazards, assess risks, review critical facilities, and assist at workshops or public events/hearings to organize, set-up, assist, and answer questions from the public. All members of the HMC had the opportunity to review the draft plan and assist with public outreach efforts and events. Table 2.3 below outlines the participation by each member invited to serve on the HMC for various meetings held throughout the planning process. This does not reflect all planning activities conducted by the PT or HMC. There were various individual meetings between jurisdictions and the PT, phone calls, and other forms of correspondence that are not reflected here. All meeting materials, including agendas, notes, list of attendees, completed worksheets, and outreach notices for public meetings can be found in Appendix A.

Table 2.3: Participation Matrix

Representative Name	Organization	Kickoff Meeting 3/16/23	Risk & Capability Assessment 4/20/23	Public Meeting Planning 8/23/23	Public Meeting #1 9/14/23	Public Meeting, Facebook Live 10/11/23	Plan Draft Review 2/27/24
Anthony Norris	City of Angleton						
Beth Reimschissel	UTMB		X				
Breah Knape	ActionS, Inc of Brazoria County						
Bryan Sidebottom	City of Lake Jackson	X	X				
Chamane M. Barrow	Brazoria County Center for Independent Living						
Chris Whittaker	City of Angleton				X		
Corey Lukasheay	City of Angleton	X	X				
Glenn LaMont	City of Angleton	X	X				
Jamie Praslicka	City of Angleton			X	X	X	X
Hector Renteria	City of Angleton	X	X				
John Deptuch	City of Angleton	X	X		X		
John Peterson	HDR	X	X				
Karen Gibson	Angleton Drainage District						

KJ Rabe	The Coalition for Barrier Free Living, Inc., Brazoria County Center for Independent Living		X				
Otis Spriggs	City of Angleton		X				
Pam Goodson	Brazoria County Center for Independent Living		X				
Roberto Muñoz	Angleton ISD						
Sara Grether Richards	Country Village Care	X					
Stephenie Pharr	UTMB		X				
Will Blackstock	City of Clute	X					
Cheryl Mergo	H-GAC	X	X	X	X		
Amanda Ashcroft	H-GAC	X	X	X	X	X	X

*Entered the plan on 9/23/2023

March 16, 2023: Hazard Mitigation Kickoff Meeting

The PT hosted a kickoff meeting of the HMC on March 22, 2023, at the Angleton City Hall located at 121 S Velasco St, Angleton, TX 77515. The purpose of the kickoff meeting was to introduce the hazard mitigation planning process and its importance to all attendees, to gather feedback and input about various hazards and local vulnerabilities, and to discuss the risk assessment for the city. The HMC was given a presentation covering the benefits of hazard mitigation, the planning process and timeline, updates to FEMA policies surrounding hazard mitigation plans that took effect in April 2023, and expectations for those participating in the HMC. The committee discussed the next steps for the planning process and the risk assessment. Before the meeting, community members and stakeholders were invited to attend and learn about the hazard mitigation planning process through meeting notices posted on social media, the H-GAC website, and the Angleton city website.

April 20, 2023: Risk and Capability Assessment Meeting

The PT hosted a meeting to cover the capability assessment worksheet and collected completed risk assessment worksheets from HMC members on April 20, 2023, at the Angleton City Hall located at 121 S Velasco St, Angleton, TX 77515. The purpose of this meeting was to review the capability assessment worksheet and instructions. The HMC then reviewed the various sections of the capability assessment worksheet. The categories discussed were:

1) Prevention- Administrative or regulatory actions that influence how land is developed and buildings are built. Examples include planning & zoning, building codes, open space preservation, and floodplain regulations.
2) Property Protection- Modification or removal of existing buildings to protect them from a hazard. Examples include purchase, relocation, raised elevation, and structural retrofits.
3) Natural Resource Protection- Preservation or restoration of the functions of natural systems while minimizing hazard losses. Examples include floodplain protection, forest management, and slope stabilization.

4) Structural Projects- Modification of the natural conditions for or progression of a hazard. Examples include dams, levees, seawalls, detention/retention basins, channel modification, retaining walls, and storm sewers.
5) Emergency Services- Protection of people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of emergency facilities.
6) Public Education and Awareness- Informing of citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach, school education, library materials, and demonstration events.

The capability assessment also had areas where participants would be tasked with identifying opportunities to enhance local capabilities to better integrate hazard mitigation into their plans, programs, and day-to-day operations. The committee completed the capability assessment worksheet together at this meeting.

The committee then discussed the online survey development that would be used to gather input from stakeholders within the city, the next steps for the planning process, discussed public engagement event planning, and what events could look like to gather input. Before the meeting, community members and stakeholders were invited to attend and learn about the hazard mitigation planning process through meeting notices posted on social media, the H-GAC website, and the Angleton city website.

June 17, 2023: Brazoria County Hurricane and Disaster Preparedness Expo

A public event hosted by Brazoria County took place on June 17, 2023, from 8:30 AM - 2:00 PM at the Brazoria County Fairgrounds located at 901 S Downing Rd, Angleton, TX, 77515. This was a heavily attended event that offered community members various information about risks and resources available to them, with free food, emergency vehicle tours, raffle prizes of emergency preparedness items (including generators), and even an HEB mascot appearance for kids. Many children and adults were in attendance and stopped by the H-GAC table which was set up with interactive activities for residents to provide their feedback on hazards of concern for Brazoria County and the City of Angleton. Data collected was sorted out for Brazoria County and City of Angleton residents via color coding respondents. All Brazoria County data was provided to the point of contact in charge of updating the Brazoria County HMP. Feedback activities were organized in a variety of formats from large, printed maps where participants could mark areas of concern within their community or add critical facilities to the map, an input exercise where participants had to assign dollars to mitigation project ideas, feedback worksheets that discussed how emergency notifications were received within the and how these communications could be improved, and a dot exercise where participants had to notate their top three hazards of concern within the using stickers. Public input helps the project team analyze potential hazards affecting residents and recommend possible actions to reduce their impact. H-GAC also provided information about the HMP and its importance, disaster preparedness flyers with preparedness checklists for vulnerable populations on the back (translated in 4 different languages), and flyers with a QR code that linked to the online survey that also gave a brief overview of the HMP and why input was needed.

August 14, 2023: Public Engagement Planning

The PT met briefly via Microsoft Teams to discuss planning a public engagement event to solicit more public feedback, types of activities to include, and timing. The public meeting event was scheduled for September 19th, 2023, from 6:00- 8:00 PM at the First Presbyterian Church located at 130 South Arcola Street, Angleton, TX 77515.

September 19, 2023: Public Meeting Event

A public meeting was hosted on September 19th, 2023, from 6:00- 8:00 PM at the First Presbyterian Church located at 130 South Arcola Street, Angleton, TX 77515. The purpose of this meeting was to provide a hazard mitigation planning project overview from the PT and HMC members in attendance and solicit feedback and information from stakeholders. Feedback activities were organized in a variety of formats from large, printed maps where participants could mark areas of concern within their community or add critical facilities to the map, an input exercise where participants had to assign dollars to mitigation project ideas, feedback worksheets that discussed how emergency notifications were received within the and how these communications could be improved, and a dot exercise where participants had to notate their top three hazards of concern within the using stickers. Public input helps the project team analyze potential hazards affecting residents and recommend possible actions to reduce their impact. Unfortunately, no residents showed up to this meeting.

October 11, 2023: Public Engagement Planning

A public meeting was hosted via Facebook Live on October 11, 2023, from 1:00-2:00 PM. The purpose of this meeting was to provide a hazard mitigation planning project overview from the PT and HMC members in attendance and solicit feedback and information from stakeholders. Community members could provide comments live during the meeting or reach out to PT members after the meeting via email or phone. There were some residents in attendance for this event, but no questions were asked. The survey was also shared and QR code provided during the meeting.

February 27, 2024: Draft Plan Review

The PT held a meeting to discuss and provide feedback on draft sections of the plan that were completed and any changes that needed to occur for plan development to be completed.

Participation & Public Input

Public input and participation are a crucial element of hazard mitigation planning. Public input was solicited and gathered via the following ways for this plan update:

1) Community Events
   a) The PT had the opportunity to set up a table and collect feedback from citizens and residents of Brazoria County at the Hurricane and Disaster Preparedness Expo hosted on Saturday, June 17, 2023. This was a heavily attended event that offered community members various information about risks and resources available to them, with free food, emergency vehicle tours, raffle prizes of emergency preparedness items (including generators), and even the H-E-B mascot. Many children and adults were in attendance and stopped by the H-GAC table setup with interactive activities to offer their feedback on hazards of concern for Angleton. Data collected was sorted out for Brazoria County and City of Angleton residents. All Brazoria County data was provided to the point of contact in charge of updating the Brazoria County HMP.

2) An online survey
   a) The online survey was open from May 8, 2023, to October 31, 2023. In total, there were only 2 responses to the survey. Survey questions asked participants about hazards of concern, vulnerable community assets, how they receive information regarding hazards, what the city can do to better communicate about hazards.

3) Public Meetings
   a) A public meeting was hosted on September 19th, 2023, from 6:00- 8:00 PM at the First Presbyterian Church located at 130 South Arcola Street, Angleton, TX 77515. Feedback activities were organized in a variety of formats from large, printed maps where participants could mark areas of concern within their community or add critical facilities to the map, an input exercise where participants had to assign dollars to mitigation project ideas, feedback worksheets that discussed how emergency notifications were received within the and how these communications could be improved, and a dot exercise where participants had to notate their top three hazards of concern within the using stickers. Unfortunately, no residents showed up to this meeting.
   b) A Facebook Live Event was hosted on October 11, 2023, from 1:00-2:00 PM.

4) Draft Plan Public Input Survey
   a) The online survey was opened on March 27, 2023, to gather public comments regarding the finished draft of the City of Angleton HMP for 2024. A full list of survey results can be found in Appendix E

Feedback and input from the public were used to identify vulnerabilities within the city, identify valuable assets, identify critical facilities, and further develop the risk assessment. Additionally, H-GAC hosted all HMP-related materials online and advertised meeting information, presentations, and meeting notes for those who were unable to attend through this public-facing website: https://www.h-gac.com/regional-hazard-mitigation-planning.

Plan Development Resources

The City of Angleton HMP was developed using existing plans, studies, reports, and technical information. Materials and historical data were used to inform participants throughout the planning process, evaluate and analyze hazards, and develop the mitigation strategy. For a full list of references, seen endnotes.

Plan Development Resources: Existing Documents and Data	
2023 Texas State Hazard Mitigation Plan	List of Reports and Publications | 2022 Census of Agriculture | USDA/NASS
2023 Data Breach Investigations Report | Verizon	Losing Ground: Flood Data Visualization Tool (nrdc.org)
2023 Texas State Hazard Mitigation Plan	Major Land Resource Area (MLRA) | Natural Resources Conservation Service (usda.gov)
American Community Survey (ACS) (census.gov)	Mayo Clinic
Association of State Dam Safety	MRLC Viewer
Census.gov	National Centers for Environmental Information (NCEI) (noaa.gov)
FEMA 2013 Mitigation Ideas	National Institute of Allergy and Infectious Diseases (NIAID) (nih.gov)
FEMA 2021 Mitigation Action Portfolio	National Institute of Environmental Health Sciences: NIEHS Home page (nih.gov)
FEMA 2022 Local Mitigation Planning Policy Guide	National Oceanic and Atmospheric Administration (noaa.gov)
FEMA 2023 Local Mitigation Planning Handbook	National Weather Service
FEMA Declared Disasters	NOAA National Severe Storms Laboratory
FEMA Flood Map Service Center	NOAA Storm Event Database
FEMA Hazardous Response Capabilities	Office of the Texas State Climatologist (tamu.edu)
Flood Insurance Data and Analytics (floodsmart.gov)	Plan Ahead for Disasters | Ready.gov
HEAT.gov - National Integrated Heat Health Information System	Texas A&M Forest Service Wildfire Risk Assessment Portal
H-GAC 2011 Regional Hazard Mitigation Plan	TSHA (tshaonline.org)
H-GAC 2018 Multijurisdictional Hazard Mitigation Plan	USGS HIFLD Open Data
H-GAC Regional Demographic Snapshot	Vaisala National Lightning Detection Network (NLDN) Flash Data (Restricted) (noaa.gov)
H-GAC Regional Flood Information	Web Soil Survey - Home (usda.gov)

Section 3: Community Profile

This section contains the community profile, which provides a history of hazard events, an overview of the planning area, geographic setting, land use and land cover, population demographics, vulnerable population information, housing and household arrangements, loss estimations, critical facilities, repetitive loss and severe repetitive loss properties, NFIP and CRS participants, and NFIP policies in force.

Section 3: Community Profile

History of Hazard Events

The City of Angleton has persevered through many natural disasters. Table 3.1 below lists the presidentially declared emergency and major disaster declarations that the city has experienced since 1953. Each disaster is costly and challenging. Presidential disaster declarations are issued for hazard events that cause more damage than state and local governments can handle without assistance from the federal government. A presidential disaster declaration mobilizes federal recovery programs to assist disaster victims, businesses, and public entities. A review of these presidential disaster declarations helps establish the probability of reoccurrence and assists in identifying targets for risk reduction through potential mitigation actions. Table 3-1 shows FEMA disaster declarations for Brazoria County, in which the City of Angleton is located.[1],[2]

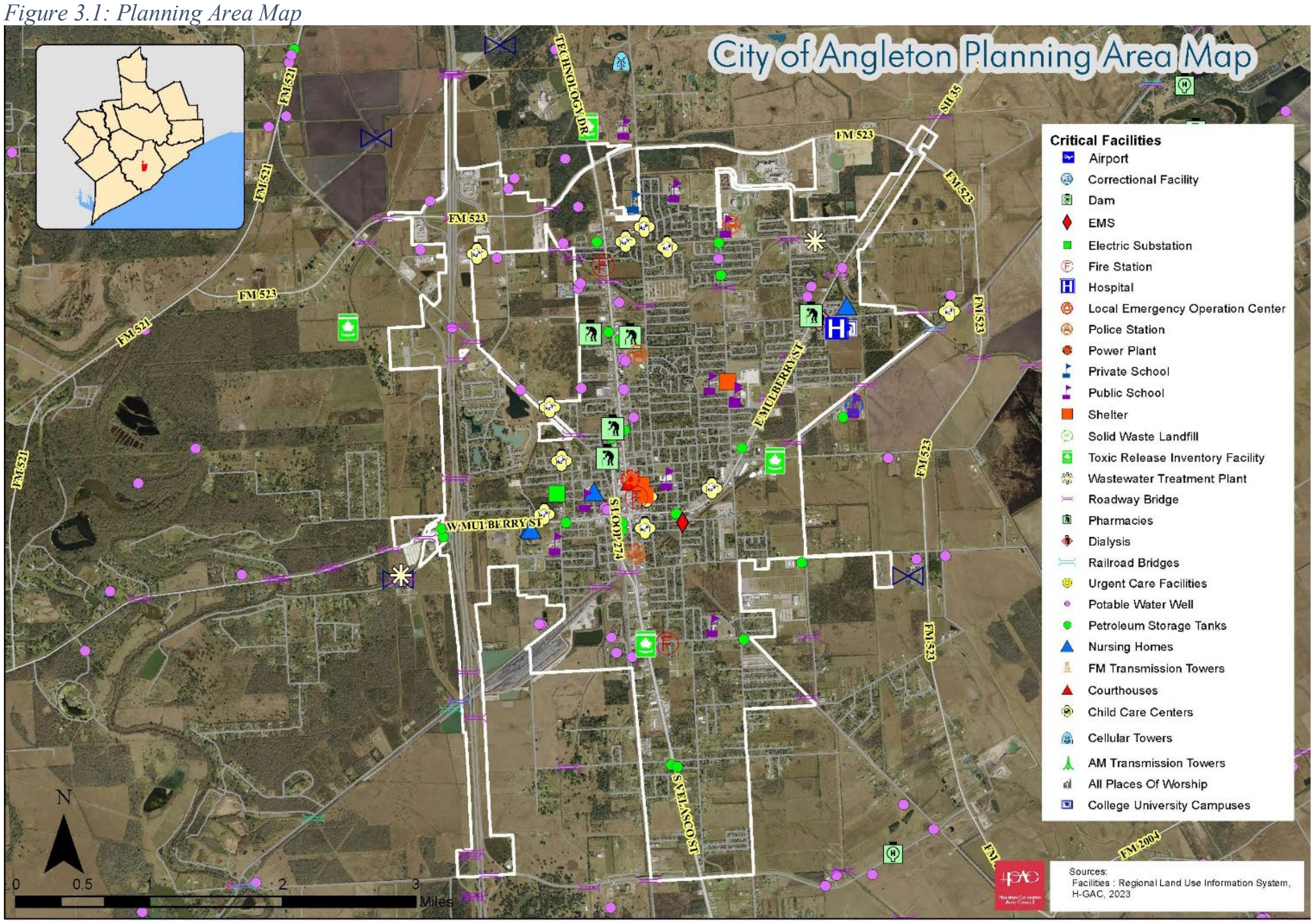
Table 3.1: Presidential Disaster Declarations

Declaration Date	Disaster No.	Declaration Type	Incident Type	Title
7/11/1973	398	Major Disaster Declaration	Flood	Severe Storms and Flooding
7/28/1979	595	Major Disaster Declaration	Flood	Texas Storms, Flash Floods
9/25/1979	603	Major Disaster Declaration	Flood	Texas Severe Storms, Flooding
8/19/1983	689	Major Disaster Declaration	Hurricane	Hurricane Alicia
4/12/1991	900	Major Disaster Declaration	Severe Storm	Texas Flooding, Severe Storm, Tornado
12/26/1991	930	Major Disaster Declaration	Flood	Severe Thunderstorms
9/10/1993	3113	Emergency Declaration	Drought	Extreme Fire Hazard
10/18/1994	1041	Major Disaster Declaration	Flood	Severe Thunderstorms and Flooding
8/26/1998	1239	Major Disaster Declaration	Severe Storm	Tropical Storm Charley
10/21/1998	1257	Major Disaster Declaration	Flood	TX-Flooding 10/18/98
9/1/1999	3142	Emergency Declaration	Fire	Extreme Fire Hazards
9/2/2005	3216	Emergency Declaration	Hurricane	Hurricane Katrina Evacuation
9/21/2005	3261	Emergency Declaration	Hurricane	Hurricane Rita
9/24/2005	1606	Major Disaster Declaration	Hurricane	Hurricane Rita
1/11/2006	1624	Major Disaster Declaration	Fire	Extreme Wildfire Threat
3/14/2008	3284	Emergency Declaration	Fire	Wildfires
8/29/2008	3290	Emergency Declaration	Hurricane	Hurricane Gustav
9/10/2008	3294	Emergency Declaration	Hurricane	Hurricane Ike
9/13/2008	1791	Major Disaster Declaration	Hurricane	Hurricane Ike
5/29/2015	4223	Major Disaster Declaration	Severe Storm	Severe Storms, Tornadoes, Straight-Line Winds and Flooding
4/25/2016	4269	Major Disaster Declaration	Flood	Severe Storms and Flooding
6/11/2016	4272	Major Disaster Declaration	Flood	Severe Storms and Flooding
8/25/2017	4332	Major Disaster Declaration	Hurricane	Texas Hurricane Harvey
3/13/2020	3458	Emergency Declaration	Biological	COVID-19
3/25/2020	4485	Major Disaster Declaration	Biological	COVID-19 Pandemic
2/14/2021	3554	Emergency Declaration	Severe Ice Storm	Severe winter storm
2/19/2021	4586	Major Disaster Declaration	Severe Ice Storm	Severe winter storms

Planning Area Overview

The following information will showcase data, demographics, and items specific to the City of Angleton. The City of Angleton serves as the county seat for Brazoria County. The largest industries in Brazoria County, TX are Health Care & Social Assistance (23,747 people), Manufacturing (21,998 people), and Construction (18,526 people), and the highest-paying industries are Utilities ($99,892), Mining, Quarrying, & Oil & Gas Extraction ($93,500), and Manufacturing ($86,730). The most common job groups, by number of people living in Brazoria County, TX, are Management Occupations (20,136 people), Office & Administrative Support Occupations (18,113 people), and Sales & Related Occupations (14,011 people). Angleton's median household income is just above the $73,035 median income for the State of Texas. Brazoria County's annual median household income is $91,972 and the City of Angleton's median household income is $77,235. [3] The county's unemployment rate in 2022 was 4.5%, higher than the national average of 3.9%.[4,5]

Figure 3.1: Planning Area Map



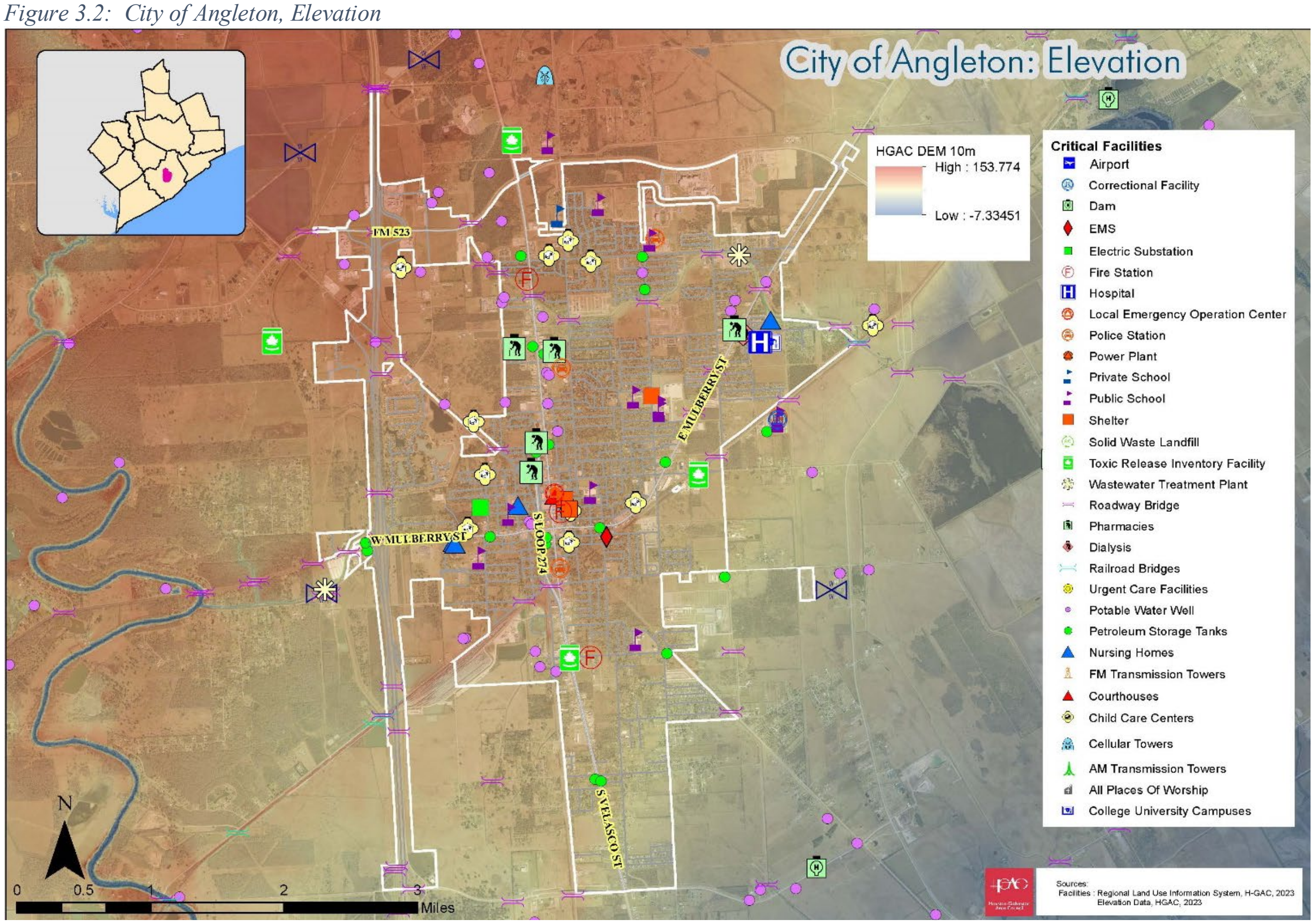
According to the 2020 US Census data, The City of Angleton's population was 19,610.[3] Population, according to the Texas Demographic Center Population Estimates Program, is expected to slowly increase over time. The city saw a 2.4% increase from 2020 to 2023.[6] Population change includes two major components: natural increase (births minus deaths) and net migration (in-migrants minus out-migrants). Net migration includes both international migrants from other countries and domestic migrants (those who moved from other counties in other states or other counties within Texas.) A component of change is determined to be a driver if it comprises more than 50% of the total population change. Between 2010 and 2019, population change in Texas was comprised of 51% net migration and

49% natural increase. From 2021-2022 population change in Texas was comprised of 74% net migration and 25% natural increase. Drivers of population change within Brazoria County are due primarily to net migration.[7]

Geographic Setting

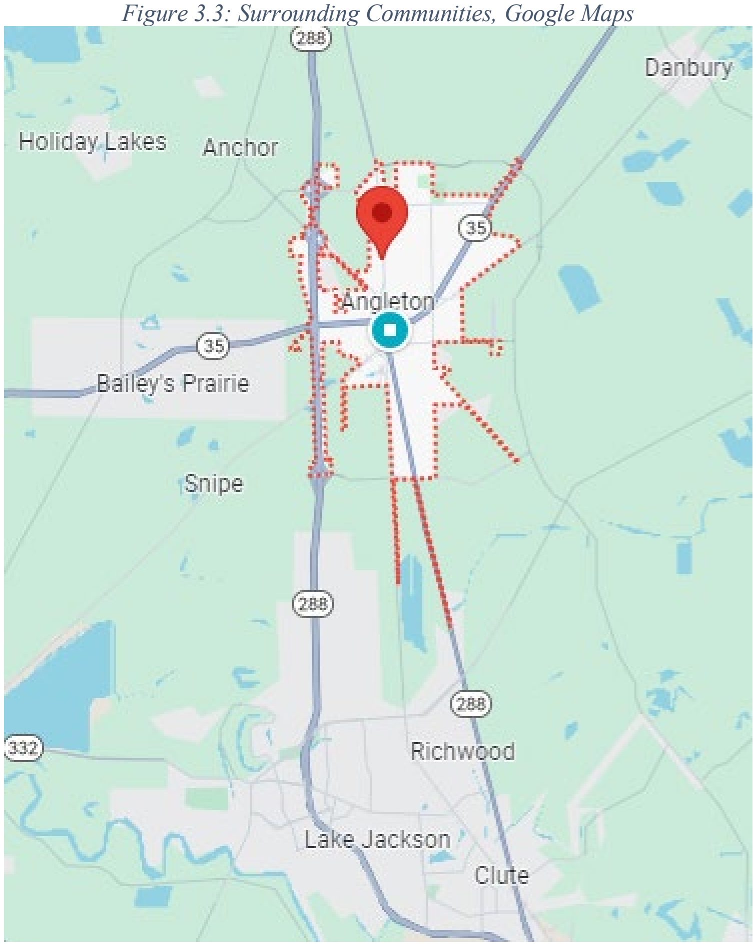
The City of Angleton serves as the county seat for Brazoria County and lies at the intersection of State Highway 288, State Highway 35, and the Union Pacific Railroad. The city is located East of the Brazos River and Oyster Creek and sits approximately 50 miles inland from the Gulf Coast.[8] Elevations within the city are higher in the northwest at range from 108 feet above sea level (ASL), to 2 feet ASL in the southeast. Figure 3.2 shows the elevation of Angleton and surrounding areas.

Figure 3.2: City of Angleton, Elevation



Neighboring communities include the Village of Bonney to the North, the city of Danbury to the Northeast the cities of Richwood, Clute, and Lake Jackson to the South, The Village of Bailey's Prairie to the West, and the Town of Holiday Lakes to the Northwest.

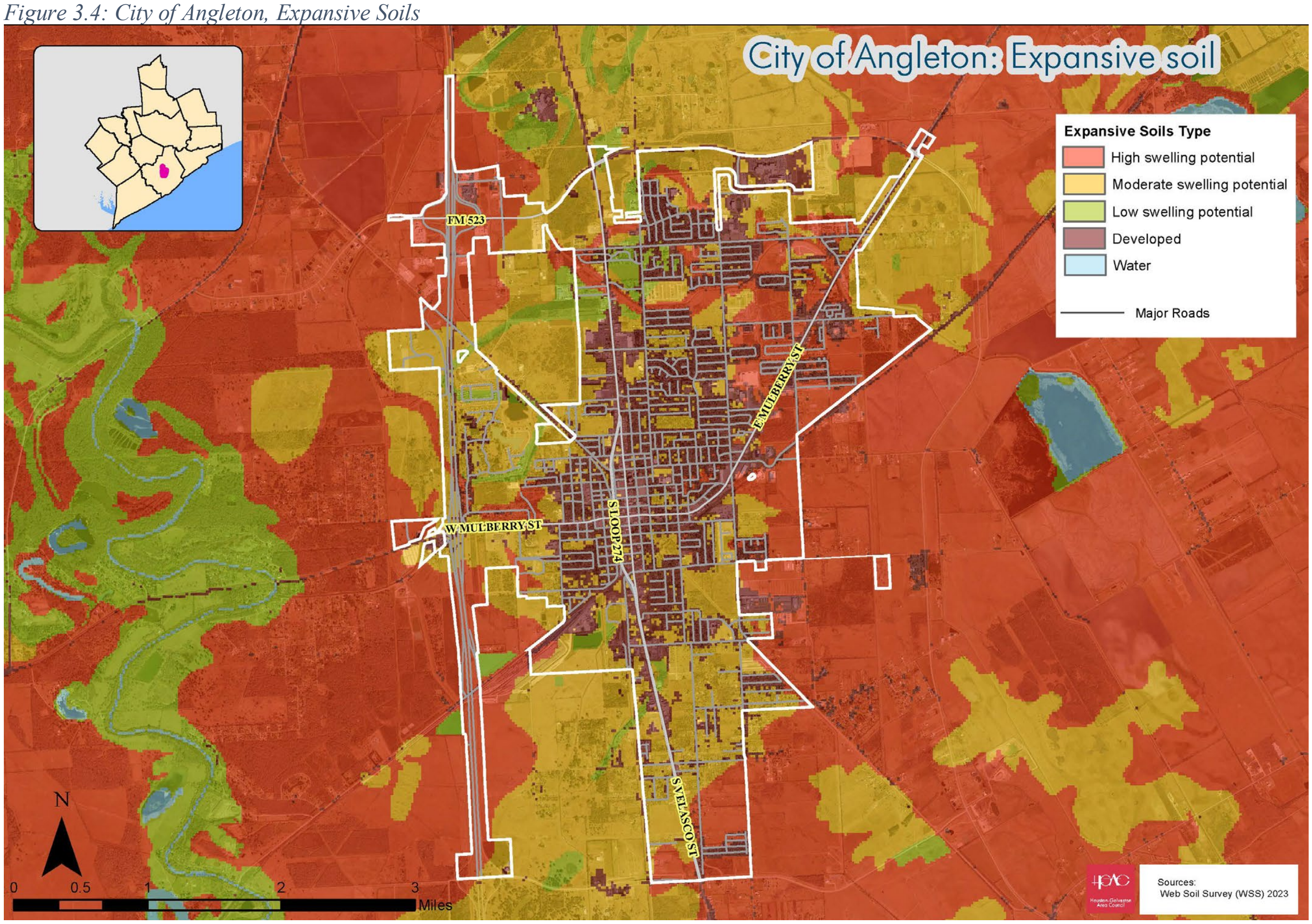
Figure 3.3: Surrounding Communities, Google Maps



Soil Composition

Brazoria County is comprised of soils within the Coast Prairie and Coast Saline Prairie land resource area. Soils within these areas and the city range from deep, dark-colored clays and loams in the south, and deep, dark-gray, neutral to slightly acid clay loams and clays in the north. Soils within the Coast Saline Prairie, in which a majority of the city sits, have very slow surface drainage due to the water table being located at or near the surface and elevation ASL is only a few feet.[9] Expansive soils refer to those that are clay rich. Due to their clay content, these soils can absorb large quantities of water that cause them to expand, whereas in dry periods the soils will contract and cause the ground to shrink and crack. In areas where development exists, these soils can cause issues with slab-on-grade foundations and infrastructure due to the potential uneven change in volume. This can cause subsidence, cracked foundations, broken pipes, or other detrimental effects to buried infrastructure.[10],[11] The City of Angleton is covered primarily with moderate and high swell potential soils. There are very small pockets of land within the city that have low swelling potential. Figure 3.4 below shows the expansive soils and shrink-swell potential for the city. Full-size maps can be found in Appendix B.

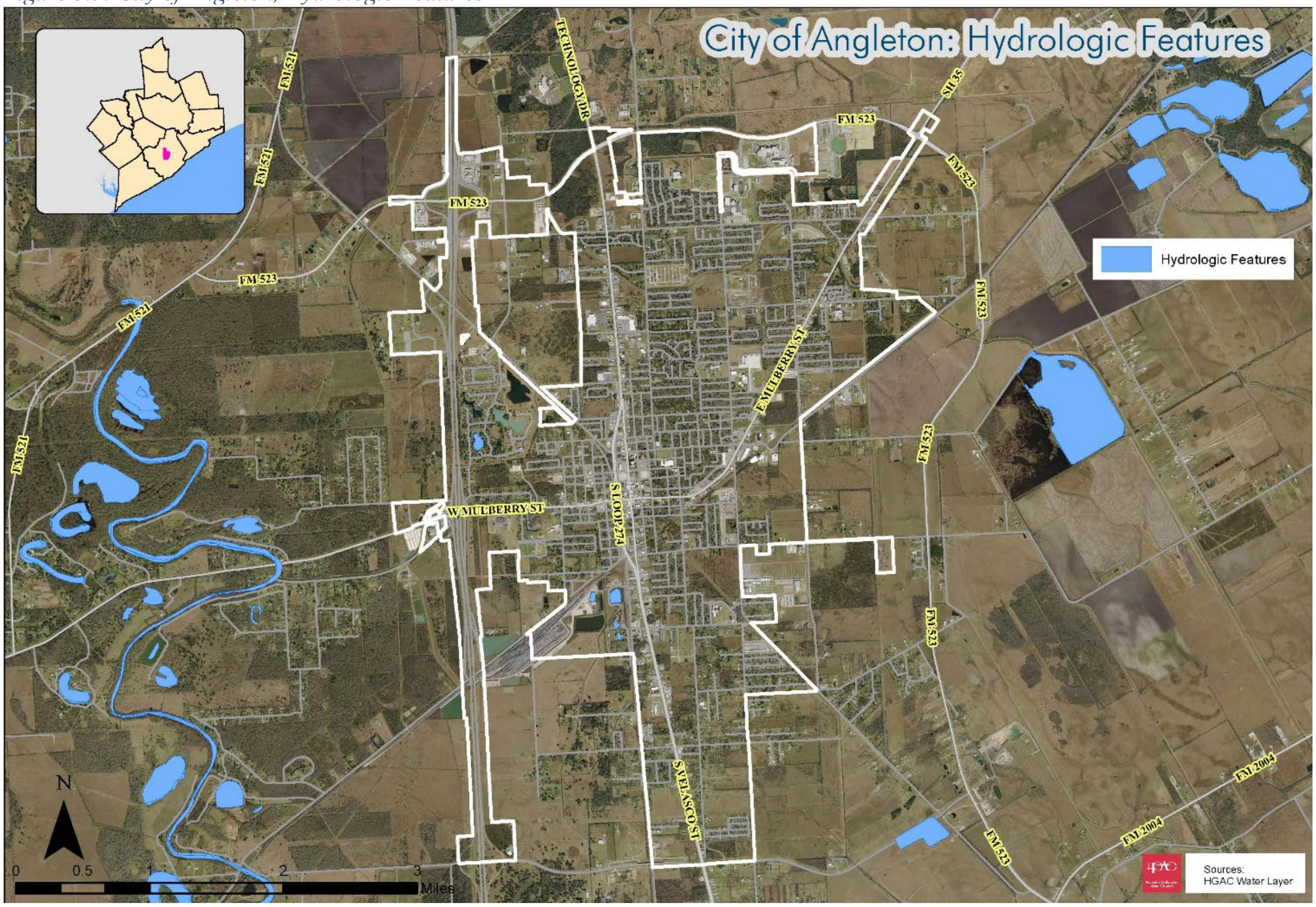
Figure 3.4: City of Angleton, Expansive Soils



Hydrologic Features

There are very few areas of the city that are covered by surface water (found in rivers, creeks, and other hydrologic features). The City of Angleton lies within the drainage basin of the San Jacinto-Brazos Coastal Basin.[12] Figure 3.5 shows hydrologic features located within the city and near the city limits.

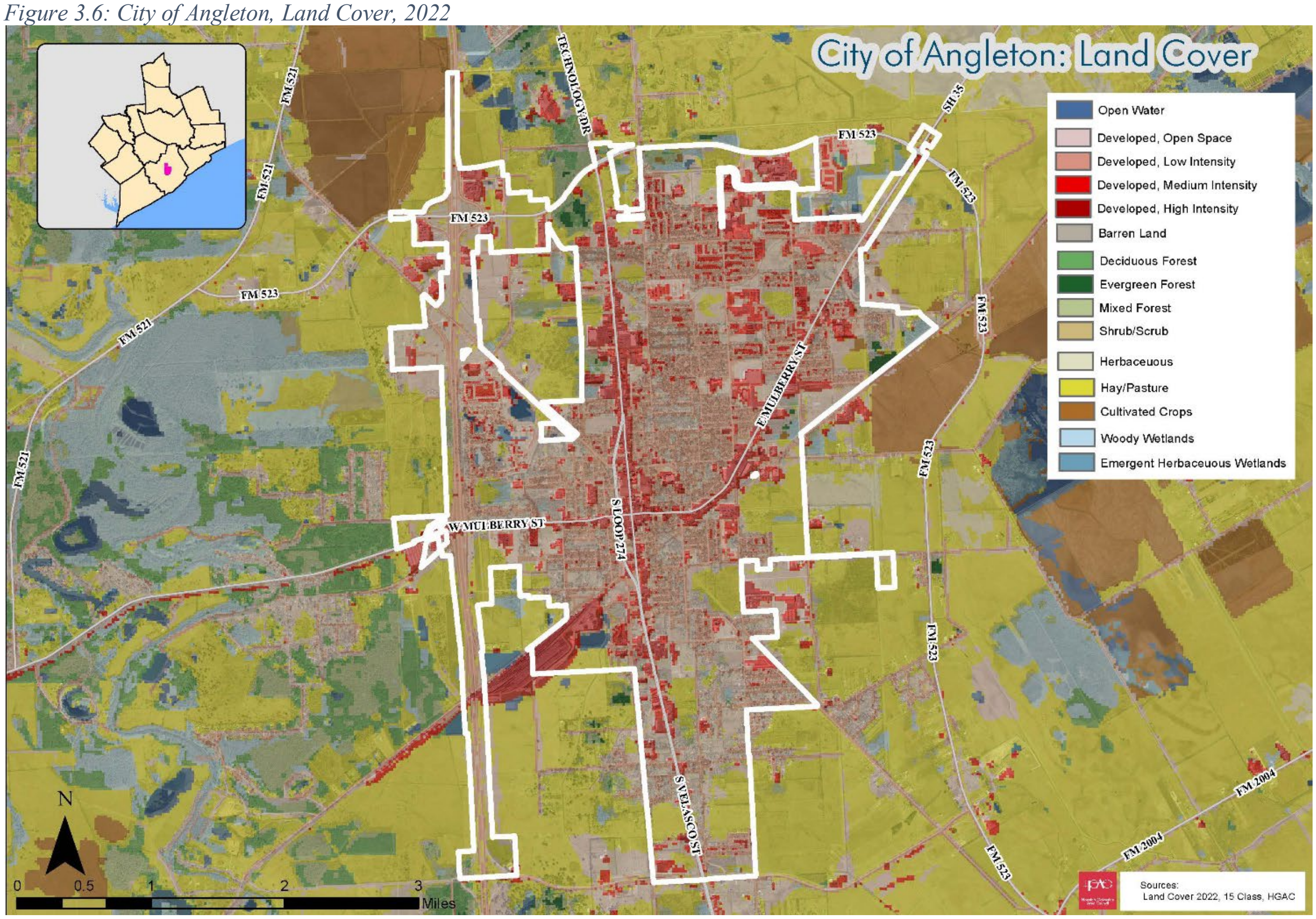
Figure 3.5: City of Angleton, Hydrologic Features



Land Use and Land Cover

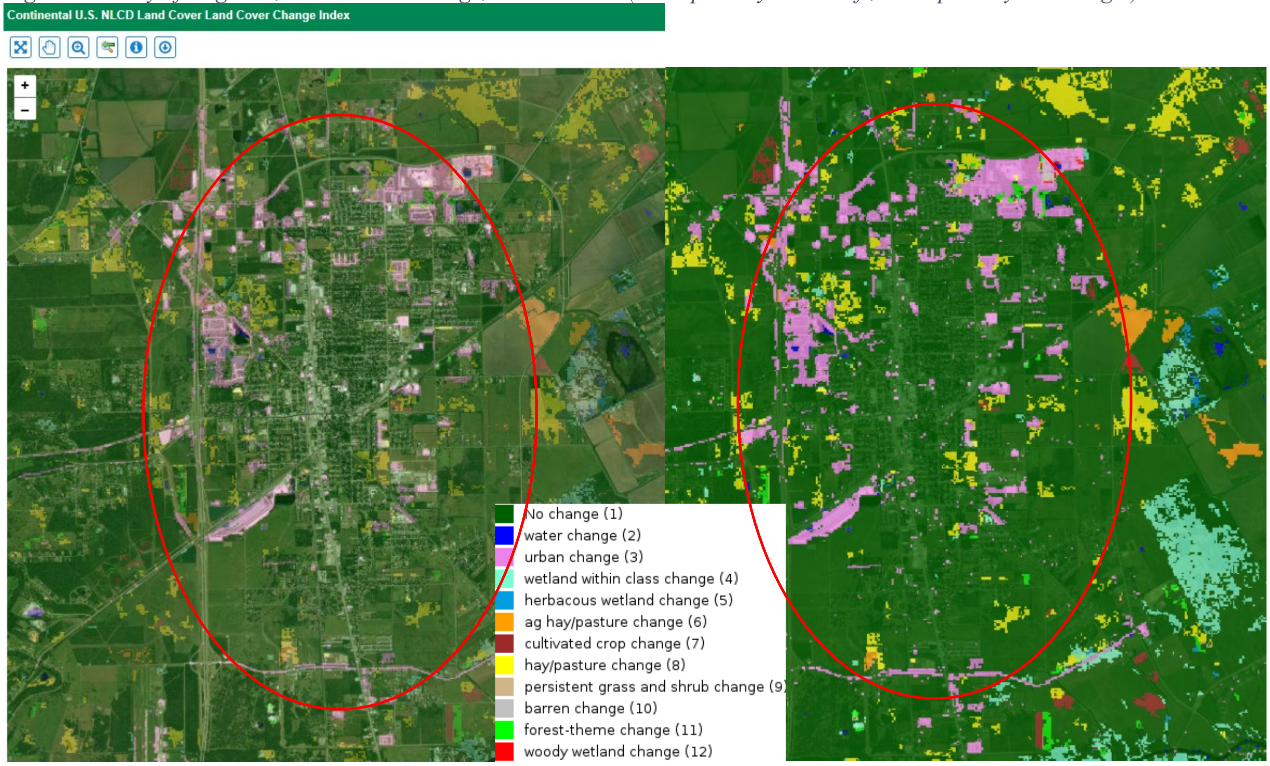
Land cover is primarily developed land of varying intensities within the city limits followed by hay/pasture lands and areas of wetlands and cultivated crops. Figure 3.6 shows the land cover composition of the City of Angleton.

Figure 3.6: City of Angleton, Land Cover, 2022



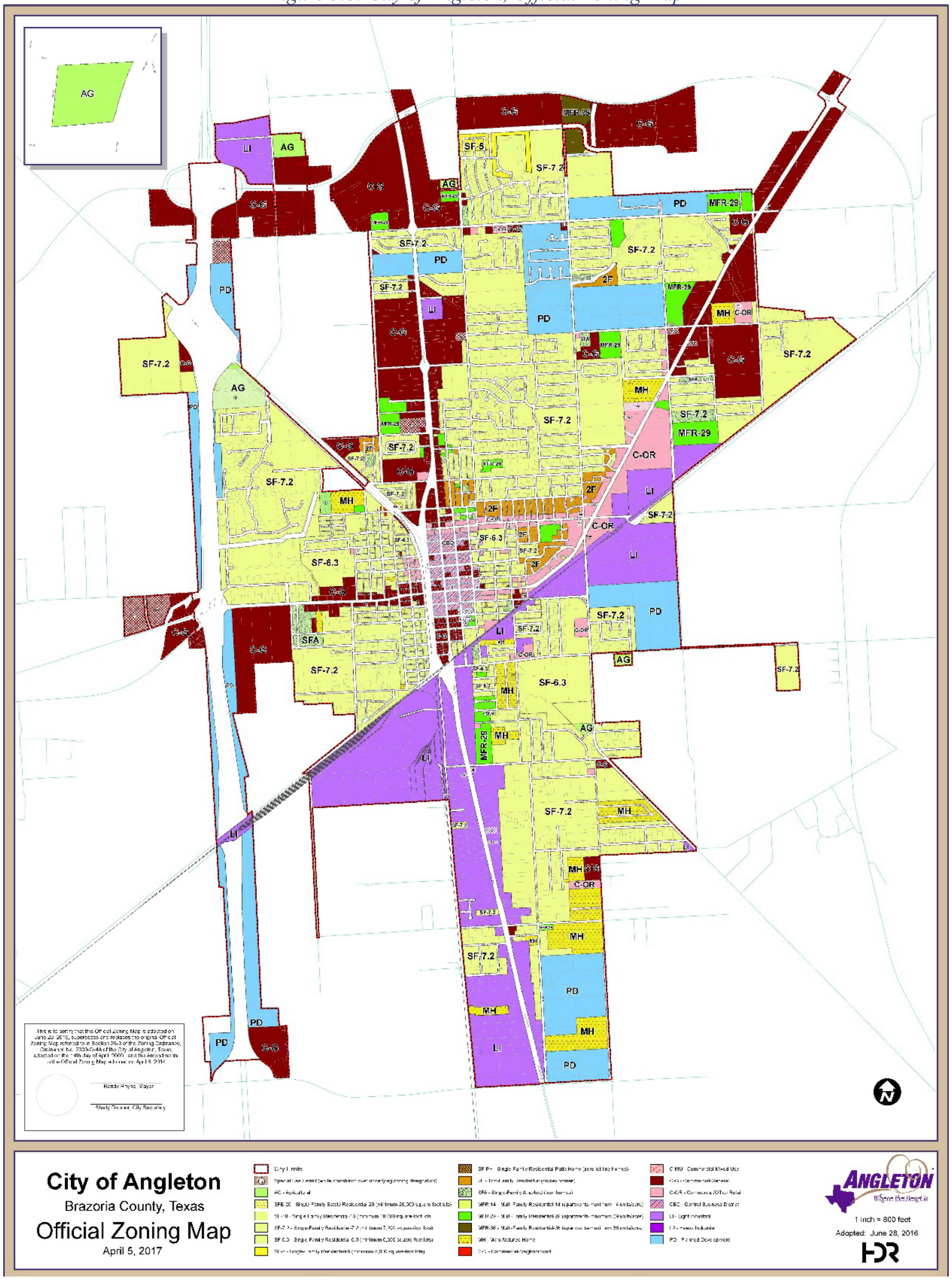
The Multi-Resolution Land Characteristics (MRLC) consortium is a group of federal agencies that coordinate and generate consistent and relevant land cover information at the national scale for a wide variety of environmental, land management, and modeling applications. The creation of this consortium has resulted in the mapping of the lower 48 United States, Hawaii, Alaska, and Puerto Rico into a comprehensive land cover product termed, the National Land Cover Database (NLCD), from decadal Landsat satellite imagery and other supplementary datasets. The land cover change index, a dataset of the MRLC and NLCD, highlights a simple way to visualize changes in land cover that have occurred over epochs. Within the city, land use changes seen within the last 20 years include hay/pasture change, minimal areas of water, wetland, forest-theme change, and some cultivated crop change. The greatest area of change from 2001-2021 has seen a boom in urban expansion to the north and west of the city, and along major thoroughfares such as State Highway 288 and along the Union Pacific Railroad to the southwest.[13] Figure 3.7 below highlights these land cover changes that have taken place over the last 20 years. The city limits can be found within the red-circled area. Two varying degrees of data transparency are provided to give a better sense of the location of the city and the data/land use change visualizations within city limits.

Figure 3.7: City of Angleton, Land Cover Change, 2001-202115 (Transparency 70%- Left, Transparency 30%- Right)



Zoning refers to the process by which a municipality divides its geographic area into different zones or districts, each with its own set of regulations governing land use, building heights, density, and other characteristics. Zoning regulations are intended to promote orderly development, protect property values, and ensure that land uses are compatible with their surrounding areas. Zoning regulations can be used to accomplish a variety of goals, such as promoting residential, commercial, or industrial development in certain areas; protecting natural resources or historic landmarks, and separating incompatible land uses such as industrial and residential areas. The authority for Texas municipalities to regulate land use through zoning is found in Chapter 211 of the Texas Local Government Code. Specifically, Section 211.001 provides: "A municipality may regulate the use of land within its boundaries by establishing zoning districts for the municipality and by regulating the location, use, and construction of buildings, structures, and other improvements within those zoning districts." [14] The City of Angleton's most recent zoning map is dated April 5, 2017.[15]

Figure 3.8: City of Angleton, Official Zoning Map



City Limits	
Special Use Permit (white crosshatch over underlying zoning designation)	
AG - Agricultural	
SFE-20 - Single Family Estate Residential-20 (minimum 20,000 square-foot lots)	
SF-10 - Single Family Residential-10 (minimum 10,000 square-foot lots	
SF-7.2 - Single-Family Residential-7.2 (minimum 7,200 square-foot lots)	
SF-6.3 - Single-Family Residential-6.3 (minimum 6,300 square-foot lots)	
SF-5 - Single-Family Residential-5 (minimum 5,000 square-foot lots)	
SF-PH - Single-Family Residential-Patio Home (zero-lot-line homes)	
2F - Two-Family Residential (duplex homes)	
SFA - Single-Family Attached (townhomes)	
MFR-14 - Multi-Family Residential-14 (apartments-maximum 14 units/acre)	
MFR-29 - Multi-Family Residential-29 (apartments-maximum 29 units/acre)	
MFR-36 - Multi-Family Residential-36 (apartments-maximum 36 units/acre)	
MH - Manufactured Home	
C-N - Commercial-Neighborhood	
C-MU - Commercial-Mixed-Use	
C-G - Commercial-General	
C-OR - Commercial/Office Retail	
CBD - Central Business District	
LI - Light Industrial	
L2 - Heavy Industrial	
PD - Planned Development	

Population and Demographics

The City of Angleton has seen its population grow at a slow, but steady pace over time. Between the 2010 and 2020 census population growth was 3%. Brazoria County has seen an average of a 2.5% increase in its population per year since 1971.[16] The projected population for Brazoria County from 2020-2040 is expected to see a 26.3% increase, while population from 2020-2060 is projected to see a 48.3% increase.[6] As the population in the county grows, it can be expected that the population within the City of Angleton will increase as well. Figure 3.9 shows the population distribution per 1000 persons by census tract for the last census in 2020.

Figure 3.9: City of Angleton, Population Distribution Map, 2020 Census

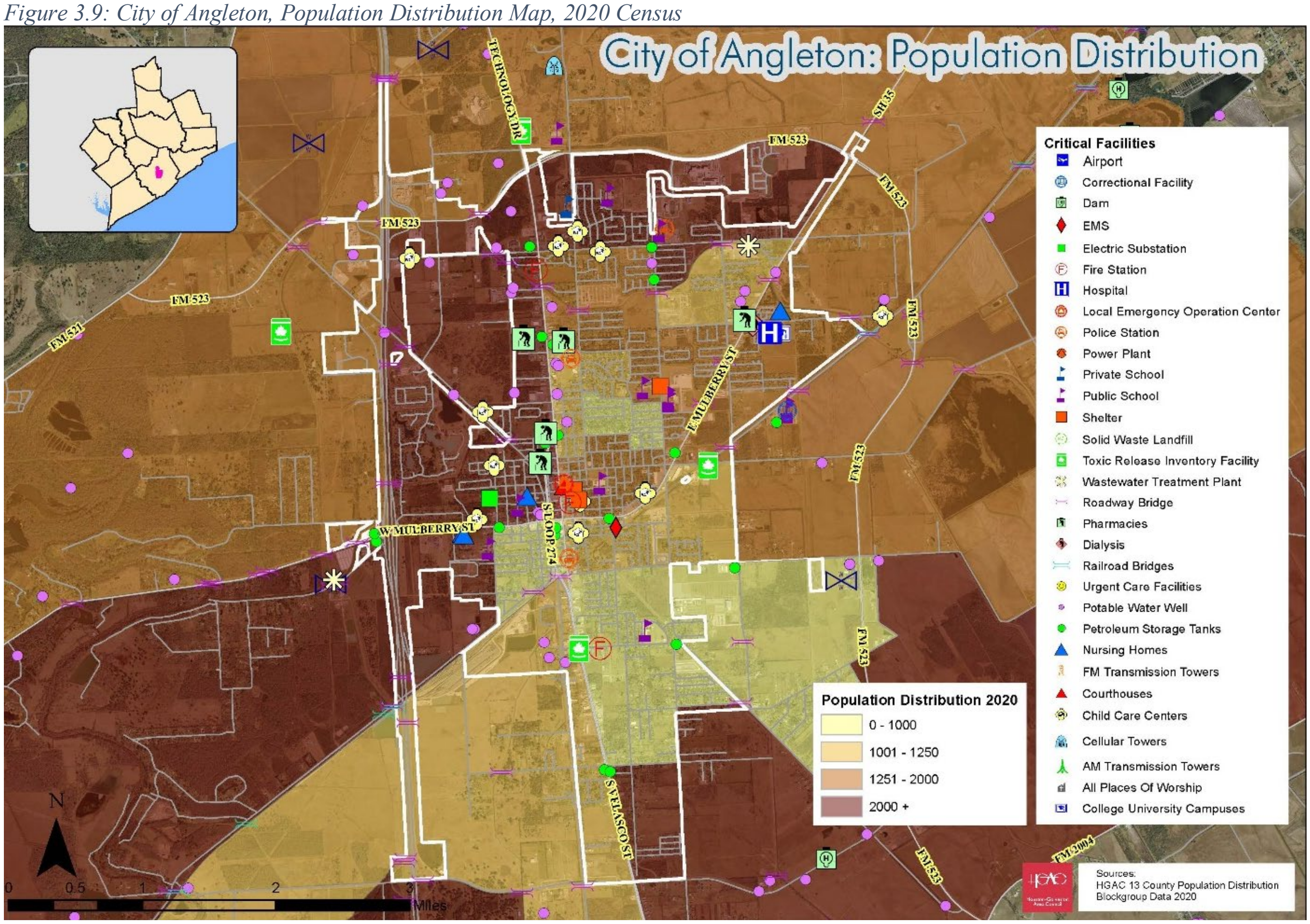


Table 3.2: City of Angleton Population Trends, 1970 to 2020[6,7]

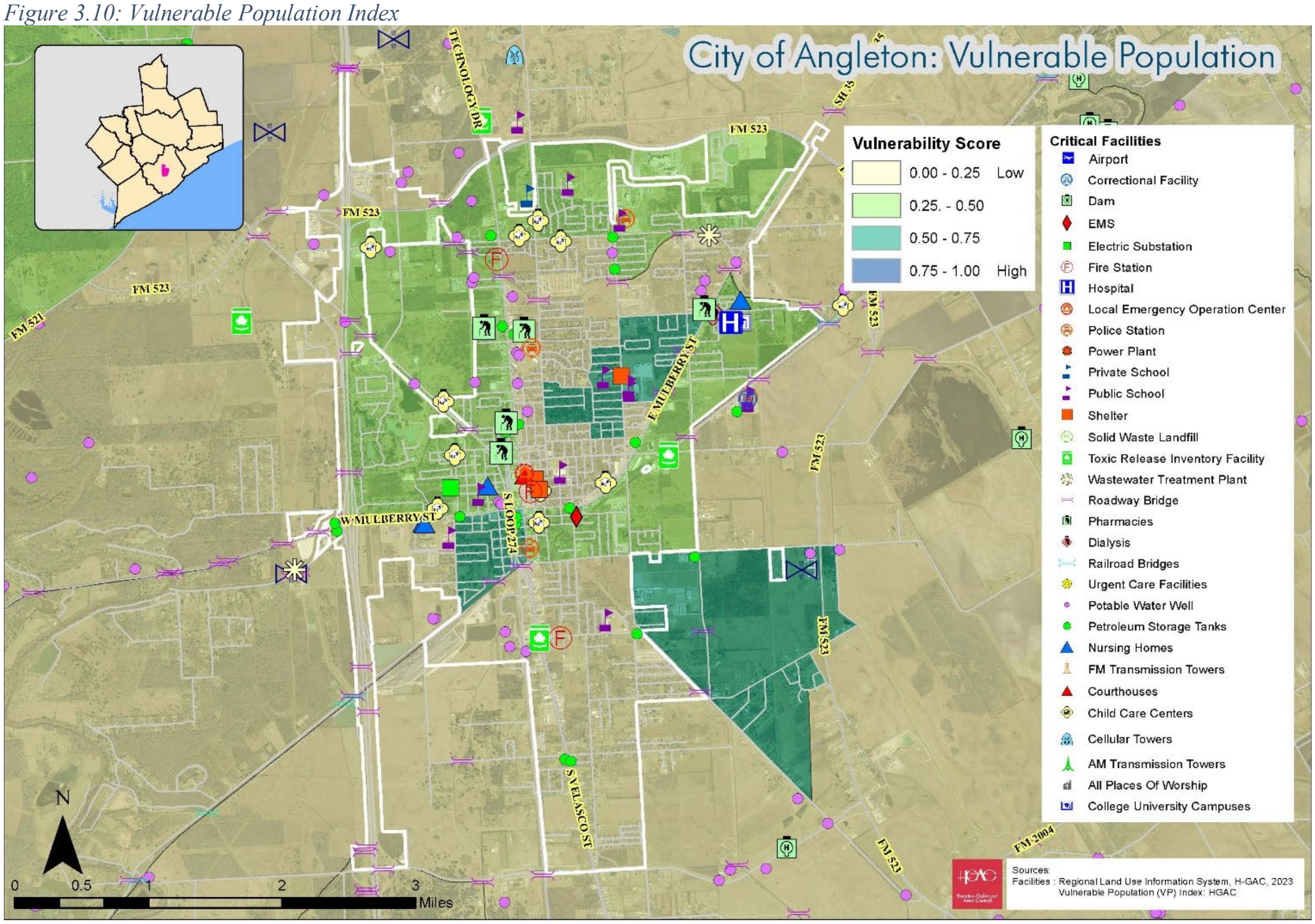
Year	Population Count	Population Change	Percent (%) Change
1970	9,770		
1980	13,929	4,159	42.5%
1990	17,140	3,211	23%
2000	18,130	990	5.8%
2010	18,862	732	4%
2020	19,610	748	4%

The ’s population demographics, per the 2020 census, consists of 60.7% White population, 25.6% Hispanic or Latino population, 9.8% African American population, 3.1% Asian population, and .8% multiracial. 16% of the population in the city is 65 or older, this is higher than the State average of 13.4%. The poverty rate for the County is 12%, less than the State average of 14%.[17]

Vulnerable Population

The Vulnerable Population Index (VPI), a dataset developed by H-GAC, identifies areas throughout the region that may not have the means or the resources to act when a natural disaster occurs. For this plan, vulnerable populations include any households without a car, single female households with a child or children in the home, individuals living below the poverty line, individuals who are disabled, Hispanic individuals, individuals who are non-Hispanic, and non-white, and individuals who are 65 years and older.[18] The areas in the county with the greatest proportion of these individuals are defined as the most vulnerable areas in Brazoria County, denoted by a higher vulnerability score. Figure 3.10 provides this VPI for the City of Angleton. Defining and mapping vulnerable populations provides the opportunity to demonstrate where the most need is throughout the county.

Figure 3.10: Vulnerable Population Index



While age and income have been traditional indicators of vulnerable populations, the Centers for Disease Control and Prevention (CDC) in partnership with the Agency for Toxic Substances and Disease Registry (ASTDR) has developed a Social Vulnerability Index (SVI) that can be generated at the county level. This is a more recent tool used to identify socially vulnerable populations with additional risk factors. The CDC and ASTDR define socially vulnerable populations using factors such as poverty, lack of access to transportation, and crowded housing, to name a few. These factors may weaken a community's ability to prevent human suffering and financial loss in a disaster. The SVI uses U.S. Census data to determine the social vulnerability of every census tract. The SVI ranks each tract on a total of 16 social factors and groups them into four related themes. Figure 3.10 below depicts the social vulnerability of communities in Brazoria County by census tract.[21] Factoring in these additional aspects of social vulnerability and grouping them by themes gives the county a bigger picture of vulnerable populations. Brazoria's social vulnerability score is 0. 6174 overall. Scores range from 0-1, with 1 being the highest level of vulnerability within the nation. A score of 0.6174 indicates a medium to high level of vulnerability.[19]

Figure 3.11: Brazoria County Overall CDC/ASTDR Social Vulnerability

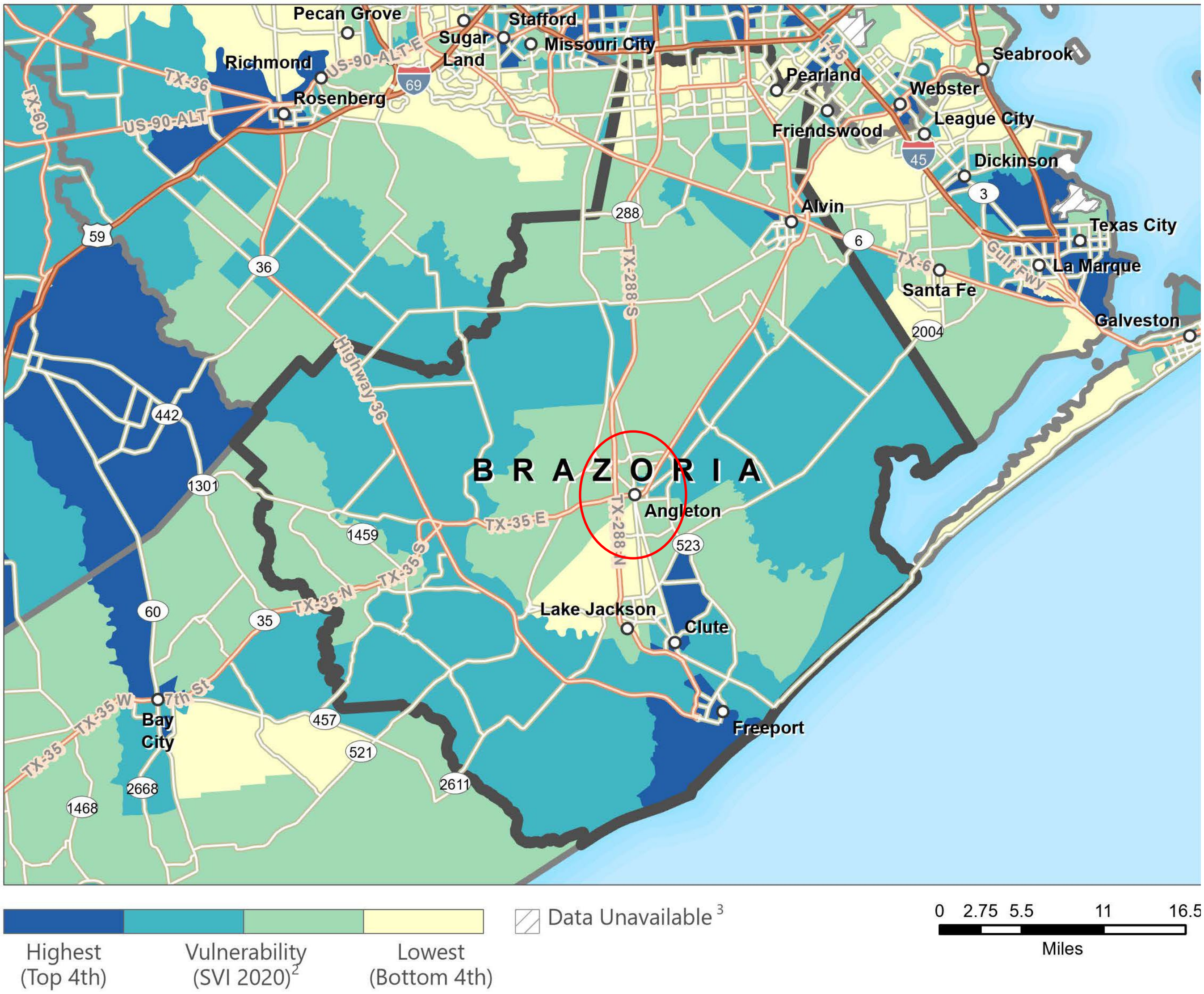
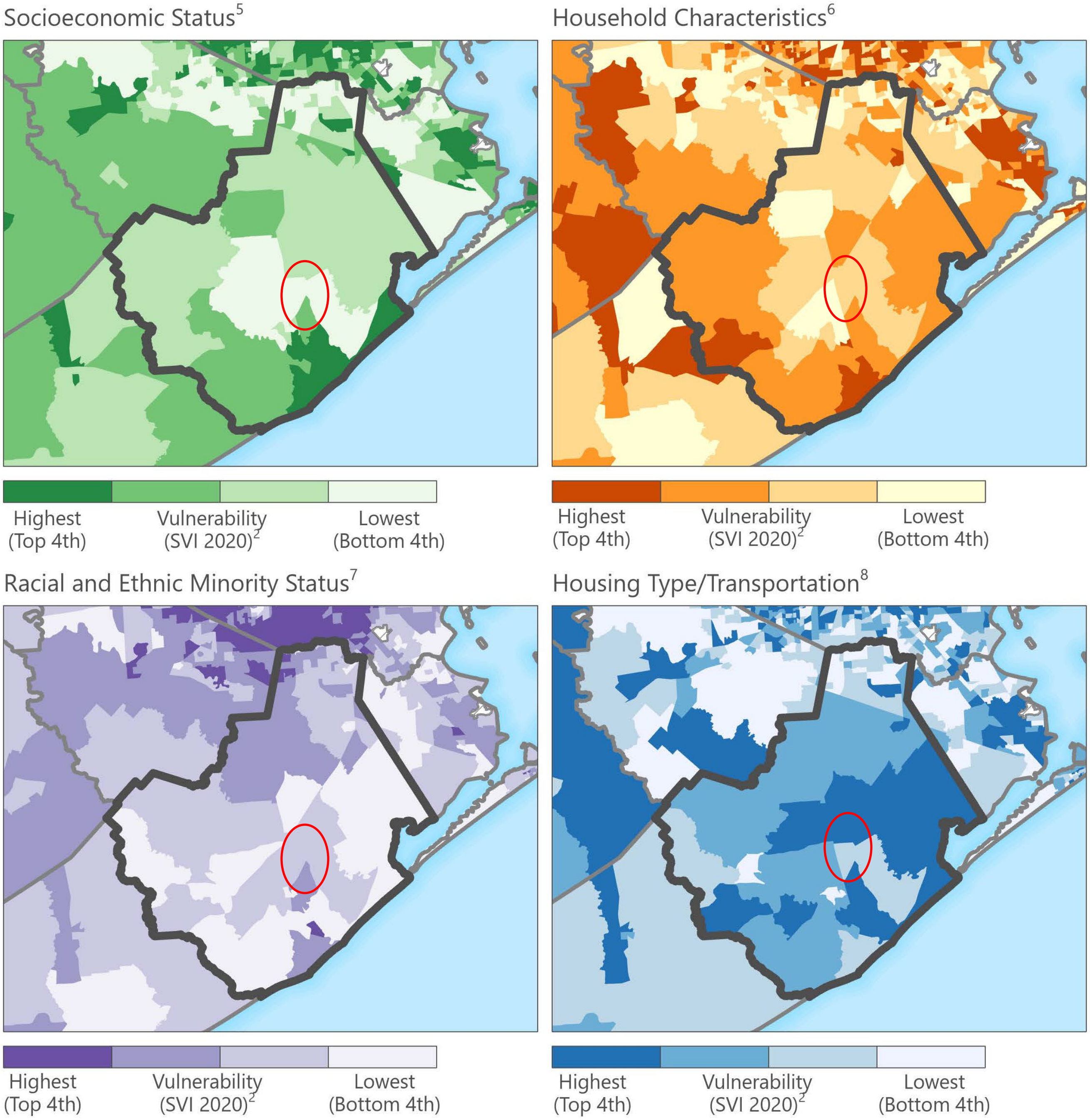


Figure 3.12: Brazoria County Themes for CDC/ASTDR Social Vulnerability



Data Sources: [2]CDC/ATSDR/GRASP, U.S. Census Bureau, Esri® StreetMapTM Premium.
Notes: [1]Overall Social Vulnerability: All 16 variables. [3]Census tracts with 0 population. [4]The CDC/ATSDR SVI combines percentile rankings of US Census American Community Survey (ACS) 2016-2020 variables, for the state, at the census tract level. [5]Socioeconomic Status: Below 150% Poverty, Unemployed, Housing Costs Burden, No High School Diploma, No Health Insurance. [6]Household Characteristics: Aged 65 and Older, Aged 17 and Younger, Civilian with a Disability, Single-Parent Household, English Language Proficiency. [7]Race/Ethnicity: Hispanic or Latino (of any race); Black and African American, Not Hispanic or Latino; American Indian and Alaska Native, Not Hispanic or Latino; Asian, Not Hispanic or Latino; Native Hawaiian and Other Pacific Islander, Not Hispanic or Latino; Two or More Races, Not Hispanic or Latino; Other Races, Not Hispanic or Latino. [8]Housing Type/Transportation: Multi-Unit Structures, Mobile Homes, Crowding, No Vehicle, Group Quarters.
Projection: NAD 1983 Texas Statewide Mapping System.
References: Flanagan, B.E., et al., A Social Vulnerability Index for Disaster Management. *Journal of Homeland Security and Emergency Management*, 2011. 8(1).
CDC/ATSDR SVI web page: https://www.atsdr.cdc.gov/placeandhealth/svi/index.html.

Housing and Living Arrangements

As of July 1, 2022, there were 7,892 housing units within the city, with 7,681 households. A household is defined by the U.S. Census Bureau as all the persons who occupy a housing unit and a housing unit as a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. The median price of a single-family home in Angleton was listed at $151,400 in 2021.[20]

Loss Estimations

A Hazus analysis was conducted for 4 scenarios within the city: a 100-year flood scenario, a 500-year flood scenario, a 100-year hurricane scenario, and a 500-year hurricane scenario. Hazus is a regional multi-hazard loss estimation model that was developed by FEMA and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state, and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.[23] For this section, the 100-year flood scenario will be highlighted regarding potential losses of building stock, debris generation, and shelter requirements. The full Hazus analysis for all scenarios can be found in Appendix A. Hazus estimates that about 6,443 buildings will be at least moderately damaged. This is over 24% of the total number of buildings in the scenario. There are an estimated 3,212 buildings that will be completely destroyed.

Table 3.3: Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	$1,496724	52.3%
Commercial	$901,761	31.5%
Industrial	$55,502	1.9%
Agricultural	$7,084	0.2%
Religion	$42,490	1.55%
Government	$51,178	1.8%
Education	$307,167	10.7%
Total	**$2,862,006**	**100%**

Economic Loss

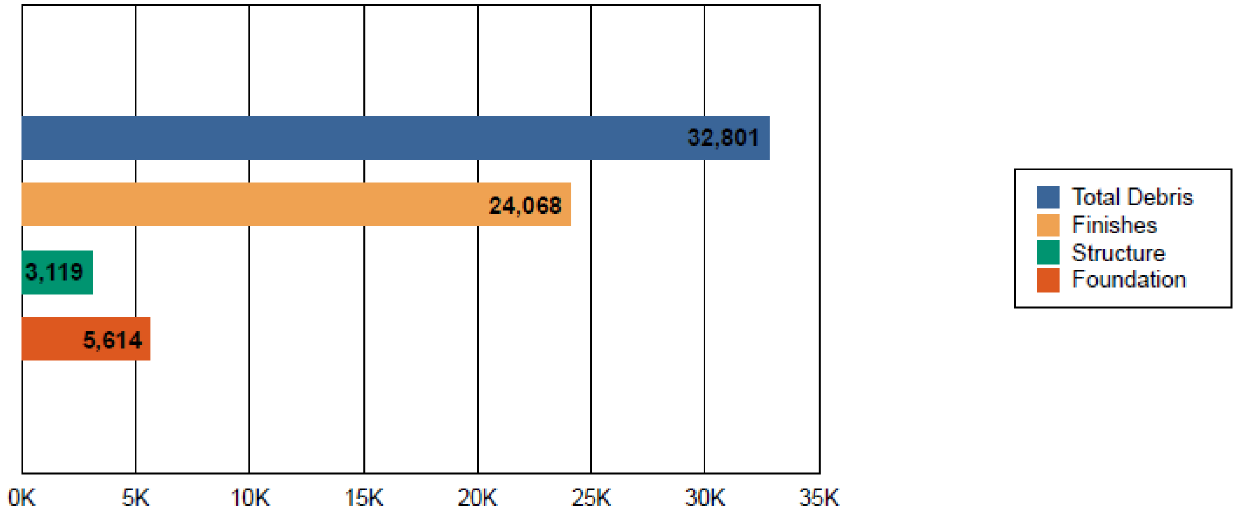
The total economic loss estimated for the flood is 4,708.47 million dollars, which represents 164.52 % of the total replacement value of the scenario buildings. The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with the inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood. The total building-related losses were 2,498.14 million dollars. 47% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 27.55% of the total loss.

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (drywall, insulation, etc.), 2) Structural (wood, brick, etc.), and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris. The model estimates that a total of

32,801 tons of debris will be generated. Finishes comprise 73% of the total, Structure comprises 10% of the total, and Foundation comprises 17%. If the debris tonnage is converted into an estimated number of truckloads, it will require 1313 truckloads (at 25 tons/truck) to remove the debris generated by a flood.[21]

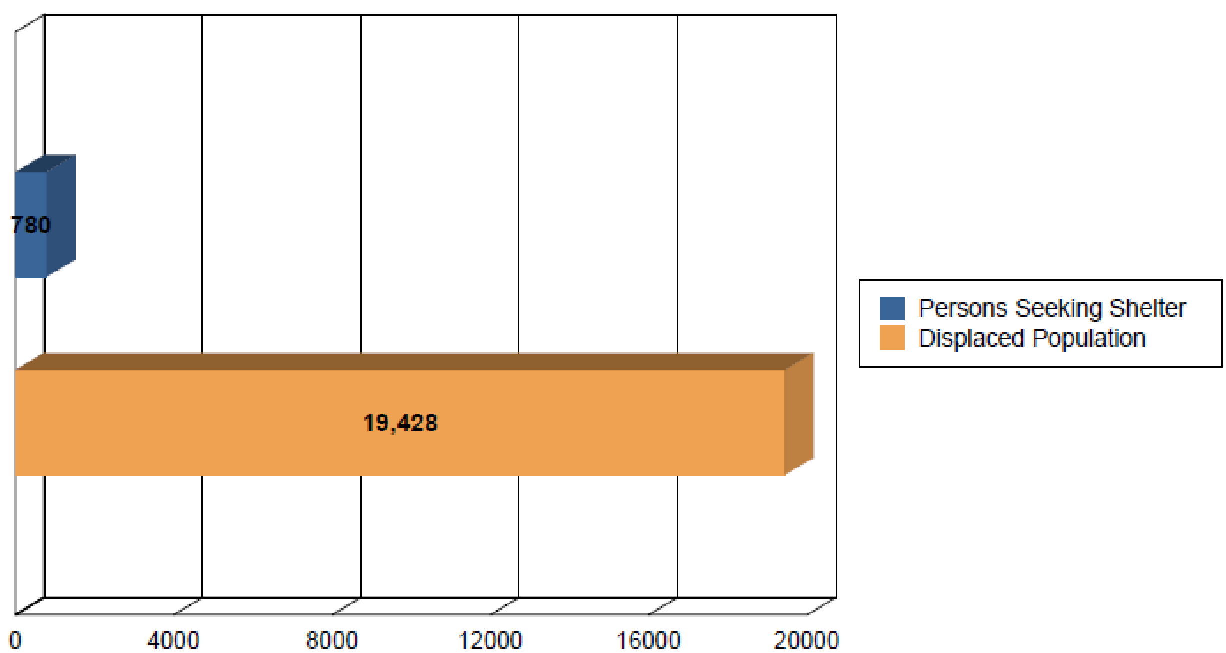
Figure 3.13: Debris Breakdown in Tons



Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 6,476 households (or 19,428 of people) will be displaced due to the flood in this scenario. Displacement includes households evacuated from within or very near to the inundated area. Of these, 780 people (out of a total population of 19,429) will seek temporary shelter in public shelters.[21]

Figure 3.14: Displaced Population/Persons Seeking Short-Term Public Shelter



Critical Facilities and Lifelines

H-GAC maintains a database of critical facilities that was expanded for this plan update based on updated policy guidance from FEMA. The HMC provided additional critical facility data when available at meetings, the PT also collected critical facility information from stakeholders at the public meetings and events. It was determined that there are 179 critical facilities with Angleton. A summary of these facilities is provided below.[22] A full list of critical facilities can be found in Appendix C.

Table 3.4: Critical Facilities & Community Lifelines

Asset Description	Quantity	Amount in a floodplain
AM Transmission Tower	0	0
Cellular Tower	2	0
Childcare Facility	11	0
College/ University Campus	1	0
Correctional Facility	3	0
Courthouse	1	0
Dam	0	0
Dialysis Center	1	0
Elder Care Facility	5	0
Electric Substation	3	0
EMS	1	0
Fire Station	4	0
FM Transmission Tower	0	0
Hospitals/Urgent Care	1	0
Local Emergency Operation Center	1	0
Oil or Gas Well	1	0
Petroleum Storage Tank	26	0
Pharmacy	5	0
Place of Worship	26	0
Police Station	5	0
Potable Water Well	20	2
Power Plant	0	0
Private Schools	1	0
Public Schools	13	0
Railroad Bridge	8	2
Roadway Bridge	26	12
Shelters	3	0
Solid Waste Landfill	2	0
Toxic Release Inventory Facility	6	0
Urgent Care	1	0
Wastewater Outfall	0	0
Wastewater Treatment Plant	2	1
Residential Units	7,673	
Commercial Units	346	

Repetitive Loss and Severe Repetitive Loss Properties

FEMA defines a repetitive loss (RL) structure as "a structure covered under a National Flood Insurance Program (NFIP) flood insurance policy that:

(1) Has incurred flood-related damage on 2 occasions, in which the cost of repair, on average, equaled or exceeded 25% of the value of the structure at the time of each such flood event; and
(2) At the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance (ICC) coverage."[23]

A severe repetitive loss (SRL) property is defined as "a structure that is covered under an NFIP flood insurance policy and has incurred flood-related damage:

(1) For which 4 or more separate claims payments have been made under flood insurance coverage under subchapter B of this chapter, with the amount of each claim (including building and contents payments) exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or
(2) For which at least 2 separate flood insurance claims payments (building payments only) have been made, with a cumulative amount of such claims exceeding the value of the insured structure.[24]

According to available data from 2023, the city has a total of 97 RL properties, of which 18 are designated as SRL properties. This does not include RL or SRL properties that have already been mitigated. Only 23 of these RL and SRL properties are insured through the NFIP. Total SRL property claim payments for the City of Angleton are $2,560,751.56. There is an average of 5.6 NFIP claims per SRL property within the city.[25],[26] Table 3.5 outlines the structure type (residential, commercial, institutional, etc.), and number of records for RL and SRL properties within the city, including the number of those structures that were insured under the NFIP.

Table 3.5: RL and SRL Properties, City of Angleton
(Source: FEMA, Correspondence with the Floodplain Management and Insurance Branch)

Jurisdiction Name	Residential RLPs	Non-Residential RLPs	Total RLPs	SRL Properties	Number of NFIP Insured Properties
Angleton	87	10	97	18	23

FEMA Guidance specifies that NFIP flood insurance claim information is subject to The Privacy Act of 1974, as amended. The Act prohibits public release of policyholder names, or names of financial assistance recipients and the amount of the claim payment or assistance. After flooding events, local officials are responsible for inspecting flood-damaged structures in the special flood hazard areas (SFHA) to determine if they are substantially damaged (50% or more damaged). If so, the property owner is required to bring a non-conforming structure into compliance with the local floodplain ordinance. For the City of Angleton, the Floodplain Administrator for Brazoria County is responsible for handling these NFIP claims.

National Flood Insurance Program Participation

The NFIP is a federal program administered through FEMA that enables property owners in participating communities to purchase insurance as a protection against flood losses. Communities must maintain eligibility in the NFIP by adopting and enforcing floodplain management regulations intended to prevent unsafe development in the floodplain, thus reducing future flood damage. FEMA creates flood maps, or Flood Insurance Rate Maps (FIRM) to support the NFIP.[27],[28] These flood maps are periodically updated and outline SFHA. The SFHA is the area where the NFIP floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.[29]

The Community Rating System (CRS)

The CRS is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the NFIP. Participation in the CRS program is voluntary and includes many benefits for a community, such as discounted flood insurance premiums that relate to the community's level of efforts that reduce risk from flooding and strengthen floodplain management. Currently, the City of Angleton does not participate in the CRS Program.[30]

Table 3.6: Community Participation in the NFIP and CRS Program

Jurisdiction	Participating	Date Joined	Current Effective FIRM Date	CRS Participation
Angleton	Y	06/21/74	12/30/20	N

NFIP Policies in Force

The table below summarizes the NFIP policies in force for Brazoria County and the City of Angleton. In total, there are 1,142 NFIP insured properties within the city.[31]

Table 3.7: NFIP Insured Properties

Community Name (Number)	Policies in Force	Total Coverage	Total Written Premium + FPF
BRAZORIA COUNTY (485458)	33,963	$10,621,664,000	$26,637,225
ANGLETON (480064)	1,142	$353,911,000	$762,629

Community Name- The official NFIP name of the community in which the policy resides.
Community Number- The 6-character community ID in which the policy resides.
Total Coverage- The total building and contents coverage for the policies in force.
Total Written Premium + FPF (Federal Policy Fee)- This represents the sum of the premium and FPF for the policies in force.

Section 4: Risk Assessment

This section outlines the risk assessment procedures and identifies hazards ranked by risk that affect the City of Angleton.

Section 4: RISK ASSESSMENT

The 2023 Texas State Hazard Mitigation Plan identified 11 major natural hazards that affect the region. These include hurricanes, floods, wildfires, drought, and tornados. The PT and HMC identified 17 hazards, 12 of which are natural hazards, which could affect the city. Not all hazards were profiled for this plan. Hazards not profiled were drinking water/aging infrastructure, train derailment, and dam/levee failure.

Risk Assessment

The HMC was provided with a Risk Assessment worksheet prepared by H-GAC staff. The worksheet outlined the purpose of the Risk Assessment, important items to keep in mind while completing the worksheet, probability and severity scores, including characteristics for those scores that were relatable, and a guide for how to calculate hazard rankings determined by the probability and severity scores. The Risk Assessment ranked the hazards identified by scoring the probability and severity of each hazard. A risk score was then determined by multiplying the probability (P) by the severity (S). Tables including scores and associated characteristics can be found below. Appendix D includes completed worksheets and a summary of hazard ranking scores from participating members of the HMC.

Probability	Characteristics
4 – Highly Likely	Event is probable within the next calendar year These events have occurred, on average, once every 1-2 years in the past
3 – Likely	Event is probable within the next 10 years Event has a 10-50% chance of occurring in any given year These events have occurred, on average, once every 3-10 years in the past
2 – Possible	Event is probable within the next 50 years Event has a 2-10% chance of occurring in any given year These events have occurred, on average, once every 10-50 years in the past
1 – Unlikely	Event is probable within the next 200 years Event has a 0.5-2% chance of occurring in any given year These events have occurred, on average, once every 50-200 years in the past

Severity	Characteristics
8 – Catastrophic	Multiple deaths Complete shutdown of facilities for 30 or more days More than 50% of property is severely damaged
4 – Critical	Injuries and/or illnesses result in permanent disability Complete shutdown of critical facilities for at least 14 days More than 25% of property is severely damaged
2 – Limited	Injuries and/or illnesses do not result in permanent disability Complete shutdown of critical facilities for more than seven days More than 10% of property is severely damaged.
1 – Negligible	Injuries and/or illnesses are treatable with first aid Minor quality of life lost Shutdown of critical facilities and services for 24 hours or less Less than 10% of property is severely damaged

Hazards Ranked by Risk

Each identified hazard in the table below poses a risk to the City of Angleton. Ranking the hazards from greatest to lowest risk allows the communities to prioritize their resources and focus efforts where they are most needed. Identified hazards were given a risk score as determined by participating jurisdictions and the HMC, those hazards were then categorized with a risk rating of High, Moderate, or Low.

Risk Rating	Ranking	Hazards
High	1	Hurricanes, Tropical Storms, & Depressions
	2	Flooding
	3	Dam/Levee Failure*
Moderate	4	Winter Weather
	5	Tornado
	6	Drinking Water/Aging Infrastructure*
	7	Extreme Heat
	8	Wildfire
	9	Drought & Expansive Soils
	10	Severe Thunderstorms & Lightning
Low	11	Hail
	12	Cybersecurity
	13	Windstorm
	14	Train Derailment*
	15	Erosion
	16	Earthquake*
	17	Emerging Infectious Diseases

* Indicates a hazard that was not profiled but was identified as a hazard of concern by the HMC.

Dam/Levee Failure was not profiled in this plan as there are no dams/levees within Angleton city limits. All dams/levees near the city have been classified as 'Low' in the hazard potential classification. Due to the risk of this hazard being negligible, it will not be profiled in this plan. Drinking water/aging infrastructure and train derailment were not profiled in this plan as they are not natural hazards. Earthquakes, while a natural hazard that affects some areas of Texas, are not considered to be a threat for the City of Angleton. The risk of an earthquake affecting a city as far south as Angleton is minimal. The risk of an earthquake is lowest among the Gulf Coast as the area is not located near any plate boundaries.

Section 5: Capability Assessment

This section includes the capability assessment, which includes a summary and description of the existing plans, programs, and regulatory mechanisms that support hazard mitigation within the planning area.

Section 5: CAPABILITY ASSESSMENT

Capability Assessment

A Capability Assessment is a process of evaluating the existing capabilities, including resources such as staff time, funding, and infrastructure, that the city currently has at its disposal to utilize for hazard risk reduction. The HMC completed local capability and risk assessment surveys for the City of Angleton to collect data on hazards that affect the area, the city's ability to mitigate damages from these hazards, and current plans or programs in place to help mitigate natural hazards. The HMC also identified factors impacting their capabilities to address hazards within the city. The PT used the information to assess the overall risk within the planning area, and to determine a strategy to integrate the HMP into their current planning mechanisms. A condensed version of the information is provided below. The full capability assessment worksheets and responses can be found in Appendix D.

List of Existing Plans & Regulations

CIP: Capital Improvements Plan
COMP: Comprehensive Land Use Plan
COOP: Continuity of Operations Plan
DRP: Disaster Recovery Plan
EDP: Economic Development Plan
EOP: Emergency Operations Plan
FMP: Floodplain Management Plan
FDPO: Flood Damage Prevention Ordinance
FPO: Floodplain Ordinance
HMP: Hazard Mitigation Plan
NHSO: Natural Hazard Specific Ordinance
REP: Radiological Emergency Plan
SMP: Stormwater Management Plan
SO: Subdivision Regulation
TP: Transportation Plan
ZO: Zoning Ordinance

Table 5.1: Existing Plans and Regulations by Participating Jurisdictions

Jurisdiction	CIP	COMP	COOP	DRP	EDP	EOP	FMP	FDPO	FPO	HMP	NHSO	REP	SMP	SO	TP	ZO
Angleton	X	X	X	X		X	X	X	X	X		X	X	X	X	X

Capability Limitations and Expansion Opportunities

The city and HMC examined any existing authorities, policies, programs, and resources, then identified ways to improve upon and expand these existing authorities to support the mitigation strategy.

Table 5.2: Capability Limitations and Expansion Opportunities

Jurisdiction	Capability Limitations and Expansion Opportunities
Angleton	Identified an inadequate budget as a factor that decreases their capability to implement mitigation actions and reduce future damages. Angleton will apply for state and federal funding to help fund mitigation actions that reduce the impact of natural hazards. They also plan to expand their mutual aid agreements to address flood emergency response needs.

Section 6: Hazard Identification & Risk Analysis

This section is broken down into subsections for each hazard of concern to the city identified during the risk assessment. It contains descriptions of identified hazards, hazard location, extent, history of events, probability of future events, and climate change impacts. Additionally, vulnerability is addressed for all hazards and includes a probable risk level, an estimate of property and crop damages, number of events, fatalities and injuries, average annual events, changes in frequency, and estimated annualized losses, where applicable.

Section 6: HAZARD IDENTIFICATION & RISK ANALYSIS

6.1 Hurricanes, Tropical Storms, & Depressions
6.2 Flooding
6.3 Winter Weather
6.4 Tornado
6.5 Extreme Heat
6.6 Wildfire
6.7 Drought & Expansive Soils
6.8 Severe Thunderstorms & Lightning
6.9 Hail
6.10 Cybersecurity
6.11 Windstorm
6.12 Erosion
6.13 Emerging Infectious Diseases

Section 6.1: Hurricanes, Tropical Storms, and Tropical Depressions

6.1 Hurricanes, Tropical Storms, and Tropical Depressions

Hurricanes form from the development of thunderstorms that are fueled by warm water and air over the ocean. Tropical waves and disturbances can lead to the formation of tropical cyclones. A tropical cyclone is a rotating, organized system of clouds and thunderstorms that originates over tropical or subtropical waters and has a closed low-level circulation. Tropical cyclones can produce intense rainfall of more than 6 inches, resulting in heavy flooding. Other dangers associated with the formation of these storms include storm surges, damaging winds, rip currents, and tornadoes.[32] Slower moving larger storms can produce more rainfall and more dangerous outcomes. Classifications of tropical cyclones; tropical depressions, tropical storms, hurricanes, and major hurricanes are defined in the table below.[33]

Table 6.1.1: Tropical Cyclone Classifications

Classification	Definition
Tropical Depression	A tropical cyclone with maximum sustained winds of 38 mph (33 knots) or less. Tropical depressions can bring heavy downpours and sustained winds strong enough to generate rough surf and life-threatening rip currents.
Tropical Storm	A tropical cyclone with maximum sustained winds of 39 to 73 mph (34 to 63 knots). These storms are assigned a name and start to become more organized and circular.
Hurricane	A tropical cyclone with maximum sustained winds of 74 mph (64 knots) or higher. Hurricanes have very pronounced circulation of which an area of clear weather, an "eye" forms in the center.
Major Hurricane	A tropical cyclone with maximum sustained winds of 111 mph (96 knots) or higher, corresponding to a Category 3, 4 or 5 on the Saffir-Simpson Hurricane Wind Scale.

Hurricane season for Texas officially begins on June 1 and ends on November 30. The greatest threat of landfall for the Texas coast occurs between the beginning of June and the end of October. The NWS issues hurricane and tropical storm watches and warnings when these hazards are forming. These watches and warnings are issued or will remain in effect after a tropical cyclone becomes post-tropical when such a storm poses a significant threat to life and property. The National Weather Service (NWS) allows the National Oceanic and Atmospheric Administration's (NOAA) National Hurricane Center (NHC) to issue advisories during the post-tropical stage. Whenever a tropical cyclone or a subtropical storm has formed in the Atlantic or Eastern North Pacific, the NOAA NHC issues tropical cyclone advisory products at least every 6 hours at 5 AM, 11 AM, 5 PM, and 11 PM Eastern Daylight Time (EDT). When a coastal tropical storm or hurricane watches or warnings are in effect, the NHC issues Tropical Cyclone Public Advisories every 3 hours. The table below provides definitions of these tropical watches and warnings.[34]

Table 6.1.2: Tropical Watches and Warnings

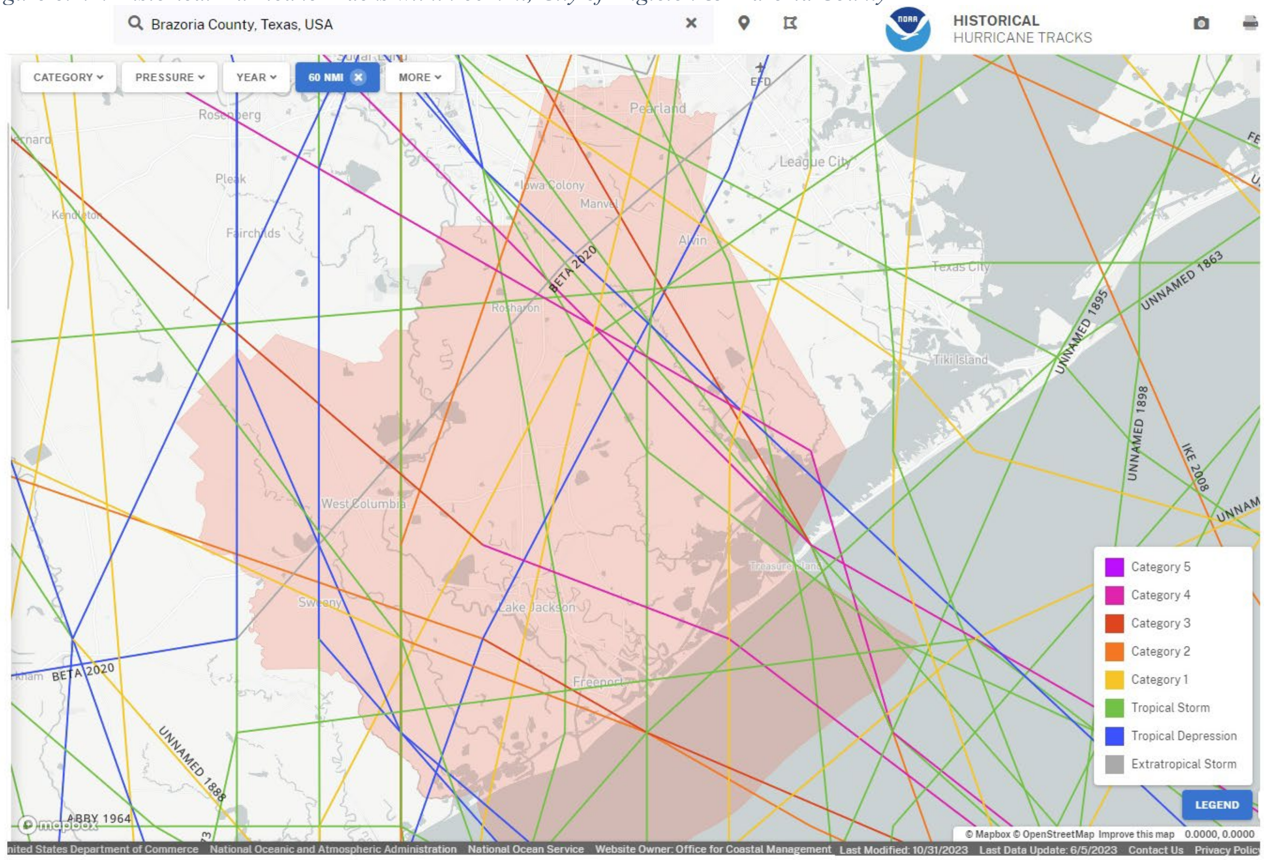
Name	Definition
Advisories	
Tropical Cyclone Public Advisory	Contains a list of all current coastal watches and warnings associated with an ongoing or potential tropical cyclone, a post-tropical cyclone, or a subtropical cyclone. Provides the cyclone position, maximum sustained winds, current motion, and a description of the hazards associated with the storm.
Watches	
Tropical Storm Watch	Tropical storm conditions (sustained winds of 39 to 73 mph) are possible within the specified area within 48 hours.
Storm Surge Watch	There is a possibility of life-threatening inundation from rising water moving inland from the shoreline somewhere within the specified area, generally within 48 hours.
Hurricane Watch	Hurricane conditions (sustained winds of 74 mph or greater) are possible within your area. Because it may not be safe to prepare for a hurricane once winds reach

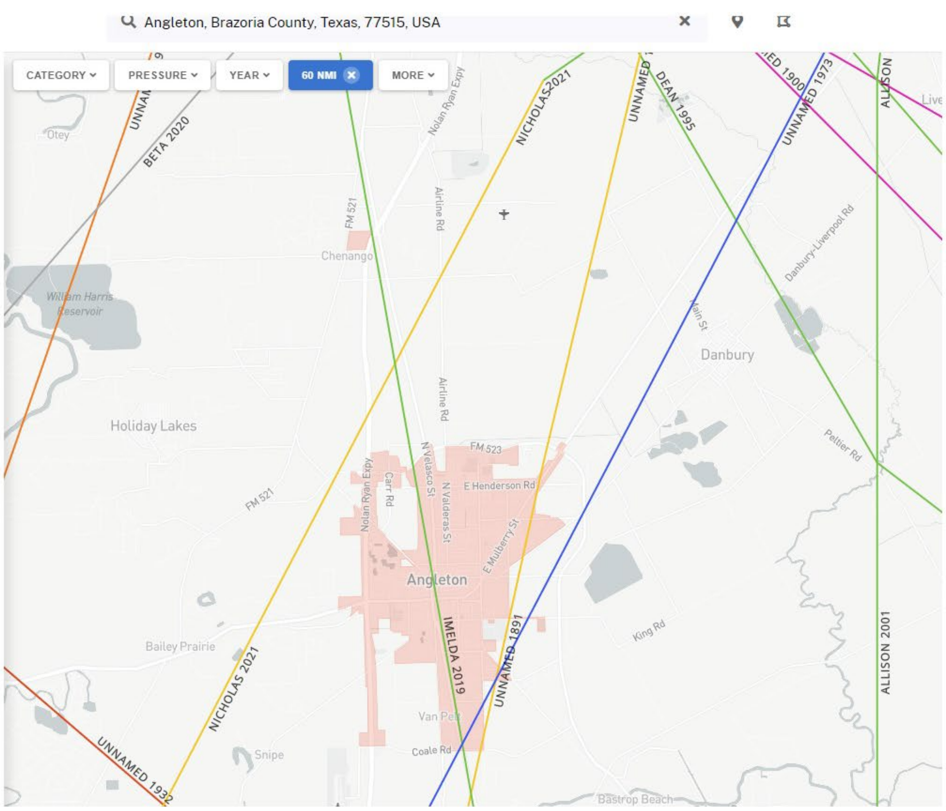
	tropical storm force, The NHC issues hurricane watches 48 hours before it anticipates tropical storm-force winds.
Warnings	
Tropical Storm Warning	Tropical storm conditions (sustained winds of 39 to 73 mph) are expected within your area within 36 hours.
Storm Surge Warning	There is a danger of life-threatening inundation from rising water moving inland from the shoreline somewhere within the specified area, generally within 36 hours. If you are under a storm surge warning, check for evacuation orders from your local officials.
Extreme Wind Warning	Extreme sustained winds of a major hurricane (115 mph or greater), usually associated with the eyewall, are expected to begin within an hour. Take immediate shelter in the interior portion of a well-built structure.
Hurricane Warning	Hurricane conditions (sustained winds of 74 mph or greater) are expected somewhere within the specified area. NHC issues a hurricane warning 36 hours in advance of tropical storm-force winds to give you time to complete your preparations. All preparations should be complete. Evacuate immediately if so ordered.

Location

The city of Angleton is located approximately 18 miles inland from the Gulf of Mexico. Wind and the rains generated by hurricanes, tropical storms, and depressions do have a significant impact on flooding and windstorm-related damages within the city. Flooding is profiled in Section 6.2 of this HMP, while the Windstorm profile can be found in Section 6.10. The figures below, based on NOAA's Historical Hurricane Tracks interactive map, show the historical hurricane, tropical storms, and tropical depression tracks that have crossed into the City of Angleton and Brazoria County. It is important to remember that these storms, named or unnamed, do not have to cross the county or city boundaries for the planning area to be at risk from their impacts. There has been a total of 88 of these storms that have occurred within 60 nmi of Brazoria County, while 30 storms have crossed through the county directly and 3 storms have crossed through the Angleton City limits.[35]

Figure 6.1.1: Historical Hurricane Tracks within 60 nmi, City of Angleton & Brazoria County





Extent

Hurricane intensity is measured through the Saffir-Simpson Hurricane Wind Scale. The scale was originally developed by wind engineer Herb Saffir and meteorologist Bob Simpson. It has been an excellent tool for alerting the public about the possible impacts of various intensity hurricanes. The scale does not address the potential for other hurricane-related impacts, such as storm surges, rainfall-induced floods, and tornadoes. This wind caused damage general descriptions of the scale are to an extent dependent upon the local building codes in effect and how well and how long they have been enforced.[36] The scale gives a 1 to 5 rating based only on a hurricane's maximum sustained wind speed and estimates potential property damage at each scale. Hurricanes of Category 3 and higher are known as major hurricanes. These hurricanes can cause devastating to catastrophic wind damage and significant loss of life due to the strength of their winds. Hurricanes of all categories can produce deadly storm surges, rain-induced floods, and tornadoes. These hazards require people to take protective action, including evacuating from areas vulnerable to storm surges.[37]

Table 6.1.3: The Saffir-Simpson Hurricane Wind Scale

Category	Sustained Wind Speeds	Types of Damage Due to Hurricane Winds
1	74-95 mph	**Very dangerous winds will produce some damage**: People, livestock, and pets struck by flying or falling debris could be injured or killed. Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph	**Extremely dangerous winds will cause extensive damage**: There is a substantial risk of injury or death to people, livestock, and pets due to flying and falling debris. Older (mainly pre-1994 construction) manufactured homes have a very high chance of being destroyed and the flying debris generated can shred nearby manufactured homes. Newer manufactured homes can also be destroyed. Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3	111-129 mph	**Devastating damage will occur**: There is a high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older (pre-1994) manufactured homes will be destroyed. Newer manufactured homes will sustain severe damage with the potential for complete roof failure and wall collapse. Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electric and water will be unavailable for several days to weeks after the storm passes.
4	130-156 mph	**Catastrophic damage will occur**: There is a very high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older (pre-1994) manufactured homes will be destroyed. A high percentage of newer manufactured homes also will be destroyed. Poorly constructed homes can sustain complete collapse of all walls as well as the loss of the roof structure. Well-built homes also can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5	157 mph or higher	**Catastrophic damage will occur**: People, livestock, and pets are at very high risk of injury or death from flying or falling debris, even if indoors in manufactured homes or framed homes. Almost complete destruction of all manufactured homes will occur, regardless of age or construction. A high percentage of frame homes will be destroyed, with total roof failure and wall collapse. Extensive damage to roof covers, windows, and doors will occur.

		Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the National Center for Environmental Information (NCEI) storm events database. These events are shown at the county level with some referencing a specific location, city, or zone. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The table below highlights events for this hazard that have occurred within Brazoria County from 1950-2023.[38]

Table 6.1.4: City of Angleton Hurricane, Tropical Storms, and Tropical Depressions (1950-2023)

Date	Area Impacted	Event Type	Injuries/ Deaths	Property Damage	Crop Damage
8/21/1998	BRAZORIA (ZONE)	Tropical Storm	0/0	$5,000	$0.00
9/7/1998	BRAZORIA (ZONE)	Tropical Storm	0/1	$28,700,000	$0.00
6/5/2001	BRAZORIA (ZONE)	Tropical Storm	0/0	$22,200,000	$0.00
9/5/2002	BRAZORIA (ZONE)	Tropical Storm	0/0	$0.00	$0.00
7/14/2003	BRAZORIA (ZONE)	Hurricane (Typhoon)	0/0	$1,270,000	$0.00
8/30/2003	BRAZORIA (ZONE)	Tropical Storm	0/0	$30,000	$0.00
9/1/2003	BRAZORIA (ZONE)	Tropical Storm	0/0	$8,000	$0.00
9/23/2005	BRAZORIA (ZONE)	Hurricane (Typhoon)	0/0	$500,000	$0.00
9/12/2008	BRAZORIA (ZONE)	Hurricane (Typhoon)	0/0	$700,000,000	$0.00
6/15/2015	BRAZORIA (ZONE)	Tropical Storm	0/0	$0.00	$0.00
6/21/2017	BRAZORIA (ZONE)	Tropical Storm	0/0	$0.00	$0.00
8/25/2017	BRAZORIA (ZONE)	Tropical Storm	0/0	$0.00	$0.00
7/25/2020	BRAZORIA ISLANDS (ZONE)	Tropical Storm	0/0	$0.00	$0.00
7/25/2020	COASTAL BRAZORIA (ZONE)	Tropical Storm	0/0	$0.00	$0.00
9/13/2021	BRAZORIA ISLANDS (ZONE)	Tropical Storm	0/0	$0.00	$0.00
9/13/2021	INLAND BRAZORIA (ZONE)	Tropical Storm	0/0	$0.00	$0.00
TOTALS:			**0/1**	**$752,713,000**	**$0**

Presidential Disaster Declarations

There have been 16 federally declared hurricane, tropical storms, or tropical depression related disasters in Brazoria County since 1950. There were also 2 severe storm disasters and 2 coastal storms that mentioned a hurricane or tropical storm in their declaration title and were included in the table below.

Table 6.1.5: Federal Disaster Declarations for Hurricanes, Tropical Storms, and Tropical Depressions

Date	Disaster Number	Declaration Types	Incident Type	Declaration Title
8/19/1983	689	Major Disaster Declaration	Hurricane	HURRICANE ALICIA
8/26/1998	1239	Major Disaster Declaration	Severe Storm	TROPICAL STORM CHARLEY
9/23/1998	1245	Major Disaster Declaration	Severe Storm	HURRICANE GEORGES - TEXAS
6/9/2001	1379	Major Disaster Declaration	Coastal Storm	TROPICAL STORM ALLISON

9/26/2002	1434	Major Disaster Declaration	Coastal Storm	TROPICAL STORM FAY
7/17/2003	1479	Major Disaster Declaration	Hurricane	HURRICANE CLAUDETTE
9/2/2005	3216	Emergency Declaration	Hurricane	HURRICANE KATRINA EVACUATION
9/21/2005	3261	Emergency Declaration	Hurricane	HURRICANE RITA
9/24/2005	1606	Major Disaster Declaration	Hurricane	HURRICANE RITA
8/18/2007	3277	Emergency Declaration	Hurricane	HURRICANE DEAN
8/29/2008	3290	Emergency Declaration	Hurricane	HURRICANE GUSTAV
9/10/2008	3294	Emergency Declaration	Hurricane	HURRICANE IKE
9/13/2008	1791	Major Disaster Declaration	Hurricane	HURRICANE IKE
7/26/2020	3530	Emergency Declaration	Hurricane	HURRICANE HANNA
8/25/2017	4332	Major Disaster Declaration	Hurricane	HURRICANE HARVEY
8/24/2020	3540	Emergency Declaration	Hurricane	TROPICAL STORMS MARCO AND LAURA

U.S. Department of Agriculture (USDA) Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency (EM) loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as USDA Farm Service Agency (FSA) disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader, or by an FSA State Executive Director (SED). The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies the USDA FSA of the primary counties named in the presidential declaration. USDA disaster declarations for the City of Angleton since 2018 are listed in the table below.[39]

Table 6.1.6: USDA Declared Disasters (2018-2023), Hurricane, Tropical Storms, and Tropical Depressions

Crop Disaster Year	Disaster Description	Designation Number
2021	Hurricane Nicholas	S5115

Probability of Future Occurrences

The State of Texas HMP estimates the occurrence of hurricanes, tropical storms, and tropical depressions is trending upward, with a 400% increase in the 5-year planning cycle between 2017-2021.[40] According to FEMA's National Risk Index (NRI) for hurricanes within Brazoria County, annualized frequency values are 0.2 events per year over 73 years of record (1949-2021), with 43 events on record for this timeframe.[41]

Populations at Risk

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions.

The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. Expected annual loss (EAL) represents the average economic loss in dollars resulting from natural hazards each year, the Community Risk Factor (CRF) is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards), and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions). The outcome, the risk index, represents the potential negative impacts of natural hazards on the county level or individually by census tracts. The NRI EAL score and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[42]

Populations at risk for hurricanes, tropical storms, and tropical depressions include the entire county and the City of Angleton as this hazard has no geographic boundaries. Hurricanes can cause property damage, flooding, lack of access to critical facilities that provide food, water, medications, or other forms of medical assistance, and lack of utilities such as electricity and clean water, which can increase the risk of illness. The National Center for Healthy Housing (NCHH) includes at-risk populations for several hazards. For hurricanes, these include older adults, children, people experiencing homelessness, people with disabilities, and people with chronic health conditions. Older adults, in addition to the dangers listed above, can also face social isolation, lack of electricity needed to run medical equipment, and lack of access to other critical supplies. In younger populations, such as children, hurricanes can disrupt schooling and the normal day-to-day routines they thrive on. This can not only jeopardize their academic success, it can also cause mental and emotional stress. Children are more at risk and vulnerable to certain medical conditions like asthma, lead poisoning, allergies, and bacterial infections which can be caused by the resulting flood damage and increased moisture of hurricanes. For people experiencing homelessness, housing and adequate shelter are critical in keeping populations safe during these types of hazard events so hurricanes can be life-threatening for this population if adequate shelter is not located and utilized. People with disabilities may require additional assistance to stay safe and prepare for these hazards such as creating a support network, finding accessible transportation to evacuate or get medical attention, and loss of power for needed medical equipment. Likewise, those with chronic health conditions may need similar assistance as those with disabilities. People with chronic health conditions also face exposure to diseases or illnesses from standing water and increased exposure to these illnesses when utilizing a shelter or evacuation center.[43] People living in mobile homes are also at greater risk of injury and death from these hazards. Despite mobile homes providing a form of shelter, tornadoes and dangerous winds produced by hurricanes, tropical storms, and tropical depressions can cause mobile homes and even mobile homes that utilize anchoring to be seriously damaged or destroyed when winds gust over 80 mph.

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for hurricane events for these census tracts is listed as very high, with one tract rating relatively high. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below. [44] Additionally, the FEMA NRI lists the historic loss ratio (HLR), a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for hurricanes within Brazoria County as relatively high.[45] Tropical storms and tropical depressions are not included in the FEMA NRI and were omitted here.

Figure 6.1.2: Risk Index by Census Tract, City of Angleton, Hurricane

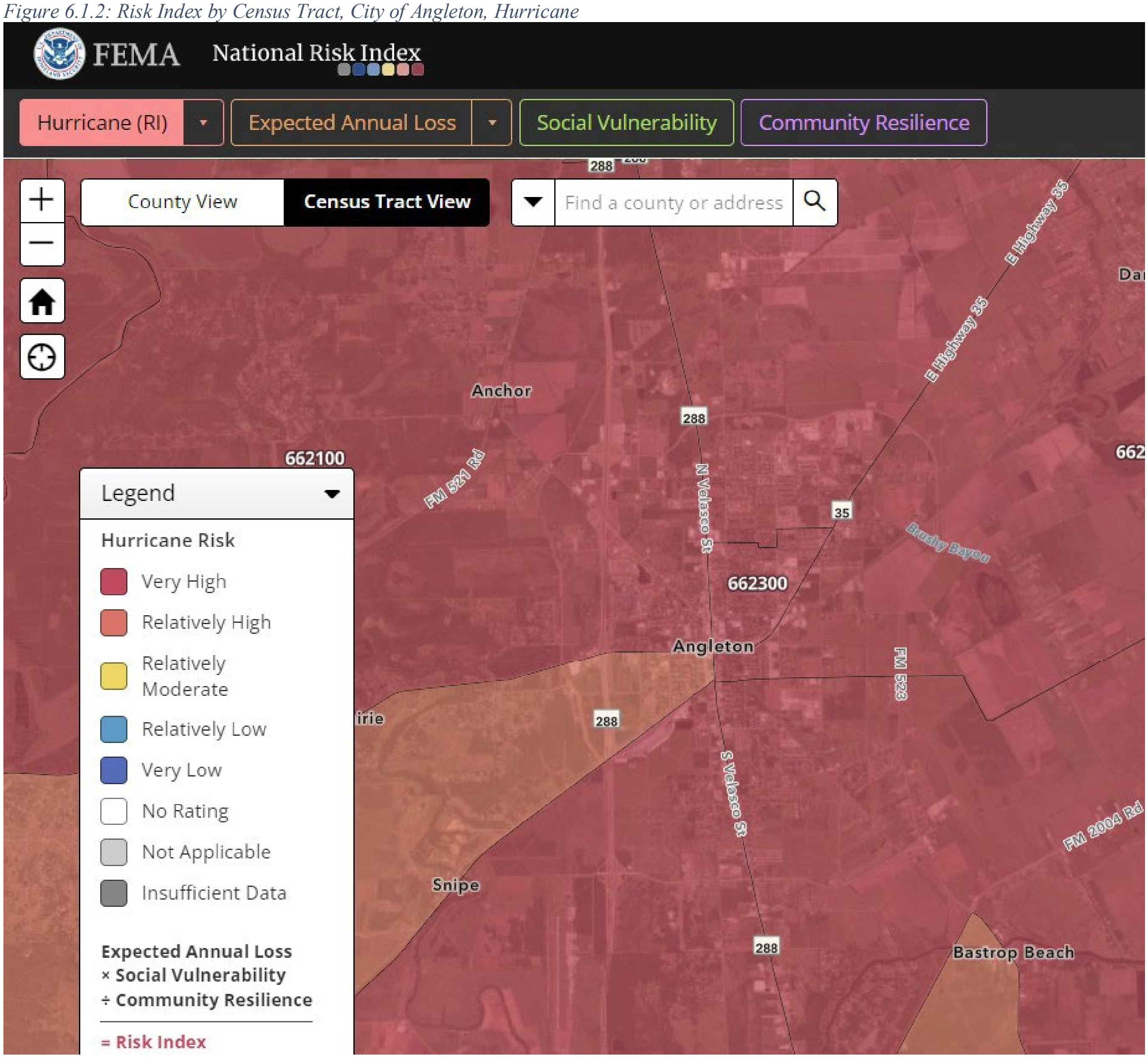


Figure 6.1.3: Expected Annual Loss by Census Tract, City of Angleton, Hurricane

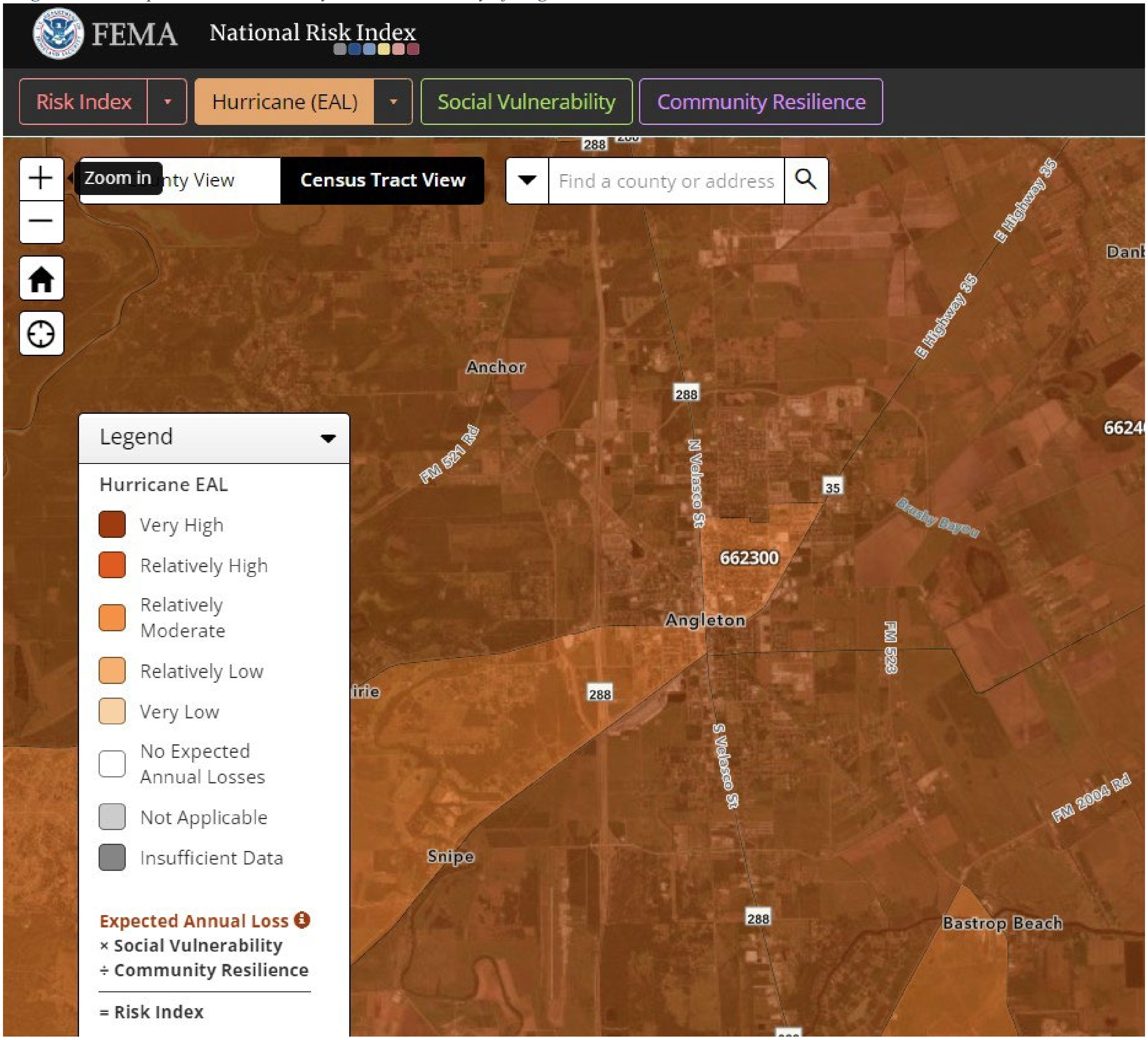


Figure 6.1.4: Social Vulnerability by Census Tract, City of Angleton

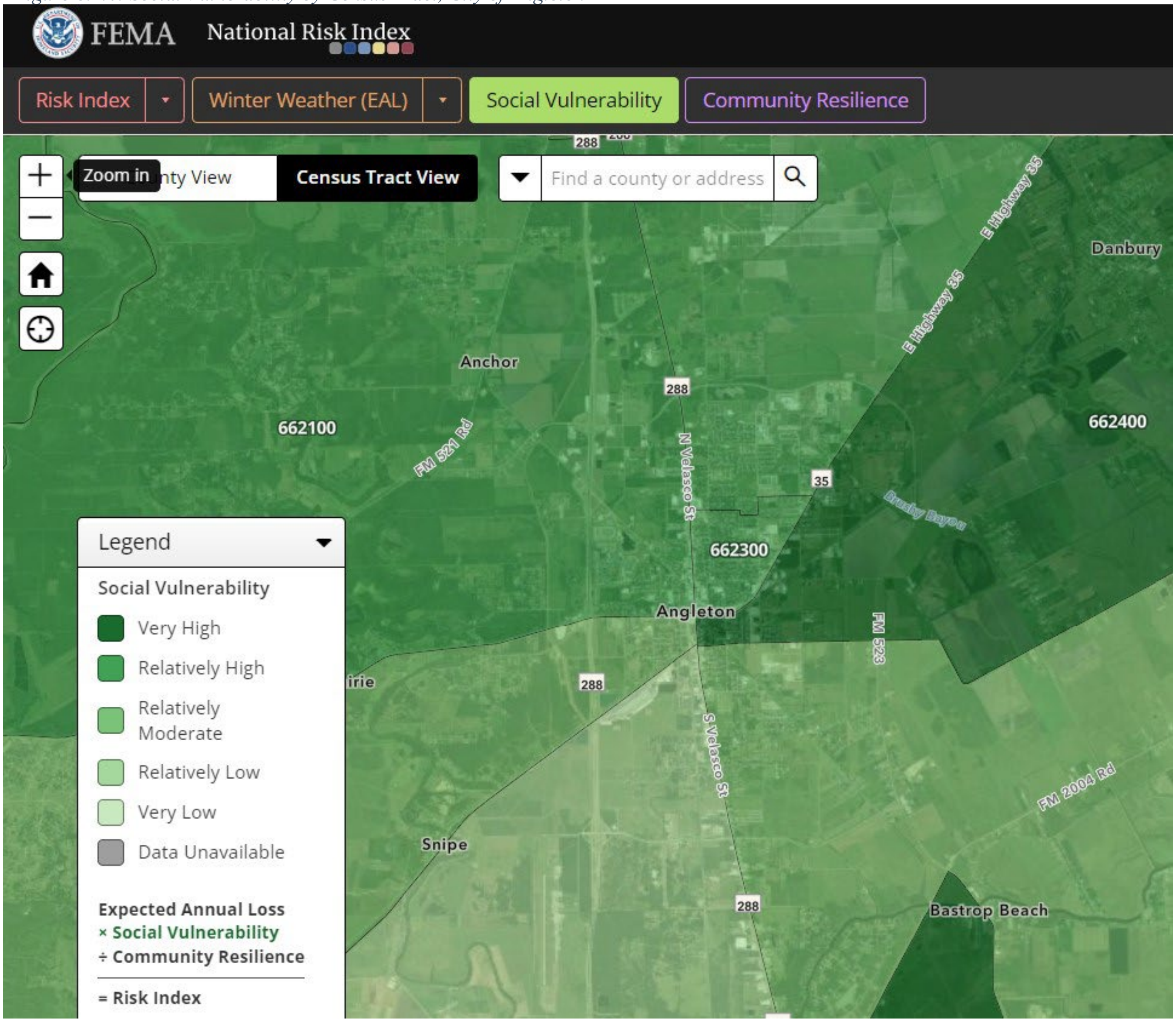


Figure 6.1.5: Community Resilience by Census Tract, City of Angleton

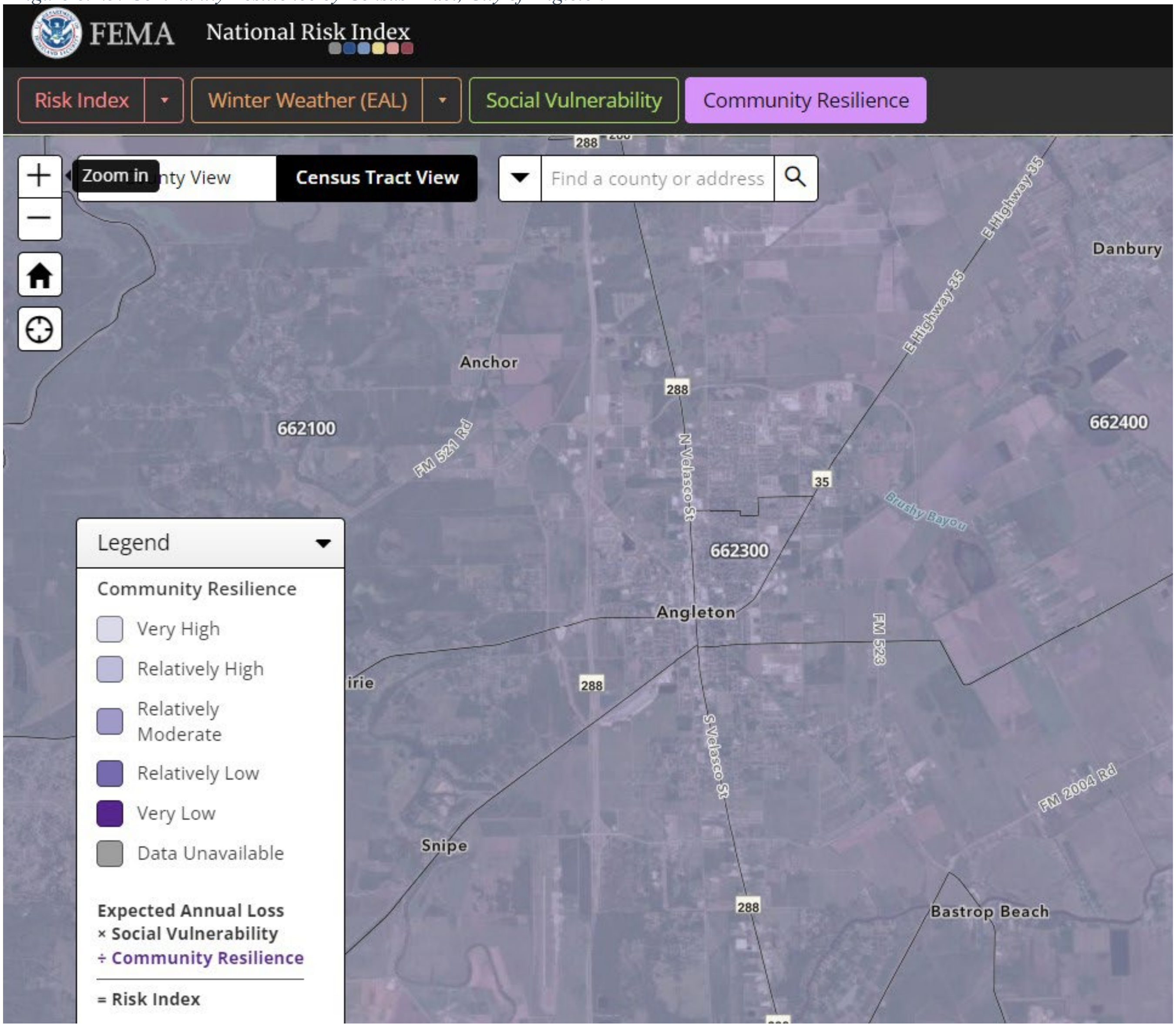


Figure 6.1.6: FEMA NRI Summary by Census Tract, City of Angleton, Hurricane

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039662400	TX	Very High	98.33	0 100
2	Census tract 48039662200	TX	Very High	97.88	0 100
3	Census tract 48039663100	TX	Very High	97.78	0 100
4	Census tract 48039662100	TX	Very High	97.49	0 100
5	Census tract 48039664100	TX	Very High	96.77	0 100
6	Census tract 48039662300	TX	Very High	96.04	0 100
7	Census tract 48039662500	TX	Relatively High	91.91	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039662400	TX	$2,610,634	Very High	Relatively Moderate	1.43	$3,745,913	98.33
2	Census tract 48039662200	TX	$2,490,831	Relatively High	Relatively Moderate	1.34	$3,331,662	97.88
3	Census tract 48039663100	TX	$3,262,887	Relatively Low	Relatively Moderate	1	$3,265,585	97.78
4	Census tract 48039662100	TX	$2,524,451	Relatively High	Relatively Moderate	1.22	$3,088,959	97.49
5	Census tract 48039664100	TX	$2,561,745	Relatively Moderate	Relatively Moderate	1.05	$2,684,512	96.77
6	Census tract 48039662300	TX	$1,736,324	Relatively High	Relatively Moderate	1.38	$2,393,047	96.04
7	Census tract 48039662500	TX	$1,278,006	Relatively Moderate	Relatively Moderate	1.12	$1,427,229	91.91

Climate Change Impacts

According to the Office of the Texas State Climatologist, hurricanes, tropical storms, and tropical depressions, though unpredictable in quantity between 5-year planning cycles, will continue to intensify due to other climate-related factors such as the environmental conditions for thunderstorm intensity rising, warmer temperatures, and increasing ocean temperatures. As temperatures increase, the amount of energy available to fuel these storms, especially those that form over warm tropical waters of the Atlantic Ocean and Gulf of Mexico is expected to increase.[43]

Table 6.1.7: Climate Change Impacts Summary, Hurricane, Tropical Storms, and Tropical Depressions

Location	The location of hurricanes, tropical storms, and tropical depressions is not expected to change.
Extent/Intensity	The extent and intensity of hurricanes, tropical storms, and tropical depressions are not expected to change.
Frequency	There are no clear trends in hurricanes, tropical storms, and tropical depression frequency. This is due to considerable variability in conditions that lead to these hazards occurring. However, these hazards occur most frequently in warmer months. For the Texas coast, hurricane season officially begins on June 1 and ends on November 30. The greatest threat of landfall for these hazards occurs between the beginning of June through October.
Duration	The duration of hurricanes, tropical storms, and tropical depressions is not likely to change, however, their intensity is expected to increase due to rising temperatures and the proximity of the county and city to the Gulf of Mexico, which aids in fueling thunderstorms and tropical cyclone formation when waters are warm and thunderstorm development is more likely.

Section 6.2: Flooding

6.2 Flooding

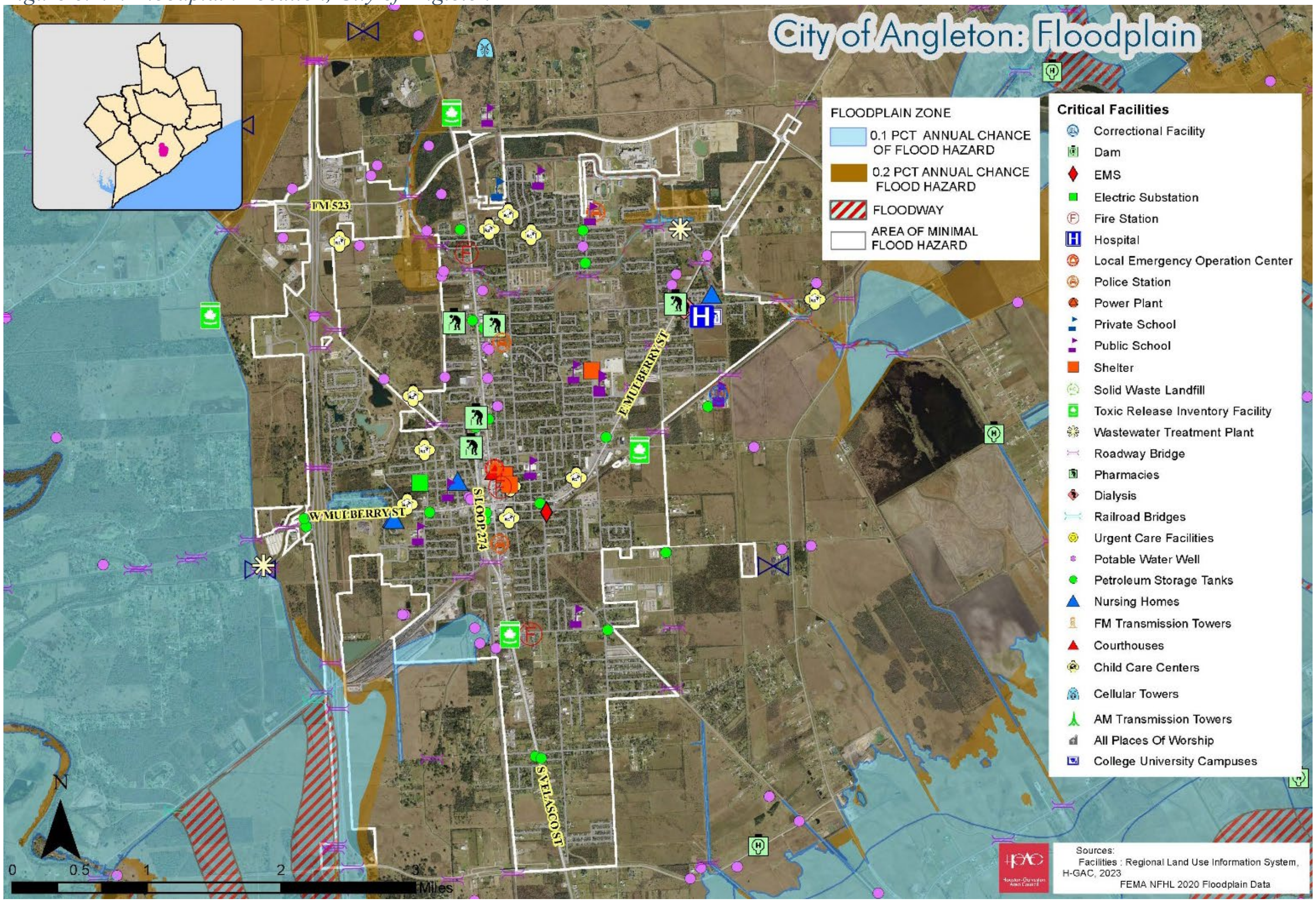
Floodplains are the primary tool used by FEMA to determine areas at risk of flooding. The periodic flooding of lands adjacent to rivers, streams, and shorelines is a natural and inevitable occurrence that can be expected based on established recurrence intervals. The recurrence interval of a flood is the average time interval, in years, that can be anticipated between flood events of a certain magnitude. Using the recurrence interval with land and precipitation modeling, forecasters can estimate the probability and likely location of flooding. These are expressed as floodplains. The most used floodplain measurements are the 100-year floodplain and the 500-year floodplain. The 100-year floodplain is an SFHA that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent (1 in 100) annual chance flood is also referred to as the base flood.[46] The 500-year floodplain, or the 0.2% annual chance flood, is a flooding event that has a 0.2 percent (1 in 500) chance of occurring in any given year at any given location.

Four different types of flooding can affect an area: coastal, riverine, flash flooding, and groundwater flooding. For this HMP the flooding section focuses on coastal, riverine, and flash flooding as those are historically the types of floods that have occurred within the area. Riverine Flooding is when streams and rivers exceed the capacity of their natural or constructed channels to accommodate water flow and water overflows the banks, spilling out into adjacent low-lying, dry land.[47] Riverine flooding can occur during heavy periods of rain that cause rivers and streams to crest their banks and can take days, weeks, to months to subside back to normal levels. Coastal Flooding is when water inundates or covers normally dry coastal land as a result of high or rising tides or storm surges.[48] Flash Flooding is defined by the NWS as "A rapid and extreme flow of high water into a normally dry area or a rapid water level rise in a stream or creek above a predetermined flood level. Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters. Commonly it occurs within six hours of a heavy rain event. However, flash floods can also occur within hours or even minutes if a dam or levee fails or rapid ponding of water caused by torrential rainfall."[49]

Location

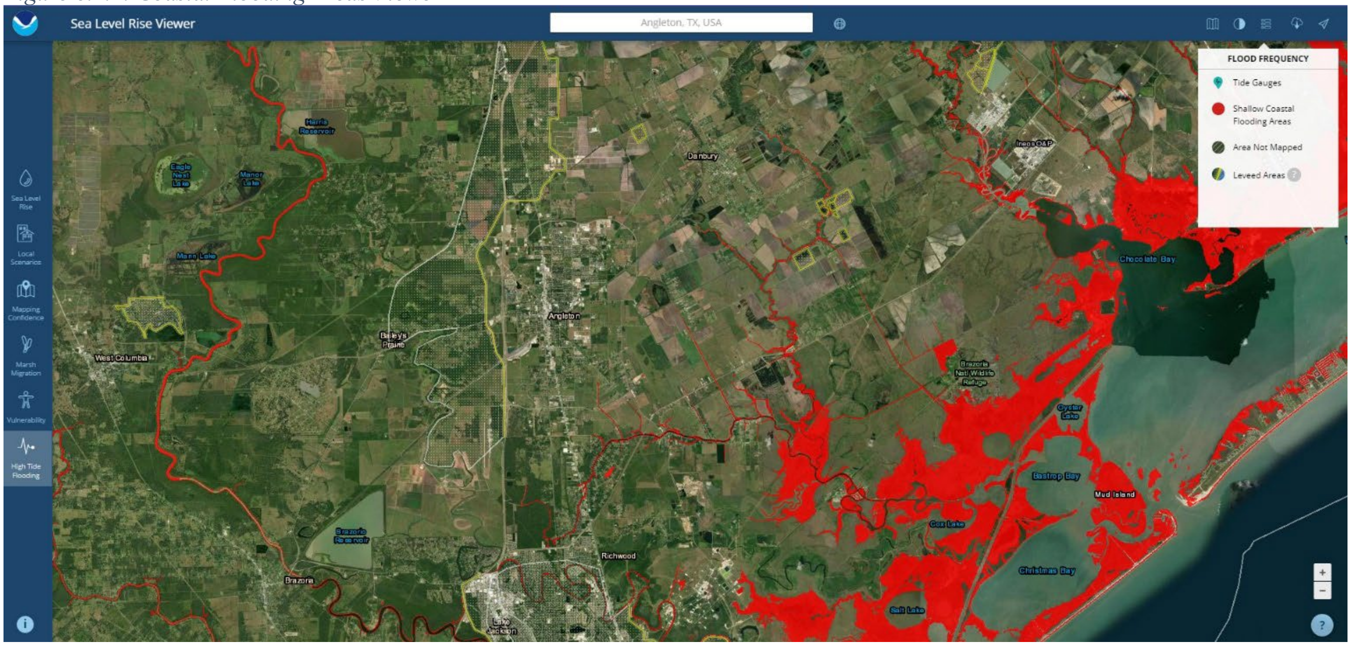
Figure 6.2.1 below shows the location of floodplains within the City of Angleton. Areas depicted by differentiating colors on the map show the locations of the 100-year and 500-year floodplains, as well as the floodway.

Figure 6.2.1: Floodplain Location, City of Angleton



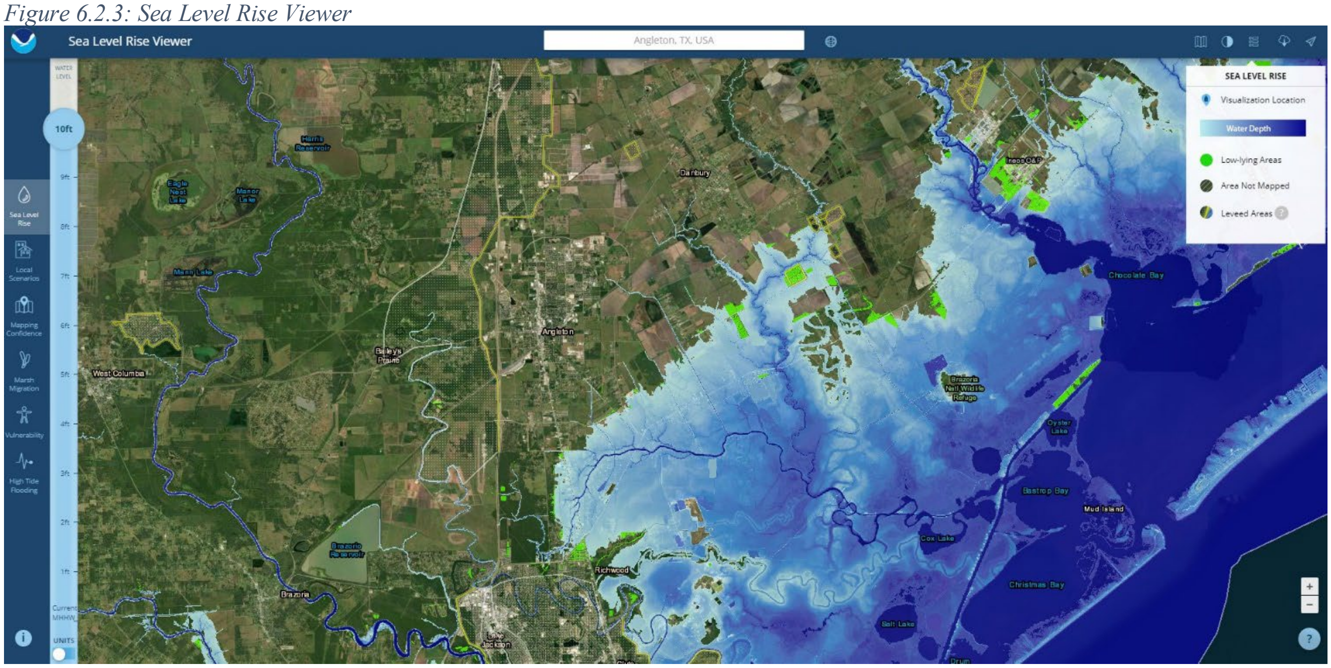
Coastal flooding is a result of rising tides or storm surges. As sea levels continue to rise due to various factors such as warming oceans, melting glaciers, and melting ice sheets raising global sea levels, the risk of coastal flooding for the city will increase. Using data based on the Surging Seas Risk Finder, there is a 95% risk of at least one flood over 5 ft taking place between today and 2050 in the Angleton area.[50] This would minimally impact the city as it is further inland than other coastal areas. Including impacts from other hazards, such as rising sea levels and storm surges from a hurricane, the city would be at a greater risk of flooding. Per NOAA, annual occurrences of tidal flooding have increased 5 to 10-fold since the 1960s. The changes in high tide flooding over time are greatest where elevation is lower. "Today's flood will become tomorrow's high tide, as sea level rise will cause flooding to occur more frequently and last for longer durations of time." Figure 6.2.2 below highlights areas that are currently considered shallow coastal flooding areas by NOAA, or areas currently subject to tidal flooding/recurrent or nuisance flooding.[51]

Figure 6.2.2: Coastal Flooding Areas Viewer



A sea level rise of 10 ft shows the inundation footprint entering city limits to the south and northeast. Areas that are hydrologically connected to the ocean are shown in shades of blue (darker blue means a greater depth of water).

Figure 6.2.3: Sea Level Rise Viewer



Extent

The NWS categorizes riverine flooding levels into four categories, minor, moderate, major, and record flooding. Table 6.1.1 below outlines these categories and their descriptions. Once a river reaches flood stage, an established gage height for a given location in which a rise in surface water begins to create a hazard to lives, property, or businesses, the NWS utilizes these categories to describe flood severity.

Table 6.2.1: NWS Flood Categories

Flood Category	Description
Minor Flooding	Minimal or no property damage is expected, but the flooding could possibly cause some public threat or inconvenience.
Moderate Flooding	Some inundation of structures and roads near streams is expected. Some evacuations of people and or a transfer of property to higher elevations are necessary.
Major Flooding	Extensive inundation of structures and roads in addition to the possible significant evacuations of people and/or transfer of property to higher elevations.
Record Flooding	Flooding which equals or exceeds the highest stage or discharge observed at a given site during the period of record.

Flash Floods can be caused by several things, but they are most often caused due to extremely heavy rainfall from thunderstorms. The intensity of the rainfall, the location and distribution of the rainfall, the land use and topography, vegetation types and growth/density, soil type, and soil water content all determine how quickly flooding may occur, and influence where it may occur.[52]

Coastal flooding is characterized by the NWS using the following threat levels, map colors, and descriptions for specified areas within the vicinity of the coast based on the adverse effects of surf conditions as saltwater is deposited onto the beach.[53]

Table 6.2.2: NWS Coastal Flood Categories

Threat Level	Description
Extreme	**"An Extreme Threat to Life and Property within the Coastal Zone from Saltwater Flooding."** Persistent battering surf conditions (lasting more than 36 hours), or major extra-tropical storm surge event. The potential for widespread breaching of dunes and seawalls. Near-shore roads may become weakened or washed out affecting local escape routes. Shoreline structures may experience significant damage resulting in local evacuations. Significant damage to marinas and piers may occur.
High	**“A High Threat to Life and Property within the Coastal Zone from Saltwater Flooding."** Battering surf conditions (lasting less than 36 hours), or moderate extra-tropical storm surge event. The potential for surf to breach dunes and seawalls in scattered locations which may begin to affect sections of near-shore roads and shoreline structures. Some damage to marinas and piers may occur.
Moderate	**"A Moderate Threat to Life and Property within the Coastal Zone from Saltwater Flooding."** High (very heavy) surf conditions which may cause major beach erosion. The potential for surf to breach dunes and seawalls in isolated locations, mainly in historically vulnerable spots.
Low	**"A Low Threat to Life and Property within the Coastal Zone from Saltwater Flooding."** High (heavy) surf conditions which may cause moderate beach erosion.
Very Low	**"A Very Low Threat to Life and Property within the Coastal Zone from Saltwater Flooding."** Rough surf conditions which may cause minor beach erosion.
Non-Threatening	**"No Threat to Life and Property within the Coastal Zone from Saltwater Flooding."** Surf conditions are non-threatening.

Flooding causes widespread and varying degrees of damage. The magnitude or extent of flood damage is expressed by using the maximum depth of flood water during a specific flood event. Structures inundated by 4 feet or more of flood water are considered an absolute loss. Other forms of loss include damage to roads and bridges, agriculture damages, loss of services, injury, or death. “In addition to property damage, flooding can also cut off access to utilities, emergency services, and transportation, and may impact the overall economic well-being of an area.

Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the NCEI Storm Events Database. These events are shown at the county level with some referencing a specific location, city, or zone. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The table below highlights events for this hazard that have occurred within Brazoria County from 1950-2023. Events that occurred within the City of Angleton are highlighted in purple.[38]

Table 6.2.3: City of Angleton Flood Events (1950-2023)

Event Date	Event Type	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
1/27/1997	Flash Flood	0	0	$5,000	$-
4/11/1997	Flash Flood	0	0	$5,000	$-
4/25/1997	Flash Flood	0	0	$10,000	$-
6/18/1997	Flash Flood	0	0	$5,000	$-
10/13/1997	Flash Flood	0	0	$20,000	$-
1/4/1998	Flash Flood	0	0	$7,000	$-
1/6/1998	Flash Flood	0	0	$2,000	$-
3/16/1998	Flash Flood	0	0	$3,000	$-
9/10/1998	Flash Flood	0	0	$-	$-
9/11/1998	Flash Flood	0	0	$-	$-
10/17/1998	Flood	0	0	$-	$-
10/18/1998	Flash Flood	0	0	$3,000	$-
11/12/1998	Flood	0	0	$-	$-
9/13/2000	Flash Flood	0	0	$150,000	$-
6/5/2001	Flash Flood	0	0	$-	$-
6/7/2001	Flash Flood	0	0	$-	$-
6/8/2001	Flash Flood	0	0	$-	$-
6/8/2001	Flash Flood	0	0	$-	$-
6/9/2001	Flash Flood	0	0	$-	$-
6/9/2001	Flash Flood	0	0	$-	$-
8/30/2001	Flash Flood	0	0	$30,000	$-
8/31/2001	Flash Flood	0	0	$500,000	$-
9/2/2001	Flash Flood	0	0	$80,000	$-
4/8/2002	Flash Flood	0	0	$5,000	$-
5/17/2002	Flash Flood	0	0	$1,000	$-
8/15/2002	Flash Flood	0	0	$50,000	$-
8/15/2002	Flash Flood	0	0	$90,000	$-
9/6/2002	Flash Flood	0	0	$25,000	$-
9/7/2002	Flash Flood	0	0	$250,000	$-
9/9/2002	Flash Flood	0	0	$30,000	$-
9/10/2002	Flash Flood	0	0	$30,000	$-
10/24/2002	Flash Flood	0	0	$75,000	$-
11/5/2002	Flash Flood	0	0	$35,000	$-
12/4/2002	Flash Flood	0	0	$2,000	$-
9/4/2003	Flash Flood	0	0	$10,000	$-

Event Date	Event Type	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
10/9/2003	Flash Flood	0	0	$15,000	$-
11/17/2003	Flash Flood	0	0	$5,000	$-
6/23/2004	Flash Flood	0	0	$5,000	$-
10/16/2006	Flash Flood	0	0	$500,000	$-
4/25/2007	Flash Flood	0	0	$15,000	$-
5/28/2007	Flash Flood	0	0	$110,000	$-
5/28/2007	Flash Flood	0	0	$-	$-
4/24/2009	Flash Flood	0	0	$1,000	$-
7/1/2010	Flash Flood	0	0	$-	$-
7/1/2010	Flash Flood	0	0	$500,000	$-
7/1/2010	Flash Flood	0	0	$1,250,000	$-
1/22/2015	Flash Flood	0	0	$1,000	$-
4/14/2015	Flash Flood	0	0	$-	$-
4/17/2015	Flash Flood	0	0	$5,000	$-
4/17/2015	Flash Flood	0	0	$8,000	$-
5/12/2015	Flash Flood	0	0	$75,000	$-
8/20/2015	Flash Flood	0	0	$-	$-
8/28/2016	Flash Flood	0	0	$12,000	$-
3/29/2017	Flash Flood	0	0	$-	$-
4/18/2017	Flash Flood	0	0	$450,000	$-
4/18/2017	Flash Flood	0	0	$-	$-
8/26/2017	Flash Flood	0	0	$2,000,000,000	$100,000
8/26/2017	Flash Flood	0	0	$-	$-
8/28/2017	Flash Flood	0	0	$-	$-
8/28/2017	Flash Flood	0	0	$-	$-
8/28/2017	Flash Flood	0	0	$-	$-
9/18/2019	Flash Flood	0	0	$-	$-
5/1/2021	Flash Flood	0	0	$5,000	$-
			Brazoria County Totals:	**$2,004,380,000**	**$100,000**
			City of Angleton Totals:	**$418,000**	**$-**

Rows highlighted in purple are events that reference the City of Angleton within the event narrative or event location (beginning or end).
$- No dollar amount ($0.00).

Presidential Disaster Declarations

There have been seven federally declared flood disasters in the City of Angleton since 1950. Additionally, four disaster declaration events mention flooding in their title but are categorized as severe storms for incident type. These are also included in the table below.[1]

Table 6.2.4: Federally Declared Disasters, Flood

Declaration Year	Incident Type	Incident Title	Disaster Number	Declaration Type
1973	Flood	SEVERE STORMS & FLOODING	398	Major Disaster Declaration
1979	Flood	STORMS & FLASH FLOODS	595	Major Disaster Declaration
1979	Flood	SEVERE STORMS & FLOODING	603	Major Disaster Declaration
1992	Flood	SEVERE THUNDERSTORMS	930	Major Disaster Declaration
1995	Flood	SEVERE THUNDERSTORMS AND FLOODING	1041	Major Disaster Declaration
1999	Flood	TX-FLOODING 10/18/98	1257	Major Disaster Declaration
2016	Flood	SEVERE STORMS AND FLOODING	4272	Major Disaster Declaration

Declaration Year	Incident Type	Incident Title	Disaster Number	Declaration Type
1991	Severe Storm	SEVERE STORMS, TORNADOES & FLOODING	900	Major Disaster Declaration
2003	Severe Storm	SEVERE STORMS, TORNADOES AND FLOODING	1439	Major Disaster Declaration
2015	Severe Storm	SEVERE STORMS, TORNADOES, STRAIGHT-LINE WINDS AND FLOODING	4223	Major Disaster Declaration
2016	Severe Storm	SEVERE STORMS, TORNADOES, STRAIGHT-LINE WINDS, AND FLOODING	4245	Major Disaster Declaration

USDA Disaster Declarations

The USDA authorizes the Secretary of Agriculture to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for the City of Angleton since the last HMP are listed in the table below.[39]

Table 6.2.5: USDA Declared Disasters (2018-2023), Flood

Crop Disaster Year	Disaster Description	Designation Number
2019	Excessive moisture and flooding	S4534

National Flood Insurance Program Participation

The NFIP is a federal program administered through FEMA that enables property owners in participating communities to purchase insurance as a protection against flood losses. Communities must maintain eligibility in the NFIP by adopting and enforcing floodplain management regulations intended to prevent unsafe development in the floodplain, thus reducing future flood damage. FEMA creates flood maps, or FIRMs to support the NFIP.[27,28] These flood maps are periodically updated and outline SFHA. The SFHA is the area where the NFIP floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.[29]

The Community Rating System

The CRS is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the NFIP. Participation in the CRS program is voluntary and includes many benefits for a community, such as discounted flood insurance premiums that relate to the community's level of efforts that reduce risk from flooding and strengthen floodplain management. Currently, the City of Angleton does not participate in the CRS Program.[30]

As seen in Section 3- Table 3.6: Community Participation in the NFIP and CRS Program

Jurisdiction	Participating	Date Joined	Current Effective FIRM Date	CRS Participation
Angleton	Y	06/21/74	12/30/20	N

Repetitive Loss and Severe Repetitive Loss Properties

FEMA defines a RL structure as "a structure covered under an NFIP flood insurance policy that:

(3) Has incurred flood-related damage on 2 occasions, in which the cost of repair, on average, equaled or exceeded 25% of the value of the structure at the time of each such flood event; and

(4) At the time of the second incidence of flood-related damage, the contract for flood insurance contains ICC coverage."[23]

A SRL property is defined as "a structure that is covered under an NFIP flood insurance policy and has incurred flood-related damage:

(3) For which 4 or more separate claims payments have been made under flood insurance coverage under subchapter B of this chapter, with the amount of each claim (including building and contents payments) exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or

(4) For which at least 2 separate flood insurance claims payments (building payments only) have been made, with a cumulative amount of such claims exceeding the value of the insured structure.[24]

According to available data from 2023, the city has a total of 97 RL properties, of which 18 are designated as SRL properties. This does not include RL or SRL properties that have already been mitigated. Only 23 of these RL and SRL properties are insured through the NFIP. Total SRL property claim payments for the City of Angleton are $2,560,751.56. There is an average of 5.6 NFIP claims per SRL property within the city.[25,26] Table 3.5 outlines the structure type (residential, commercial, institutional, etc.), and number of records for RL and SRL properties within the city, including the number of those structures that were insured under the NFIP.

As seen in Section 3- Table 3.5: RL and SRL Properties, City of Angleton
(Source: FEMA, Correspondence with the Floodplain Management and Insurance Branch)

Jurisdiction Name	Residential RLPs	Non-Residential RLPs	Total RLPs	SRL Properties	Number of NFIP Insured Properties
Angleton	87	10	97	18	23

FEMA Guidance specifies that NFIP flood insurance claim information is subject to The Privacy Act of 1974, as amended. The Act prohibits public release of policyholder names, or names of financial assistance recipients and the amount of the claim payment or assistance. After flooding events, local officials are responsible for inspecting flood-damaged structures in the SFHA to determine if they are substantially damaged (50% or more damaged). If so, the property owner is required to bring a non-conforming structure into compliance with the local floodplain ordinance. For the City of Angleton, the Floodplain Administrator for Brazoria County is responsible for handling these NFIP claims.

Flood Mitigation Assistance Repetitive Loss and Severe Repetitive Loss Properties

FEMA supports a handful of Hazard Mitigation Assistance (HMA) programs that support mitigation activities by providing funding that helps support mitigation projects. One such program is Flood Mitigation Assistance (FMA), this competitive program provides funding to states, local communities, federally recognized tribes, and territories that can be used for projects that reduce or eliminate the risk of repetitive flood damage to structures insured by the NFIP. While individual homeowners are not eligible to apply for FMA grant funds, a community in good standing (those that have a FEMA-approved HMP and are in good standing with the NFIP) can apply on their behalf. Homeowners who do receive FMA grant funds are required to have active NFIP flood insurance policies, and the NFIP flood insurance policy must be maintained for the life of the structure.[54] Table 3.6 outlines the jurisdiction, structure type (residential, commercial, institutional, etc.), and number of records for RL and SRL properties under the FMA program within the city.

Table 6.2.6: FMA RL and SRL Properties, City of Angleton (Source: FEMA, Floodplain Management and Insurance Branch)

Jurisdiction Name	Residential FMA RLPs	Non-Residential FMA RLPs	Total FMA RLPs	FMA SRL Properties
City of Angleton	3	0	10	18

NFIP Policies in Force

The table below summarizes the NFIP policies in force for Brazoria County and the City of Angleton. In total, there are 1,142 NFIP-insured properties within the city.[31]

As seen in Section 3- Table 3.7: NFIP Insured Properties, City of Angleton

Community Name (Number)	Policies in Force	Total Coverage	Total Written Premium + FPF
BRAZORIA COUNTY (485458)	33,963	$10,621,664,000	$26,637,225
ANGLETON (480064)	1,142	$353,911,000	$762,629

Community Name- The official NFIP name of the community in which the policy resides.
Community Number- The 6-character community ID in which the policy resides.
Total Coverage- The total building and contents coverage for the policies in force.
Total Written Premium + FPF (Federal Policy Fee)- This represents the sum of the premium and FPF for the policies in force.

Probability of Future Occurrences

According to RiskFactor, a site that publishes climate risk data to quantify and communicate risk for properties with the U.S., the City of Angleton has a moderate risk of flooding over the next 30 years. This means flooding is likely to impact day-to-day life within the community. This is based on the level of risk the properties face rather than the proportion of properties with risk."[55] Flooding and flash floods will continue to occur within the City of Angleton. The FEMA NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions. According to the FEMA NRI for coastal flooding annualized frequency values are 3.7 events per year. While for riverine flooding the annualized frequency values are 2.1 events per year over 24 years of record 1996-2019, with 51 events on record.[41]

Populations at Risk

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions.

The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year, the CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards), and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions). The outcome, the risk index, represents the potential negative impacts of natural hazards on the county level or individually by census tracts. The NRI EAL score and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[42]

Populations at risk for flooding are similar to that noted in Section 6.1 for hurricanes, tropical storms, and tropical depressions. Populations at risk include the entire county and the City of Angleton as this hazard has no geographic boundaries. Those living within or near 100 or 500-year floodplains as well as floodways are at a higher risk for this hazard. Flooding can cause property damage, displacement, lack of access to critical facilities that provide food, water, medications, or other forms of medical assistance, and lack of utilities such as electricity and clean water which can increase the risk of illness. The NCHH summarizes at-risk populations for several hazards. For flooding these include older adults, children, people experiencing homelessness, people with disabilities, and people with chronic health conditions. In addition to the dangers listed above, older adults can face social isolation, lack of electricity needed to run medical equipment, lack of access to a vehicle for evacuation, and lack of access to other critical supplies. In younger populations, such as children, flood events can disrupt schooling and the normal day-to-day routines they thrive on. This can not only jeopardize their academic success but can also cause mental and emotional stress. Children are more at risk and vulnerable to certain medical conditions like asthma, lead poisoning, allergies, and bacterial infections which can be caused by the resulting flood damage and increased moisture. For people experiencing homelessness, adequate shelter is critical in keeping populations safe during flood events. People with disabilities may require additional assistance to stay safe and prepare for these hazards such as creating a support network, finding accessible transportation to evacuate or get medical attention, and loss of power for needed medical equipment. Likewise, those with chronic health conditions may need similar assistance as those with disabilities. People with chronic health conditions also face exposure to diseases or illnesses from standing water and increased exposure to these illnesses when utilizing a shelter or evacuation center to escape the flood. Additionally, flooding of homes and businesses can cause mold to thrive if not treated promptly. This can exacerbate illness among the general population but especially among those with chronic health conditions.[43]

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for coastal flood events for these census tracts is listed as relatively low, with one tract rating relatively moderate and another with no rating. according to the FEMA NRI for riverine flood events for these census tracts are listed as very high, with one tract having no rating. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below. [44] Additionally, the FEMA NRI lists the HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for coastal and riverine within Brazoria County as very low and relatively low, respectively.[44]

Figure 6.2.4: Risk Index by Census Tract, City of Angleton, Coastal Flooding

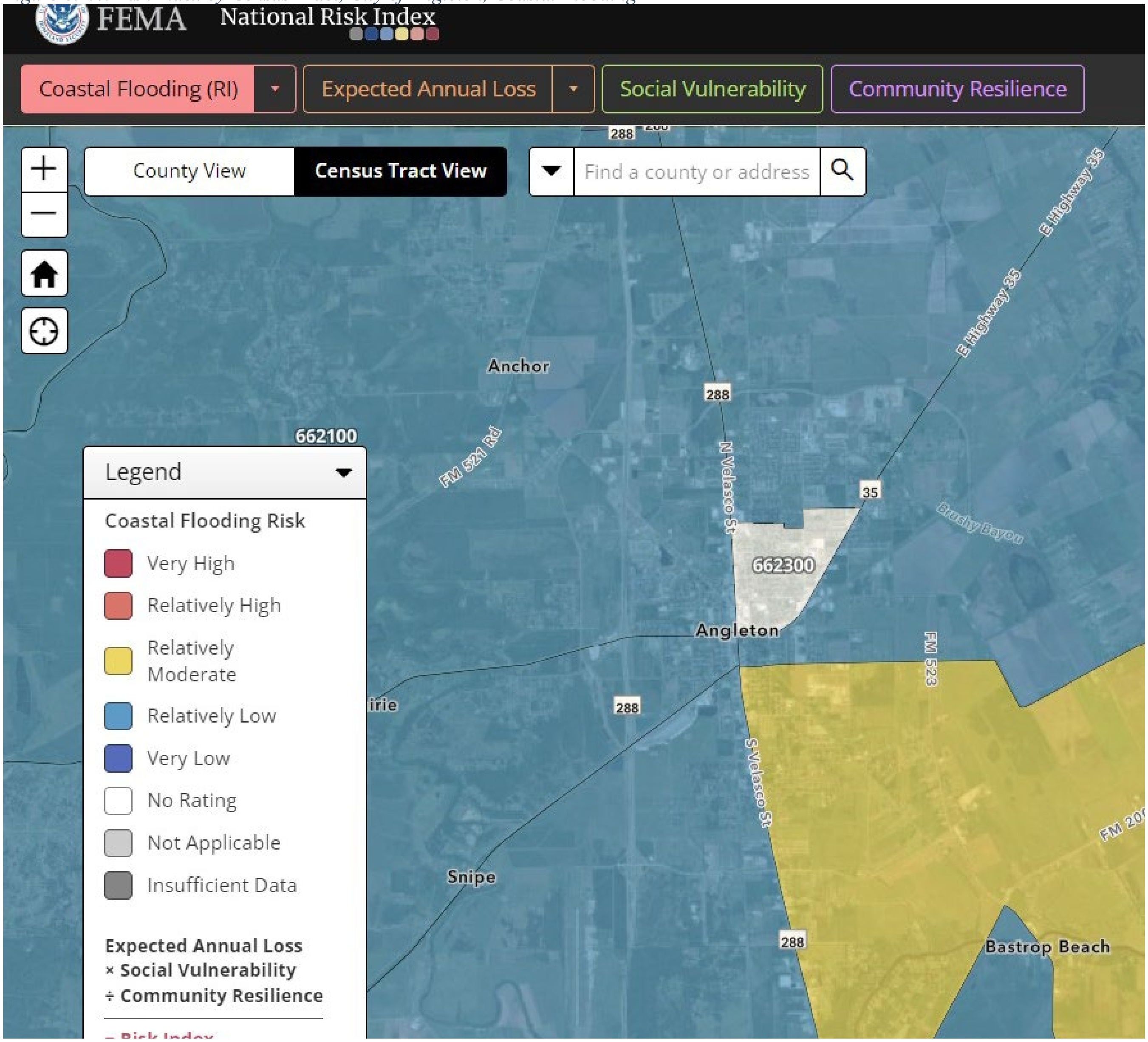


Figure 6.2.5: Risk Index by Census Tract, City of Angleton, Riverine Flooding

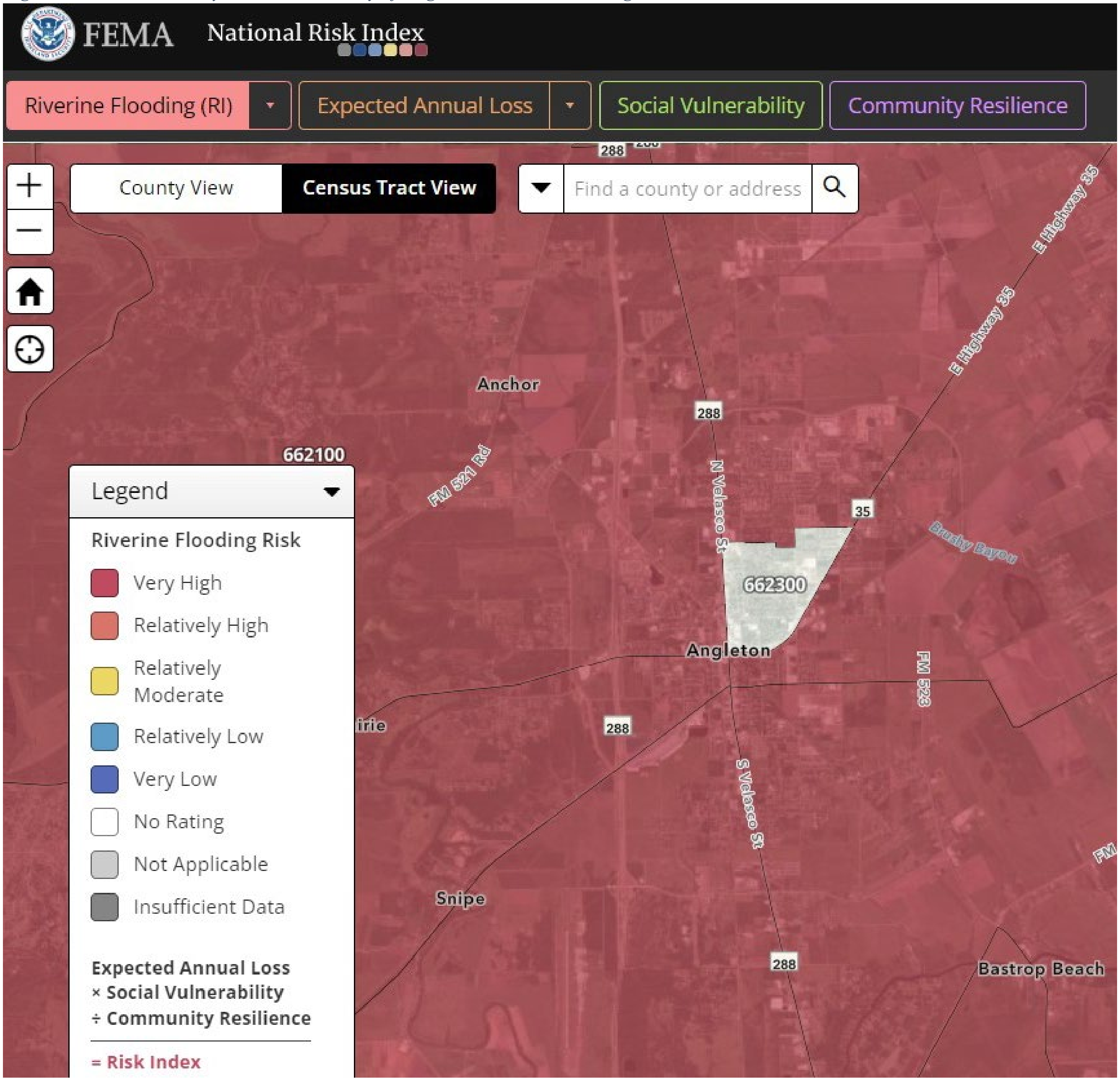


Figure 6.2.6: Expected Annual Loss by Census Tract, City of Angleton, Coastal Flooding

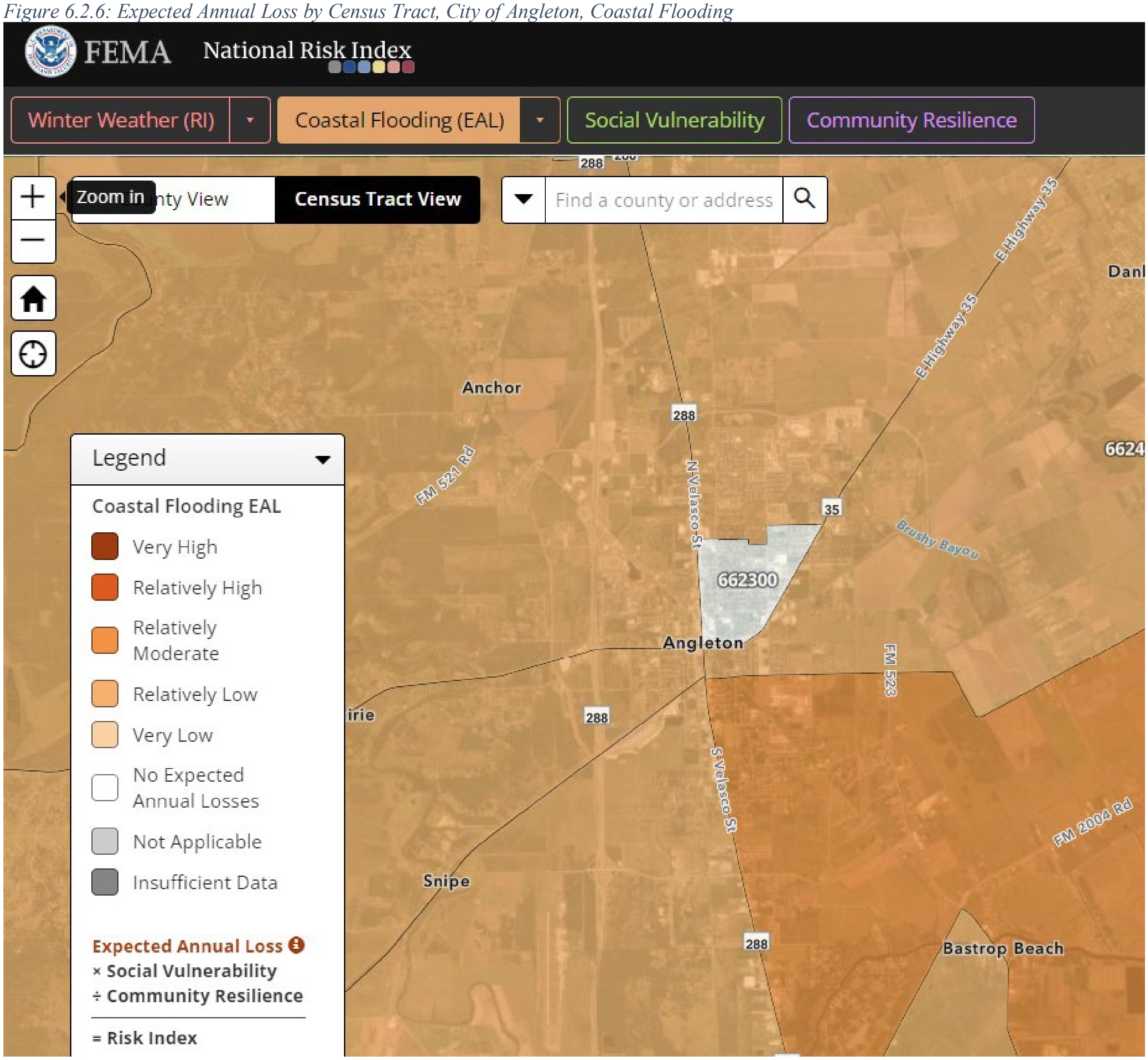


Figure 6.2.7: Expected Annual Loss by Census Tract, City of Angleton, Riverine Flooding

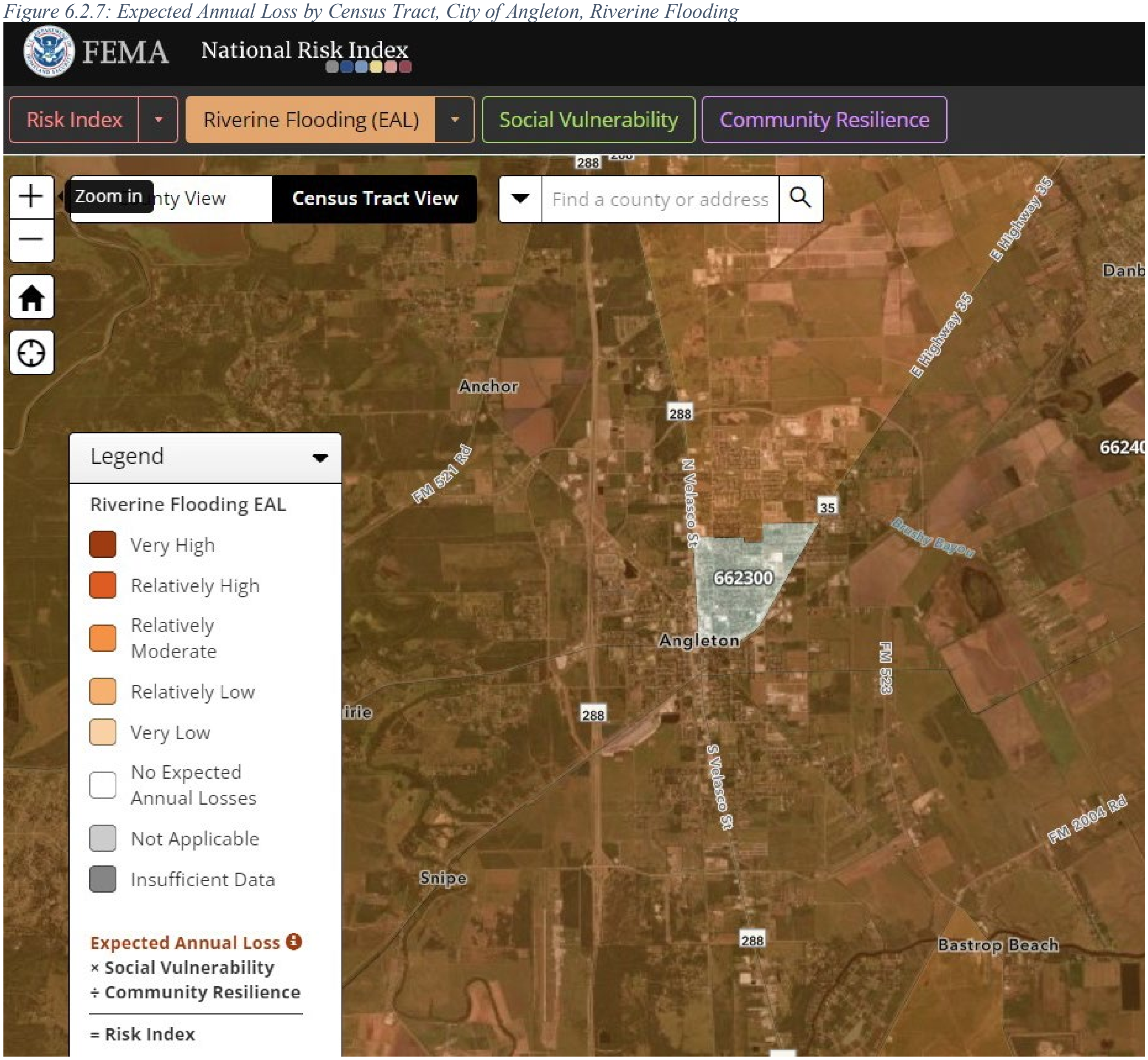


Figure 6.2.8: Social Vulnerability by Census Tract, City of Angleton

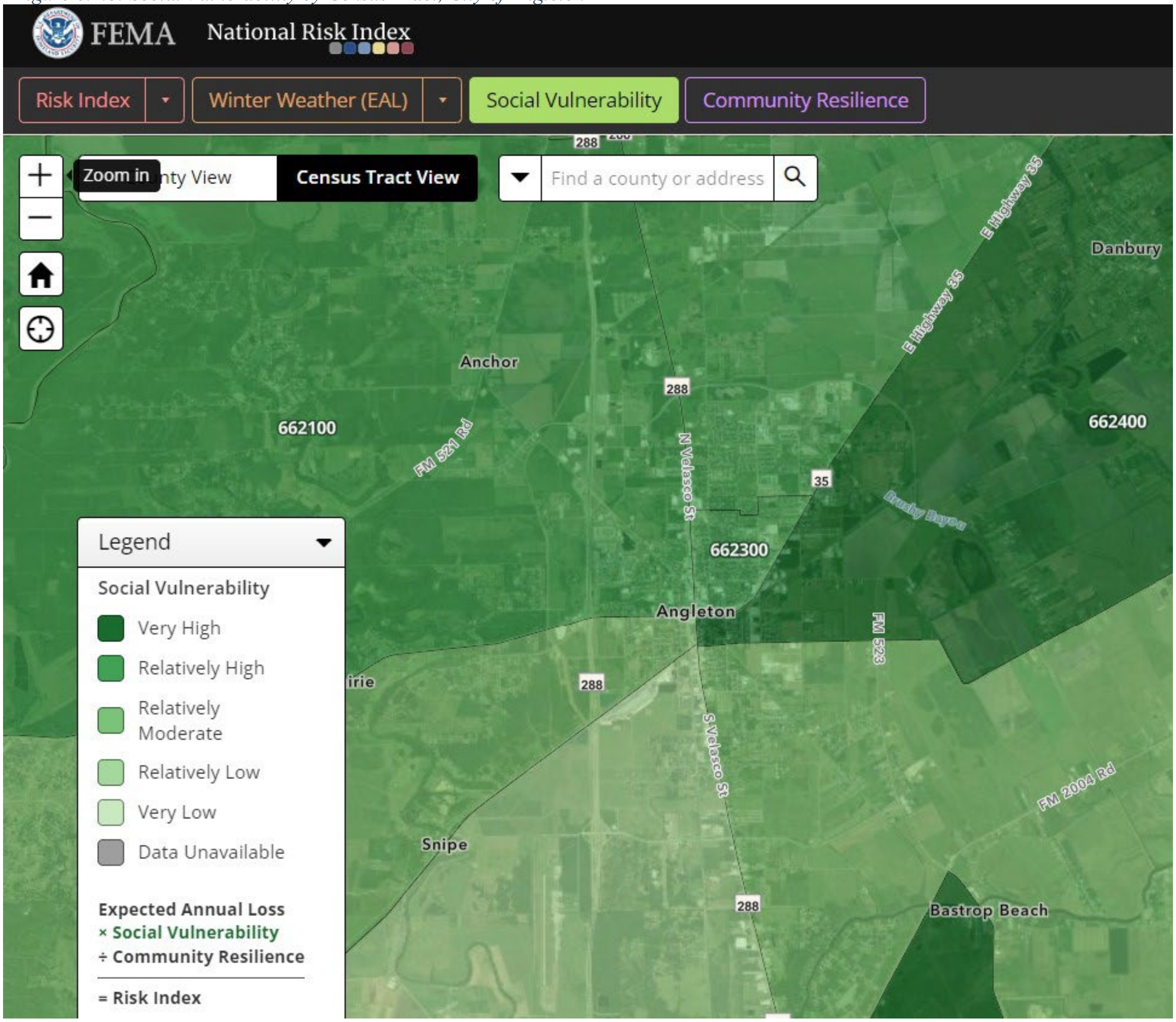


Figure 6.2.9: Community Resilience by Census Tract, City of Angleton

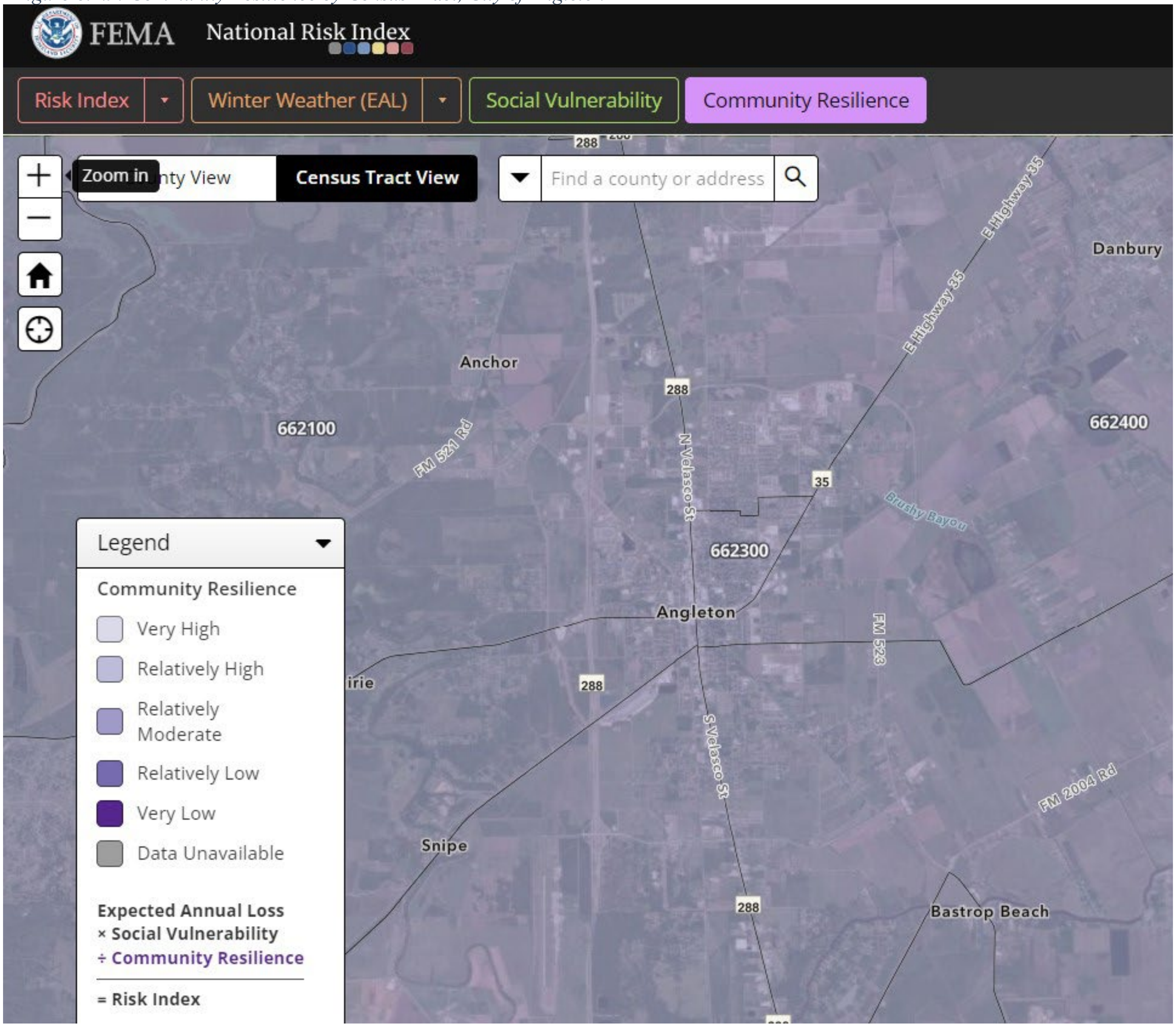


Figure 6.2.10: FEMA NRI Summary by Census Tract, City of Angleton, Coastal Flooding

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039664100	TX	Relatively Moderate	96.73	0 100
2	Census tract 48039663100	TX	Relatively Low	92.42	0 100
3	Census tract 48039662500	TX	Relatively Low	89	0 100
4	Census tract 48039662100	TX	Relatively Low	88.72	0 100
5	Census tract 48039662400	TX	Relatively Low	85.13	0 100
6	Census tract 48039662200	TX	Relatively Low	84.15	0 100
	Census tract 48039662300	TX	No Rating	0	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039664100	TX	$111,846	Relatively Moderate	Relatively Moderate	1.05	$117,206	96.73
2	Census tract 48039663100	TX	$22,853	Relatively Low	Relatively Moderate	1	$22,872	92.42
3	Census tract 48039662500	TX	$7,576	Relatively Moderate	Relatively Moderate	1.12	$8,460	89
4	Census tract 48039662100	TX	$6,482	Relatively High	Relatively Moderate	1.22	$7,932	88.72
5	Census tract 48039662400	TX	$2,077	Very High	Relatively Moderate	1.43	$2,981	85.13
6	Census tract 48039662200	TX	$1,731	Relatively High	Relatively Moderate	1.34	$2,316	84.15
	Census tract 48039662300	TX	$0	Relatively High	Relatively Moderate	1.38	$0	0

Figure 6.2.11: FEMA NRI Summary by Census Tract, City of Angleton, Riverine Flooding

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039663100	TX	Very High	99.97	0 100
2	Census tract 48039664100	TX	Very High	99.89	0 100
3	Census tract 48039662100	TX	Very High	99.89	0 100
4	Census tract 48039662500	TX	Very High	99.84	0 100
5	Census tract 48039662400	TX	Very High	98.86	0 100
6	Census tract 48039662200	TX	Very High	98.6	0 100
	Census tract 48039662300	TX	No Rating	0	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039663100	TX	$10,593,051	Relatively Low	Relatively Moderate	1	$10,601,810	99.97
2	Census tract 48039664100	TX	$5,775,706	Relatively Moderate	Relatively Moderate	1.05	$6,052,497	99.89
3	Census tract 48039662100	TX	$4,935,902	Relatively High	Relatively Moderate	1.22	$6,039,649	99.89
4	Census tract 48039662500	TX	$4,520,531	Relatively Moderate	Relatively Moderate	1.12	$5,048,358	99.84
5	Census tract 48039662400	TX	$958,338	Very High	Relatively Moderate	1.43	$1,375,088	98.86
6	Census tract 48039662200	TX	$861,407	Relatively High	Relatively Moderate	1.34	$1,152,193	98.6
	Census tract 48039662300	TX	$0	Relatively High	Relatively Moderate	1.38	$0	0

Climate Change Impacts

Factors such as climate-driven changes like increasing precipitation and warmer sea surface temperatures may also affect the probability of future floods within Brazoria County and the City of Angleton. Precipitation changes within the next 15 to 30 years are expected to be 10%-15% heavier due to increased surface temperatures. These increased temperatures cause more evaporation, making more water available in the atmosphere for rain events. Increased sea surface temperatures can cause a greater intensity of hurricanes and precipitation. Storms are also likely to be more severe.[56] According to the Office of the Texas State Climatologist, riverine flooding in Texas is projected to have no substantial change through 2036. This is due to the construction of dams and reservoirs for flood management that occurred and continues to occur within the 20th century. There is a mixture of historical trends categorized by season, but there is no one clear trend to project future flood probabilities. In addition, meteorological drivers of riverine flooding (increased rainfall intensity and decreased soil moisture) are projected to have competing influences. If there is an increasing trend present in riverine flooding, it will be at the most extreme flood events or in the wettest parts of the state where there is so much rainfall that a decrease in soil moisture would have little mitigating impact.[57] The table below summarizes the expected climate change impacts of flooding.

Table 6.2.7: Climate Change Impacts, Flooding

Location	The location of floods is not expected to change
Extent/Intensity	The extent and intensity of flooding within the County may change due to increased precipitation, stronger storms, and rising surface temperatures.
Frequency	There are no clear trends in flood frequency due to considerable variability, flood management measures, and competing meteorological drivers.
Duration	The duration of flood events is not likely to change.

Section 6.3: Winter Weather

6.3 Winter Weather

Winter weather is defined by NWS as "a winter weather phenomenon (such as snow, sleet, ice, wind chill) that impacts public safety, transportation, and/or commerce. It typically occurs during the climatological winter season between October 15 and April 15."[58]

Location

Winter weather occurs on a regional scale and can happen anywhere within the state or the county.

Extent

The Winter Storm Severity Index (WSSI) is a new product (released in 2022) of the NWS that forecasts the potential impacts of winter storms. NWS has implemented the WSSI to provide the public with a tool that attempts to convey the complexities and hazards associated with winter storms as they relate to potential societal impacts. The WSSI is created using Geographic Information Systems (GIS) by screening the official NWS gridded forecasts from the National Digital Forecast Database (NDFD) for winter weather elements and combining those data with non-meteorological or static information datasets such as land use, climatology, urban areas, etc. The outcome is a graphical depiction of anticipated overall impacts on society due to winter weather. There are numerous datasets used or derived as part of calculating the WSSI.

Table 6.3.1: Winter Storm Severity Index Datasets

Data Source	Dataset
Official NWS Forecast datasets from NDFD	• 6-hour snow accumulation • 6-hour ice accumulation • 6-hour precipitation accumulation (Quantitative Precipitation Forecasts) • Wind speed (hourly time steps) • Temperature (hourly time steps)
Additional derived forecast parameters from other official NWS NDFD	• Total snowfall • Total ice accumulation • Maximum wind speed within each 6-hour period • 6-hourly snowfall accumulation rate • 6-hourly snow-liquid ratio • Average snow-liquid ratio
Daily National Snow Analyses are obtained from the NWS National Operational Hydrologic Remote Sensing Center	• Snow depth • Snowpack temperature • Snow water equivalent
Non-forecast datasets	• Urban area designation • Land-use designations • NOAA/NCEI gridded annual snowfall climatology

The WSSI consists of a series of component algorithms, each of which uses meteorological and non-meteorological data to model the predicted severity of specific characteristics of winter weather. Each of the components produces a 0 to 5 output scale value that equates to the potential severity based on the winter weather hazards. The final WSSI value is the maximum value from all the sub-components. The 4 impact levels are given the following descriptors: Minor, Moderate, Major, and Extreme. In addition to the impact levels, a Winter Weather Area is also shown to depict the extent of the winter weather conditions. The WSSI output provides colors, impact classifications, and definitions of the overall expected severity of winter weather, as depicted in the table below.

Table 6.3.2: Winter Storm Severity Index Impact Classifications and Definitions

Map Color	Associated Impacts	WSSI Definition
	No Impacts	N/A
	Limited Impacts, Winter Weather Area	**Expect winter weather.** Winter driving conditions: **Drive carefully.**
	Minor Impacts	**Expect a few inconveniences to daily life.** Winter driving conditions: **Use caution while driving.**
	Moderate Impacts	**Expect disruptions to daily life.** Winter driving conditions: Hazardous driving conditions. **Use extra caution while driving**. Closures and disruptions to infrastructure may occur.
	Major Impacts	**Expect considerable disruptions to daily life.** Winter driving conditions: Dangerous or impossible driving conditions. **Avoid travel if possible.** Widespread closures and disruptions to infrastructure may occur.
	Extreme Impacts	**Expect substantial disruptions to daily life.** Winter driving conditions: Extremely dangerous or impossible driving conditions. **Travel is not advised.** Extensive and widespread closures and disruptions to infrastructure may occur. Life-saving actions may be needed.

The specific sub-components of the WSSI are:

- Snow Load Index- Indicates potential infrastructure impacts due to the weight of the snow. This index accounts for the land cover type. For example, more forested and urban areas will show increased severity versus the same snow conditions in grasslands.
- Snow Amount Index- Indicates potential impacts due to the total amount of snow or the snow accumulation rate. This index also normalizes for climatology, such that regions of the country that experience, on average, less snowfall will show a higher level of severity for the same amount of snow that is forecast across a region that experiences more snowfall on average. Designated urban areas are also weighted a little more than non-urban areas.
- Ice Accumulation- Indicates potential infrastructure impacts (e.g., roads/bridges) due to combined effects and severity of ice and wind. Designated urban areas are also weighted a little more than non-urban areas. Please note that not all NWS offices provide ice accumulation information in the NDFD. In those areas, the ice accumulation is not calculated.
- Blowing Snow Index- Indicates the potential disruption due to blowing and drifting snow. This index accounts for land use type. For example, more densely forested areas will show less blowing snow than open grassland areas.
- Flash Freeze Index- Indicates the potential impacts of flash freezing (temperatures starting above freezing and quickly dropping below freezing) during or after precipitation events.
- Ground Blizzard- Indicates the potential travel-related impacts of strong winds interacting with pre-existing snow cover. This is the only sub-component that does not require snow to be forecast for calculations to be made. The NOHRSC snow cover data along with forecast winds are used to model the ground blizzard. Adjustments are made based on the land cover type. For example, heavily forested areas will have a lower ground blizzard severity than the same conditions occurring across open areas.[59]

NOAA and the NWS also have a variety of watches, warnings, and advisories for freeze, frost, wind, and ice events. A watch is generally issued in the 24 to 72-hour forecast time frame when the risk of a hazardous winter weather event has increased (50 to 80% certainty that warning thresholds will be met). It is intended to provide enough lead time so those who need to set their plans in motion can do so.

Warnings are issued when a hazardous winter weather event is occurring, is imminent, or has a very high probability of occurrence (generally greater than 80%). A warning is used for conditions posing a threat to life or property. Advisories are issued when a hazardous winter weather event is occurring, is imminent, or has a very high probability of occurrence (generally greater than 80%). An advisory is for less serious conditions that cause significant inconvenience and, if caution is not exercised, could lead to situations that may threaten life and/or property. The table below describes the various winter weather warnings, watches, and advisories below.[60]

Table 6.3.3: Winter Weather-Related Warnings, Watches, and Advisories

Watch/ Warning/ Advisory	Description
Winter Storm Watch	Issued when conditions are favorable for a significant winter storm event (heavy sleet, heavy snow, ice storm, heavy snow and blowing snow, or a combination of events.)
Wind Chill Watch	Issued when there is the potential for a combination of extremely cold air and strong winds to create dangerously low wind chill values.
Freeze Watch	Issued when there is a potential for significant, widespread freezing temperatures within the next 24-36 hours.
Winter Storm Warning	Issued for a significant winter weather event including snow, ice, sleet, blowing snow, or a combination of these hazards. Travel will become difficult or impossible in some situations. Delay your travel plans until conditions improve.
Wind Chill Warning	Issued for a combination of very cold air and strong winds that will create dangerously low wind chill values. This level of wind chill will result in frostbite and lead to hypothermia if precautions are not taken. Avoid going outdoors and wear warm protective clothing if you must venture outside.
Freeze Warning	Issued when significant, widespread freezing temperatures are expected.
Ice Storm Warning	Are usually issued for ice accumulation of around 1/4 inch or more. This amount of ice accumulation will make travel dangerous or impossible and likely lead to snapped power lines and falling tree branches. Travel is strongly discouraged.
Blizzard Warning	Issued for frequent gusts greater than or equal to 35 mph accompanied by falling and/or blowing snow, frequently reducing visibility to less than 1/4 mile for three hours or more. A Blizzard Warning means severe winter weather conditions are expected or occurring. Falling and blowing snow with strong winds and poor visibilities are likely, leading to whiteout conditions making travel extremely difficult. Do not travel. If you must travel, have a winter survival kit with you. If you get stranded, stay with your vehicle, and wait for help to arrive.
Winter Weather Advisory	Issued for any amount of freezing rain, or when 2 to 4 inches of snow (alone or in combination with sleet and freezing rain) is expected to cause a significant inconvenience, but not serious enough to warrant a warning.
Wind Chill Advisory	Issued when wind chills of -5F to -19F are expected east of the Blue Ridge Mountains and when wind chills of -10 to -24F are expected along and west of the Blue Ridge Mountains and in Frederick and Carroll Counties in Maryland.
Frost Advisory	Issued when the minimum temperature is forecast to be 33 to 36 degrees on clear and calm nights during the growing season.

Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the NCEI Storm Events Database. These events are shown at the county level with some referencing a specific location, city, or zone. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The table below highlights events for this hazard that have occurred within Brazoria County from 1950-2023.[38]

Table 6.3.4: Historic Occurrences, Winter Weather

Event Date	Event Type	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
1/12/1997	Ice Storm	0	0	$-	$-
12/4/2009	Winter Storm	0	0	$-	$-
2/3/2011	Ice Storm	0	0	$-	$-
1/28/2014	Winter Weather	0	0	$-	$-
12/8/2017	Heavy Snow	0	0	$-	$-
2/15/2021	Cold/Wind Chill	0	1	$880,000	$-
2/15/2021	Cold/Wind Chill	0	0	$-	$-
2/15/2021	Cold/Wind Chill	0	0	$-	$-
	Totals:	0	1	$880,000	$-

Rows highlighted in purple are events that reference the City of Angleton within the event narrative or event location (beginning or end).
$- No dollar amount ($0.00).

Presidential Disaster Declarations

There have been 2 disaster declarations for winter weather within the City of Angleton since 1953.[1]

Table 6.3.5: Federal Disaster Declarations, Winter Weather

Declaration Date	Incident Type	Title	Disaster Number	Declaration Type
2/14/2021	Severe Ice Storm	Severe Winter Storm	3554	Emergency Declaration
2/19/2021	Severe Ice Storms	Severe Winer Storms	4586	Major Disaster Declaration

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor’s authorized representative, by an Indian Tribal Council leader, or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for the City of Angleton since 2018 are listed in the table below.[39]

Table 6.3.6: USDA Disaster Declarations (2018-2023), Winter Weather

Crop Disaster Year	Disaster Description	Designation Number
	None	

Probability of Future Occurrences

The table below shows FEMA NRI annualized frequency values for winter weather and related hazards.

Table 6.3.7: Annualized Frequency Values, Cold Wave, Ice Storm, and Winter Weather

Hazard Type	Annualized Frequency	Events on Record	Period of Record
Cold Wave	0.2 events per year	3	2005-2021 (16 years)
Ice Storm	0.7 events per year	43	1949-2021 (73 years)
Winter Weather	0.5 events per year	7	2005-2021 (16 years)

Populations at Risk

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions.

The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year. The CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards) and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions) into the NRI. The outcome, the risk index, represents the potential negative impacts of natural hazards. The NRI EAL score, and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[48]

The Gulf Coast and Southeast Texas region are generally not used to snow, ice, and freezing temperatures. When cold air penetrates south across Texas and Florida, into the Gulf of Mexico, temperatures fall below freezing. This can kill vulnerable vegetation, such as flowering plants and the citrus fruit crop. Wet snow and ice rapidly accumulate on trees with leaves, causing the branches to snap under the load. Motorists are generally unaccustomed to driving on slick roads and traffic accidents increase. Some buildings are poorly insulated or lack heat altogether. Local towns may not have snow removal equipment or treatments available, such as sand or salt for icy roads.[61] Populations at risk include adults over 65 years of age and children, who according to the CDC are the most vulnerable populations to winter weather-related illnesses. Winter weather and ice storms can cause dangerous driving conditions, falling trees, and power outages in homes. The most notable vulnerabilities throughout the county to this hazard are the dangerous driving conditions and power outages.

The NCHH summarizes at-risk populations for several hazards. These include older adults, children, people experiencing homelessness, people with disabilities, and people with chronic health conditions. In addition to the dangers listed above, older adults can face social isolation, lack of electricity needed to run medical equipment, lack of access to a vehicle for evacuation, and lack of access to other critical supplies. In younger populations, such as children, winter weather and related hazard events can disrupt schooling and the normal day-to-day routines they thrive on. This can not only jeopardize their academic success but can also cause mental and emotional stress. Children are more at risk when their exposure to these extreme temperatures is prolonged. For people experiencing homelessness, adequate shelter is critical in keeping populations safe during winter weather and related events. People with disabilities may require additional assistance to stay safe and prepare for these hazards such as creating a support network, finding accessible transportation to evacuate or get medical attention, and loss of power for needed medical equipment. Likewise, those with chronic health conditions may need similar assistance as those with disabilities. People with chronic health conditions also face exposure to diseases or illnesses from prolonged exposure to extreme temperatures and increased exposure to these illnesses when utilizing a shelter, warming center, or evacuation center. Additionally, freezing temperatures can cause damage to homes and businesses in the form of burst pipes, which can cause mold to thrive if not treated promptly. This can exacerbate illness among the general population but especially among those with chronic health conditions. When heating systems or power outages can't adequately maintain a safe temperature households may turn to using space heaters, fireplaces, or appliances that aren't meant for heating (such as ovens or stoves) for warmth. This increases the risk of fires and negatively impacts indoor air quality. Additionally, carbon monoxide poisoning can be a risk for those who utilize generators too close to the home or indoors. These issues disproportionately affect low-income communities and families who may lack the resources to pay for safe heating in their homes.[43]

The FEMA NRI accounts for winter weather in various formats, these are cold waves, ice storms, and winter weather. EAL Exposure Values for Brazoria County, which includes the City of Angleton, each year according to the FEMA NRI for these hazards are listed as relatively low.[42] EAL Exposure Values and EAL Values can be found in the tables and figures below.

Table 6.3.8: Expected Annual Loss Exposure Values, Cold Wave, Ice Storm, and Winter Weather

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agricultural Value ($)	EAL Total ($)
Cold Wave, Ice Storm, and Winter Weather	$57,433,464,365	$4,309,091,556,009/ 371,473.41	$91,232,428	$4,364,260,048,386

Table 6.3.9: Expected Annual Loss Values, Cold Wave, Ice Storm, and Winter Weather

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agriculture Value
Cold Wave	$12,102	$1,220,169/ 0.11	$45,826
Ice Storm	$4,492	$85,003/ 0.01	N/A
Winter Weather	$10,586	$462,229/ 0.04	$1,198

N/A- Not Applicable

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below.[44] Additionally, the FEMA NRI lists the historic loss ratio HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for cold waves and ice storms within the county as very low. Winter weather HLR is listed as relatively moderate.[44]

Figure 6.3.1: Risk Index by Census Tract, Cold Wave

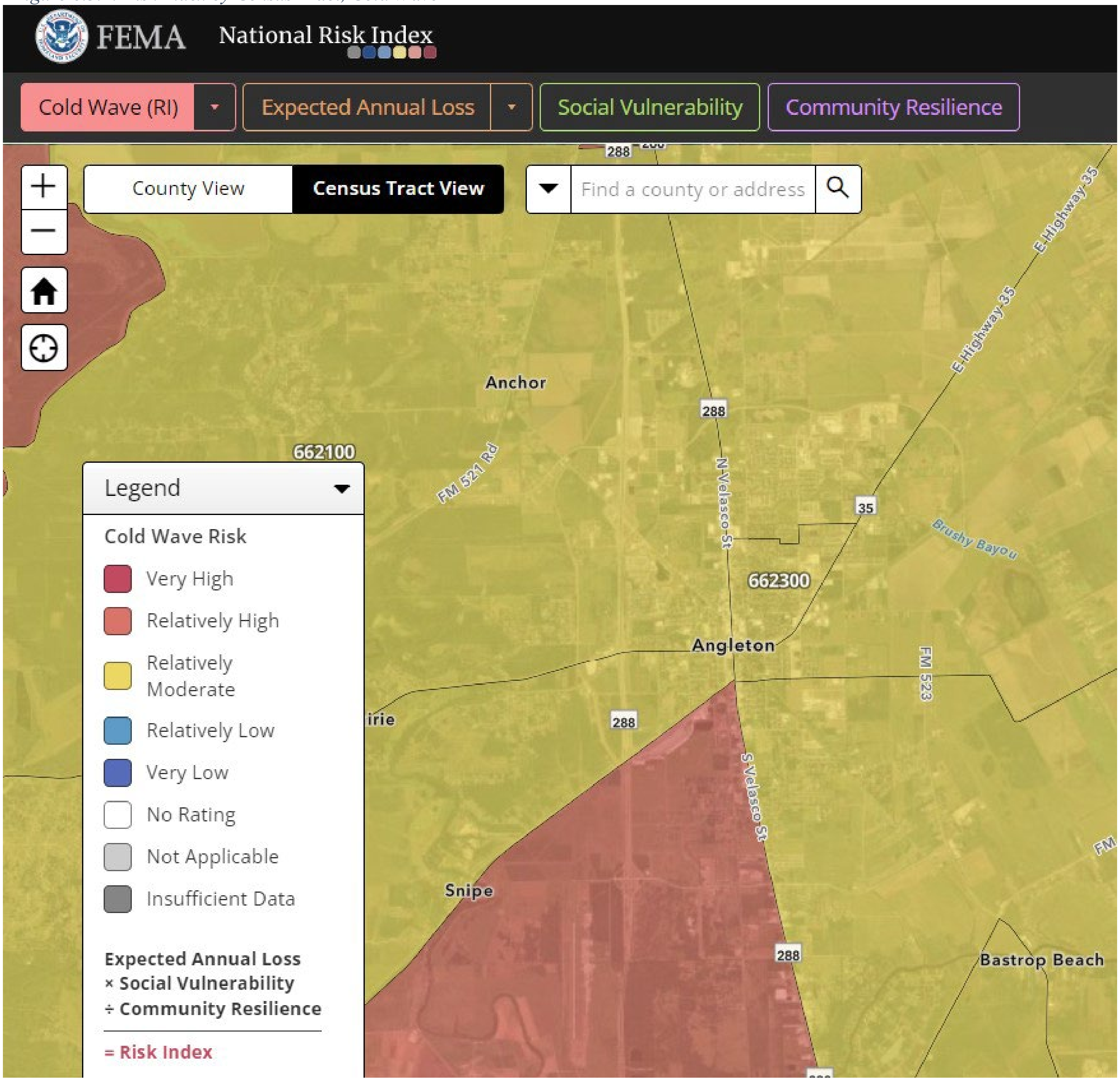


Figure 6.3.2: Risk Index by Census Tract, Ice Storm

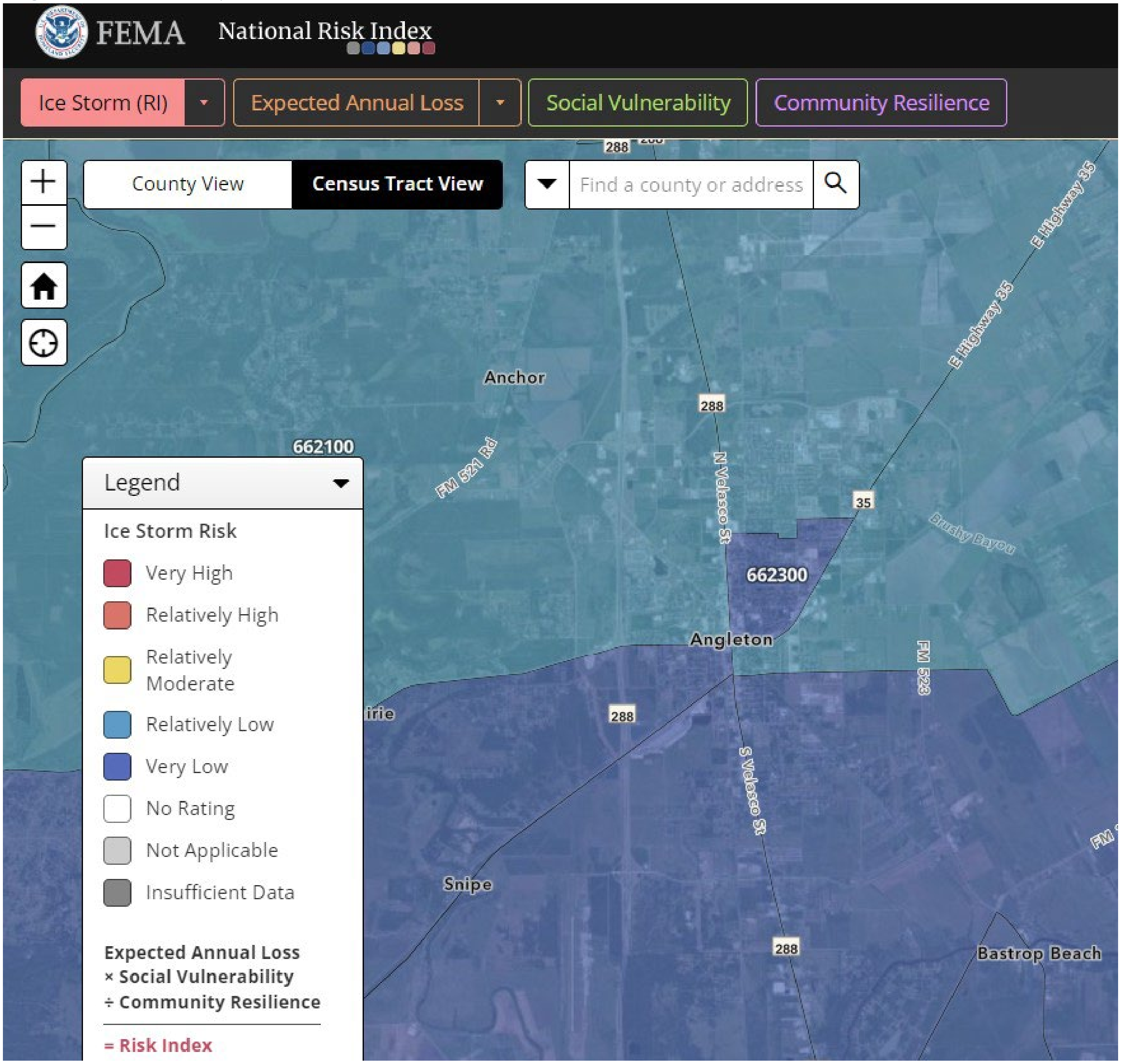


Figure 6.3.3: Risk Index by Census Tract, Winter Weather

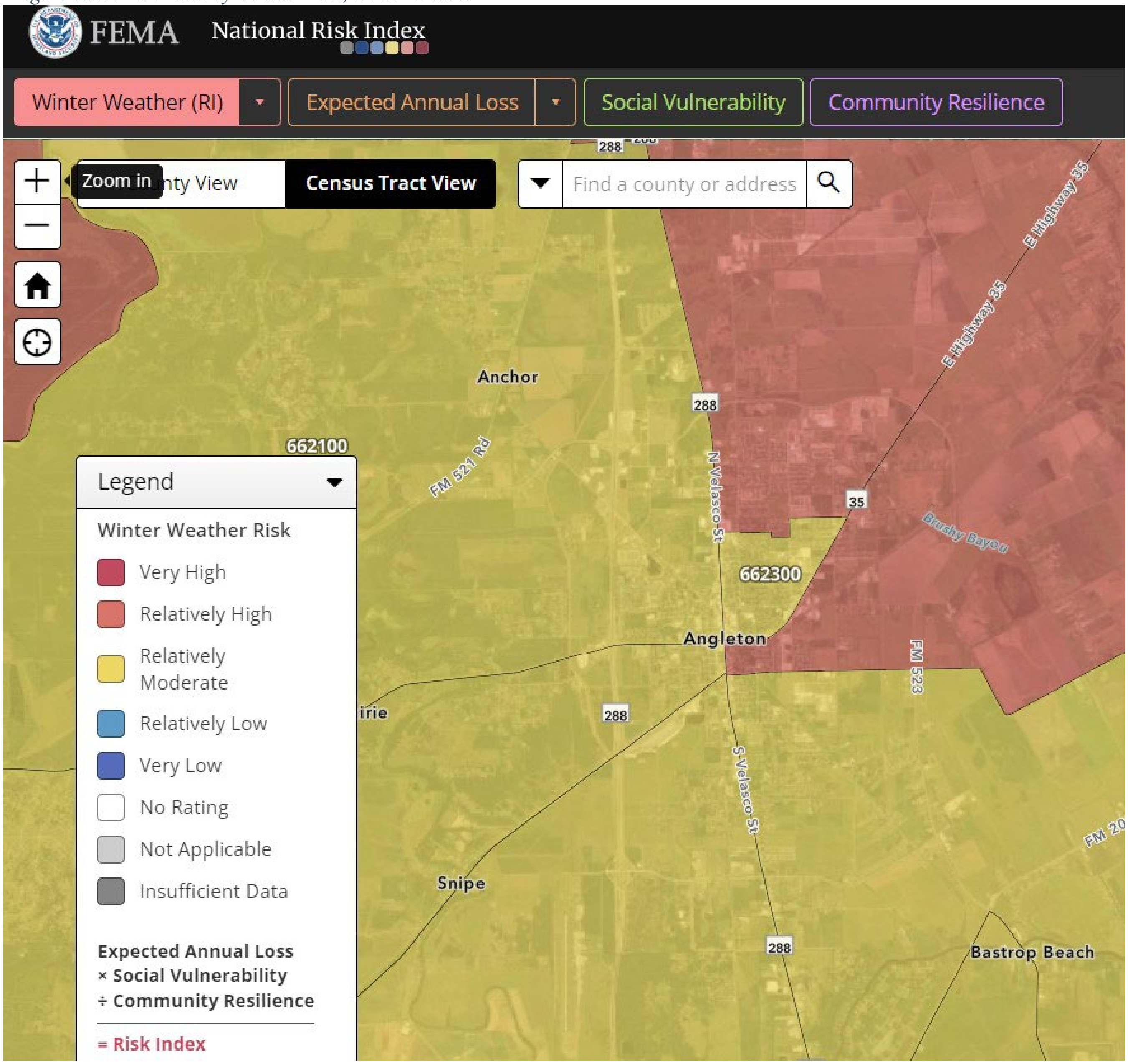


Figure 6.3.4: Social Vulnerability by Census Tract, City of Angleton

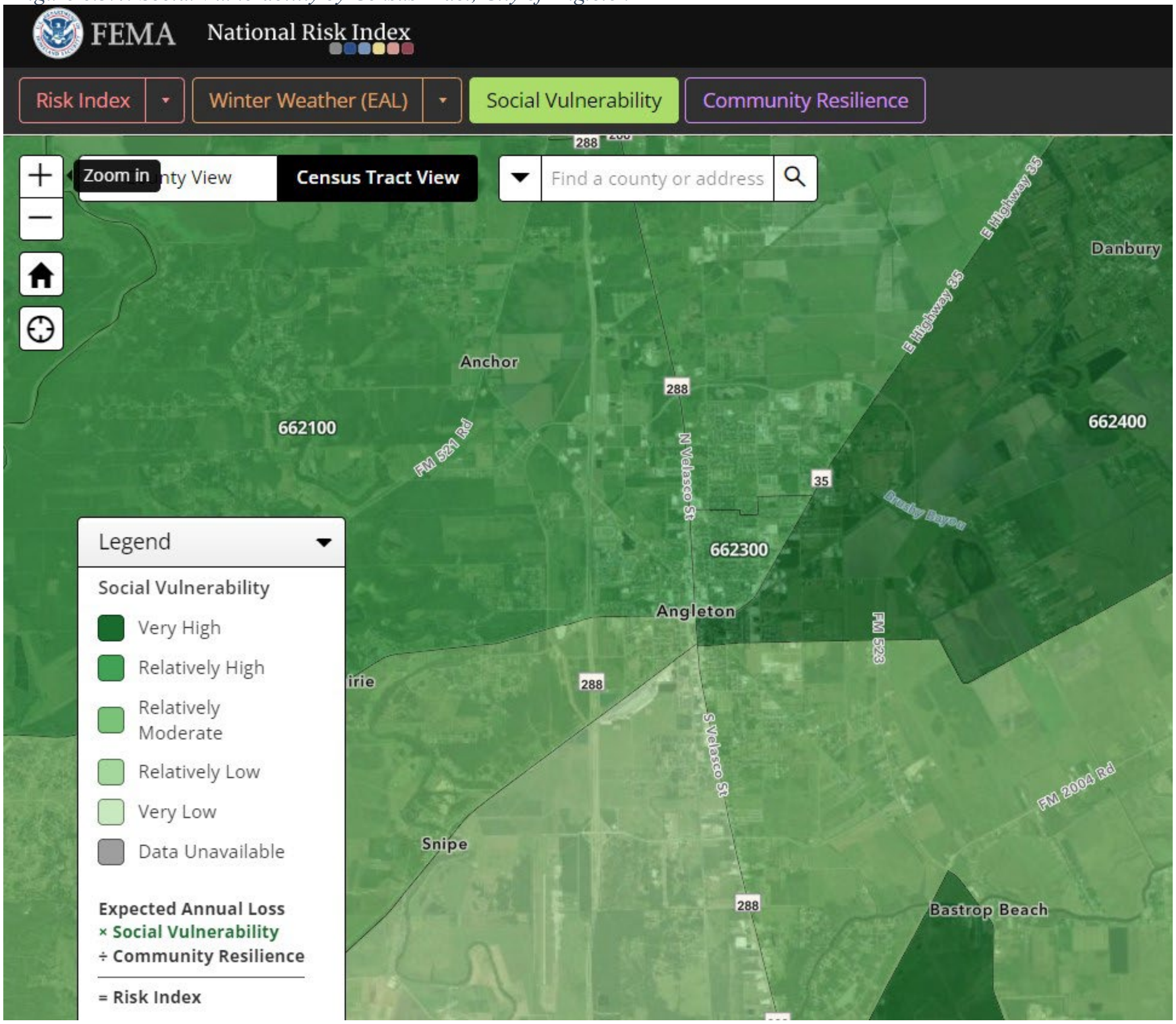


Figure 6.3.5: Community Resilience by Census Tract, City of Angleton

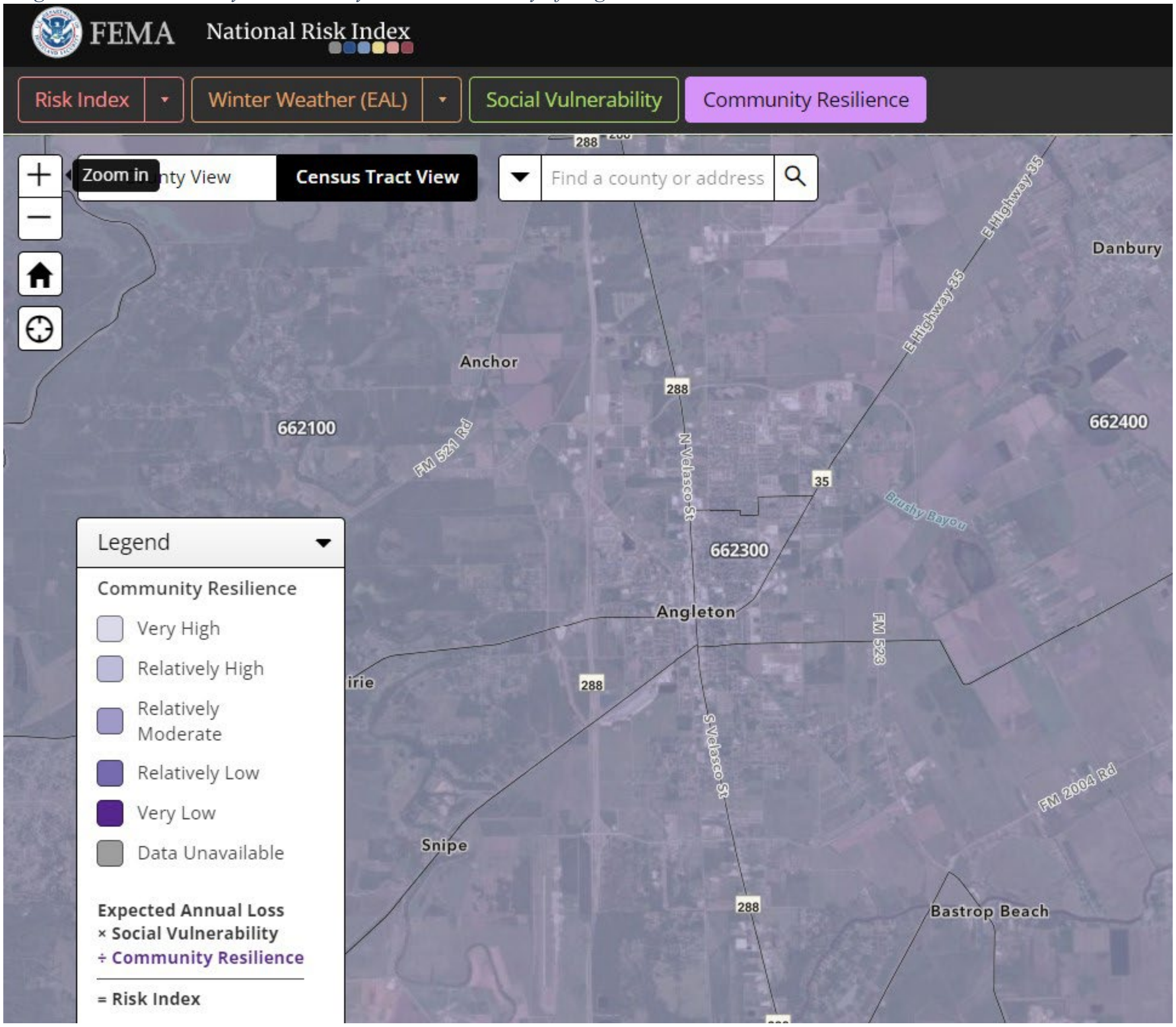


Figure 6.3.6: FEMA NRI Summary, Cold Wave

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039663100	TX	Relatively High	91.33	0 100
2	Census tract 48039662200	TX	Relatively Moderate	89.49	0 100
3	Census tract 48039662400	TX	Relatively Moderate	89.42	0 100
4	Census tract 48039664100	TX	Relatively Moderate	88.89	0 100
5	Census tract 48039662100	TX	Relatively Moderate	87.67	0 100
6	Census tract 48039662300	TX	Relatively Moderate	84.32	0 100
7	Census tract 48039662500	TX	Relatively Moderate	77.74	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039663100	TX	$33,873	Relatively Low	Relatively Moderate	1	$33,901	91.33
2	Census tract 48039662200	TX	$21,068	Relatively High	Relatively Moderate	1.34	$28,180	89.49
3	Census tract 48039662400	TX	$19,509	Very High	Relatively Moderate	1.43	$27,993	89.42
4	Census tract 48039664100	TX	$25,346	Relatively Moderate	Relatively Moderate	1.05	$26,561	88.89
5	Census tract 48039662100	TX	$19,375	Relatively High	Relatively Moderate	1.22	$23,707	87.67
6	Census tract 48039662300	TX	$13,009	Relatively High	Relatively Moderate	1.38	$17,929	84.32
7	Census tract 48039662500	TX	$9,728	Relatively Moderate	Relatively Moderate	1.12	$10,864	77.74

Figure 6.3.7: FEMA NRI Summary, Ice Storm

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039662200	TX	Relatively Low	38.68	0 100
2	Census tract 48039662400	TX	Relatively Low	35.11	0 100
3	Census tract 48039662100	TX	Relatively Low	34.75	0 100
4	Census tract 48039663100	TX	Very Low	31.86	0 100
5	Census tract 48039662300	TX	Very Low	29.28	0 100
6	Census tract 48039664100	TX	Very Low	29.15	0 100
7	Census tract 48039662500	TX	Very Low	19.22	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039662200	TX	$1,259	Relatively High	Relatively Moderate	1.34	$1,684	38.68
2	Census tract 48039662400	TX	$1,019	Very High	Relatively Moderate	1.43	$1,462	35.11
3	Census tract 48039662100	TX	$1,180	Relatively High	Relatively Moderate	1.22	$1,443	34.75
4	Census tract 48039663100	TX	$1,273	Relatively Low	Relatively Moderate	1	$1,275	31.86
5	Census tract 48039662300	TX	$821	Relatively High	Relatively Moderate	1.38	$1,132	29.28
6	Census tract 48039664100	TX	$1,072	Relatively Moderate	Relatively Moderate	1.05	$1,124	29.15
7	Census tract 48039662500	TX	$570	Relatively Moderate	Relatively Moderate	1.12	$636	19.22

Figure 6.3.8: FEMA NRI Summary, Winter Weather

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039662200	TX	Relatively High	87.13	0 100
2	Census tract 48039662400	TX	Relatively High	85.92	0 100
3	Census tract 48039662100	TX	Relatively Moderate	85.5	0 100
4	Census tract 48039663100	TX	Relatively Moderate	85.15	0 100
5	Census tract 48039664100	TX	Relatively Moderate	83.1	0 100
6	Census tract 48039662300	TX	Relatively Moderate	82.29	0 100
7	Census tract 48039662500	TX	Relatively Moderate	71.67	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039662200	TX	$8,474	Relatively High	Relatively Moderate	1.34	$11,335	87.13
2	Census tract 48039662400	TX	$7,190	Very High	Relatively Moderate	1.43	$10,316	85.92
3	Census tract 48039662100	TX	$8,165	Relatively High	Relatively Moderate	1.22	$9,991	85.5
4	Census tract 48039663100	TX	$9,718	Relatively Low	Relatively Moderate	1	$9,726	85.15
5	Census tract 48039664100	TX	$8,036	Relatively Moderate	Relatively Moderate	1.05	$8,421	83.1
6	Census tract 48039662300	TX	$5,790	Relatively High	Relatively Moderate	1.38	$7,980	82.29
7	Census tract 48039662500	TX	$3,928	Relatively Moderate	Relatively Moderate	1.12	$4,387	71.67

Climate Change Impacts

As stated above, the Gulf Coast and Southeast Texas region are generally not used to snow, ice, and freezing temperatures. According to the Office of the Texas State Climatologist, in the southern part of the state and in coastal regions, snow is rare, but nonetheless, large accumulations of snow are possible. Climate model projections have shown the risk of snowfall consistently decreases in climates like that of Texas.[58]

Table 6.3.10: Climate Change Impacts, Winter Weather

Location	The location of winter weather is not expected to change.
Extent/Intensity	The extent of winter weather is not expected to change.
Frequency	The frequency of winter weather is expected to decrease.
Duration	The duration of winter weather is expected to decrease.

Section 6.4: Tornado

6.4 Tornado

A Tornado is defined by the NWS as "a violently rotating column of air touching the ground, usually attached to the base of a thunderstorm." [62] Tornados are one of the most violent storms, with the strongest tornados being capable of massive destruction. In extreme cases, winds from a tornado may approach 300 miles per hour, with damage paths that can be more than one mile wide and 50 miles long. These catastrophic tornados are often produced by supercell thunderstorms.[63]

Location

Tornadoes do not have any specific geographic boundary and can occur anywhere if the right conditions are present. From 1951-2011, nearly 62.7 percent of all Texas tornadoes occurred within the three months of April, May, and June, with almost one-third of the total tornadoes occurring in May.[64] The State of Texas has the highest average annual number of tornadoes per state, with an average of 136 tornadoes per year over 30 years, as seen in Figure 6.4.1.[65] Figure 6.4.2 depicts Brazoria County's total number of tornadoes per year between 61-80 instances.[66]

Figure 6.4.1: Annual Tornadoes per State, 1993-2022

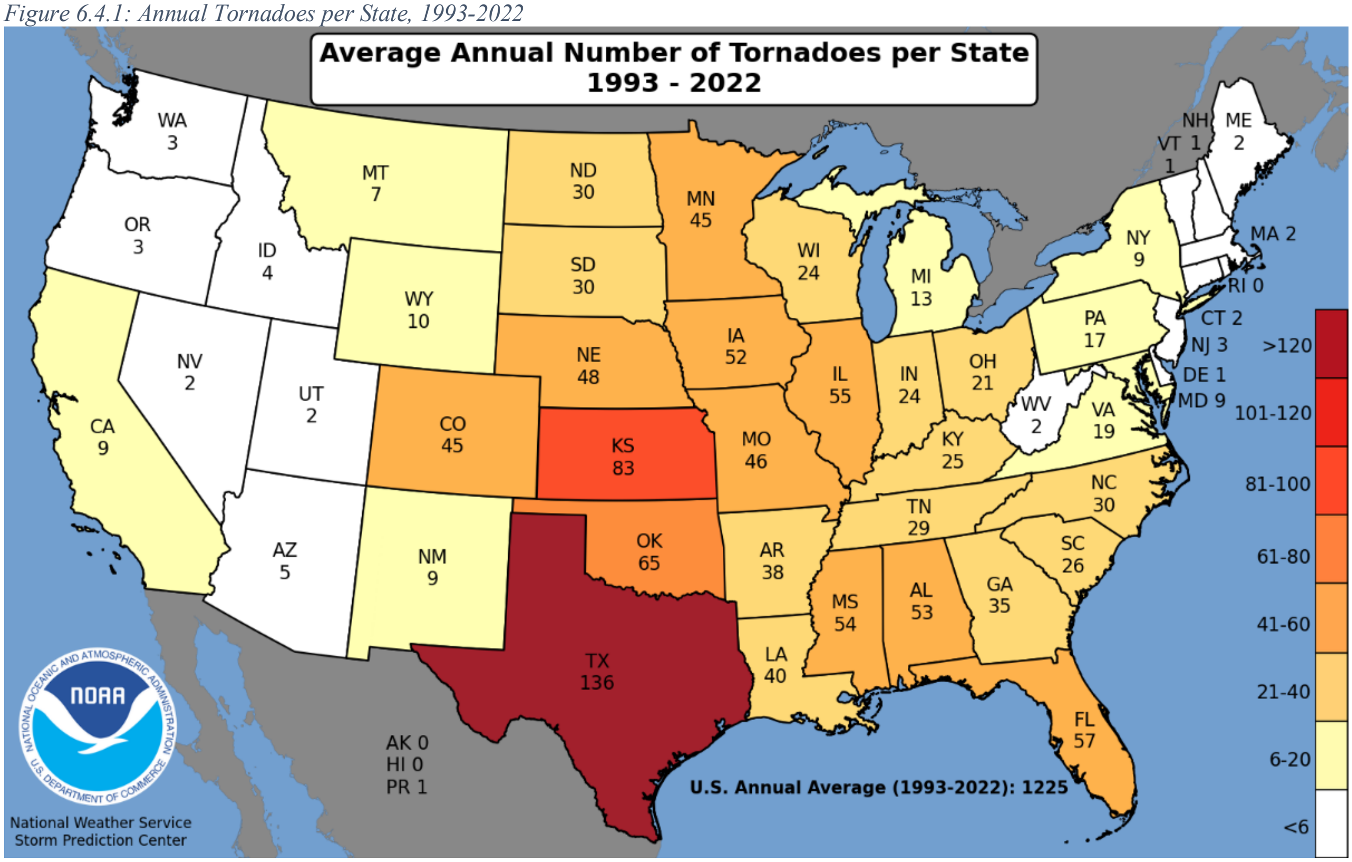
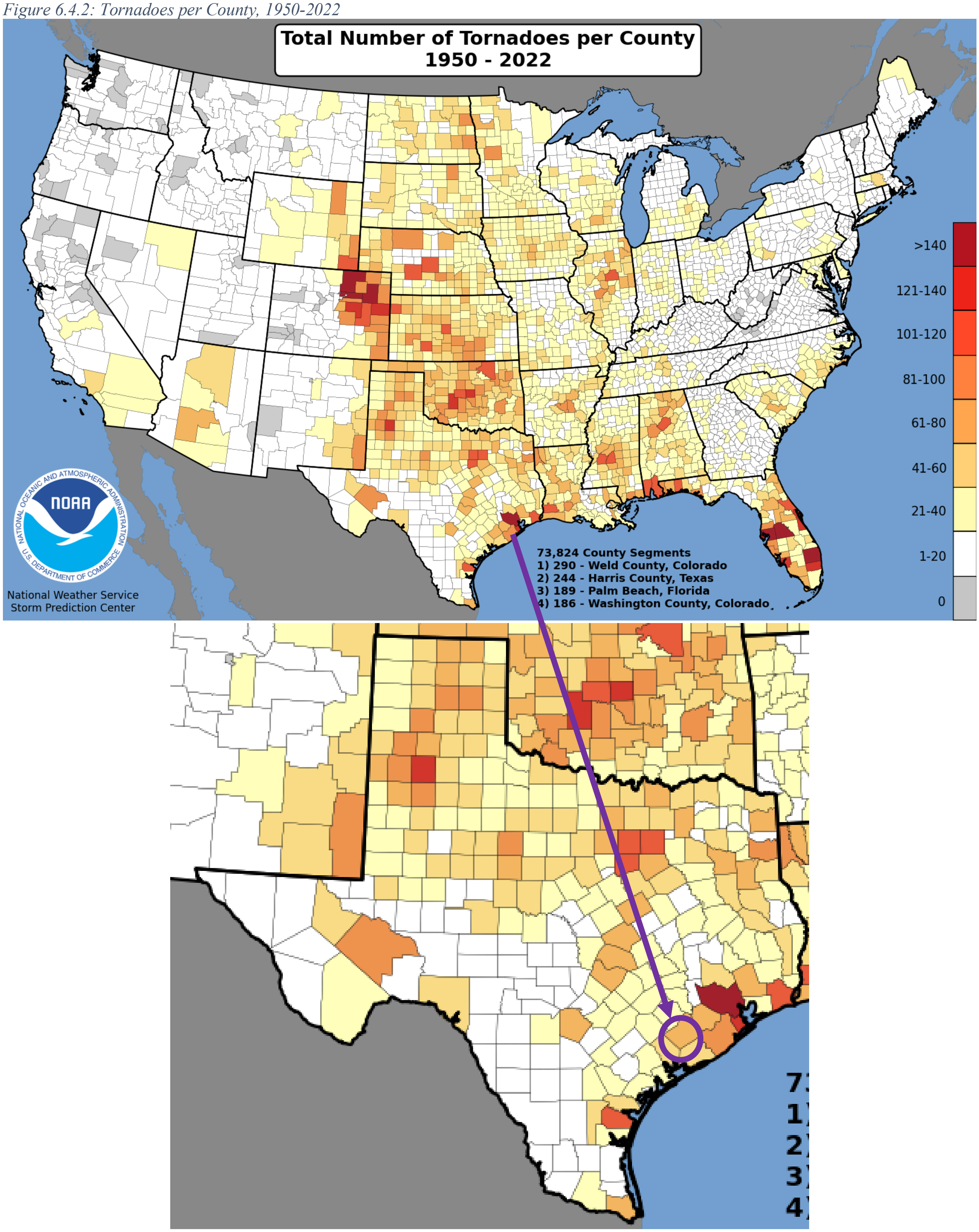


Figure 6.4.2: Tornadoes per County, 1950-2022



Extent

Tornado intensity is ranked using the Enhanced Fujita Scale (EF- Scale), a rating of how strong a tornado was. It is calculated by surveying the damage and comparing it with damage to similar objects at certain wind speeds. The EF-Scale is not meant to be used as a measure of how strong a tornado currently on the ground is. The EF-Scale incorporates 28 damage indicators such as building type, structures, and trees. For each damage indicator, there are 8 degrees of damage ranging from the beginning of visible damage to complete destruction of the damage indicator.[67]

Table 6.4.1: Enhanced Fujita Scale Descriptions

EF Rating	Wind Speed	Typical Damage
0	65-85	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
1	86-110	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
2	111-135	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
3	136-165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
4	166-200	Devastating damage. Whole frame houses Well-constructed houses and whole frame houses completely leveled; cars thrown, and small missiles generated.
5	>200	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly more than 109 yards; high-rise buildings have significant structural deformation; incredible phenomena will occur.

Table 6.4.2: EF-Scale Damage Indicators

Number (Details Linked)	Damage indicator	Abbreviation
1	Small barns, farm outbuildings	SBO
2	One- or two-family residences	FR12
3	Single-wide mobile home (MHSW)	MHSW
4	Double-wide mobile home	MHDW
5	Apt, condo, townhouse (3 stories or less)	ACT
6	Motel	M
7	Masonry apt. or motel	MAM
8	Small retail bldg. (fast food)	SRB
9	Small professional (doctor office, branch bank)	SPB
10	Strip mall	SM
11	Large shopping mall	LSM
12	Large, isolated ("big box") retail bldg.	LIRB
13	Automobile showroom	ASR
14	Automotive service building	ASB
15	School - 1-story elementary (interior or exterior halls)	ES
16	School - jr. or sr. high school	JHSH
17	Low-rise (1-4 story) bldg.	LRB
18	Mid-rise (5-20 story) bldg.	MRB
19	High-rise (over 20 stories)	HRB
20	Institutional bldg. (hospital, govt. or university)	IB
21	Metal building system	MBS
22	Service station canopy	SSC
23	Warehouse (tilt-up walls or heavy timber)	WHB

24	Transmission line tower	TLT
25	Free-standing tower	FST
26	Free standing pole (light, flag, luminary)	FSP
27	Tree - hardwood	TH
28	Tree - softwood	TS

Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the NCEI Storm Events Database. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. These events are shown at the county level with some referencing a specific location, city, or zone. There have been 129 tornadoes within Brazoria County since 1950. The City of Angleton has been listed in 13 of these events as recorded by the NCEI, either within the location (beginning or ending) or the event narrative.

There have been 11 new tornado or funnel cloud events in Brazoria County since 2018. Figure 6.4.3 below depicts historic tornado occurrences and their tracks within the City of Angleton, while the table below highlights events for this hazard that have occurred within Brazoria County since 2018. Events that occurred within the City of Angleton are highlighted in purple.[38]

Figure 6.4.3: Tornado Paths, City of Angleton

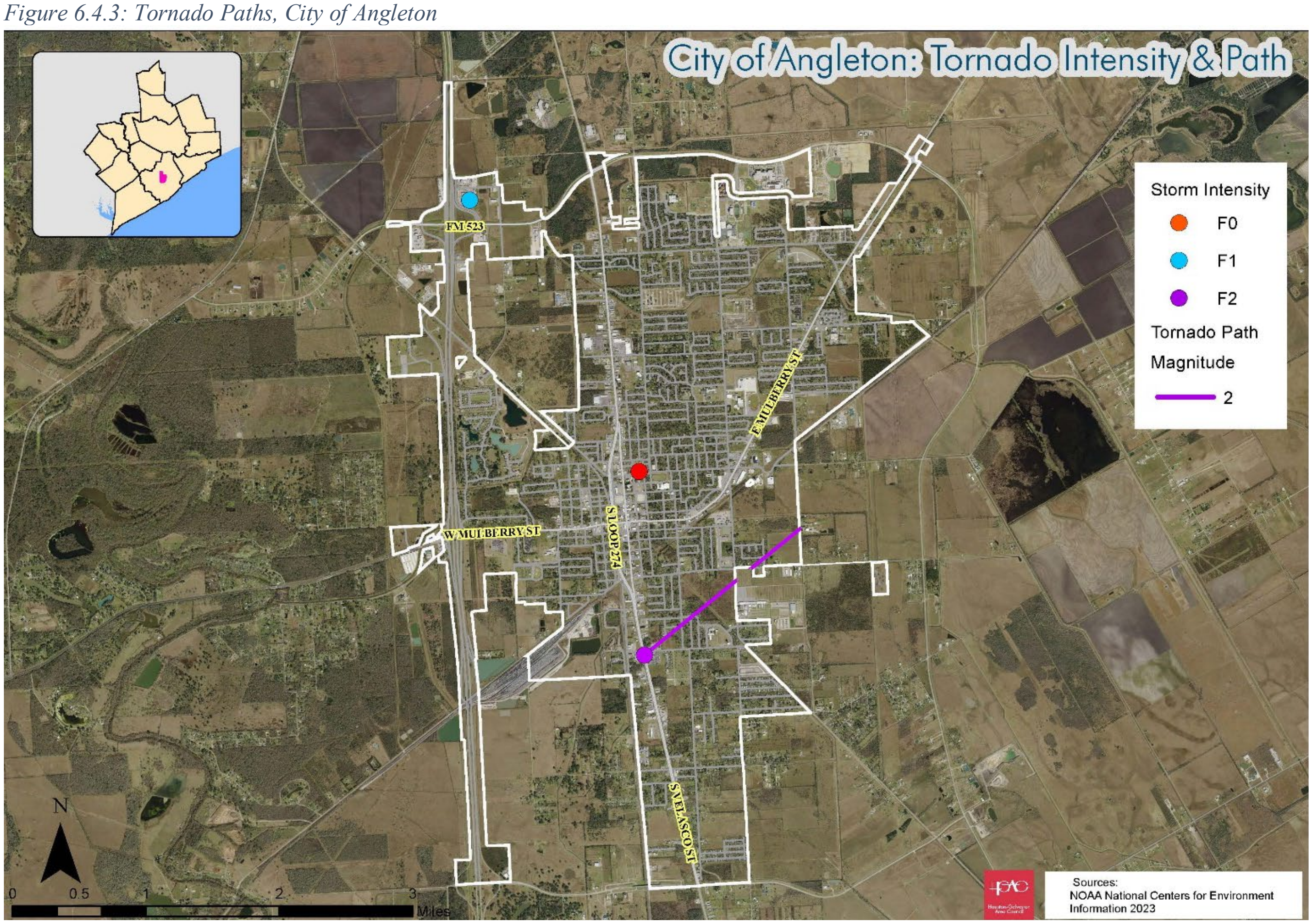


Table 6.4.3:Tornado Occurrences, City of Angleton

Date	Event Type/ Rating	Location	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
3/29/2018	Tornado/ EF0	Manvel Coyle ARPT	0	0	$1,000	$-
5/23/2018	Funnel Cloud	Rosharon	0	0	$-	$-
5/23/2018	Funnel Cloud	Alvin	0	0	$-	$-
9/9/2018	Funnel Cloud	Freeport	0	0	$-	$-
10/15/2018	Funnel Cloud	Chenango	0	0	$-	$-
10/31/2018	Tornado/ EF0	Angleton	0	0	$30,000	$-
3/30/2019	Funnel Cloud	Brazoria	0	0	$-	$-
7/14/2019	Funnel Cloud	Hinkles Ferry	0	0	$-	$-
8/14/2021	Funnel Cloud	Angleton Bailes ARPT	0	0	$-	$-
3/22/2022	Tornado/ EF0	Danbury	0	0	$1,000	$-
1/24/2023	Tornado/ EF0	Manvel	0	0	$-	$-

Rows highlighted in purple are events that reference the City of Angleton within the event narrative or event location (beginning or end).
$- No dollar amount ($0.00).

Presidential Disaster Declarations

There have been 0 disaster declarations for tornado, however 4 disaster designations have included tornado in the declaration title for Brazoria County. The declaration incident type for these events is listed as a "severe storm".[1]

Table 6.4.4: Federal Disaster Declarations, Tornado

Declaration Year	Incident Type	Incident Title	Disaster Number	Declaration Type
1991	Severe Storm	SEVERE STORMS, TORNADOES & FLOODING	900	Major Disaster Declaration
2003	Severe Storm	SEVERE STORMS, TORNADOES AND FLOODING	1439	Major Disaster Declaration
2015	Severe Storm	SEVERE STORMS, TORNADOES, STRAIGHT-LINE WINDS AND FLOODING	4223	Major Disaster Declaration
2016	Severe Storm	SEVERE STORMS, TORNADOES, STRAIGHT-LINE WINDS, AND FLOODING	4245	Major Disaster Declaration

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for the City of Angleton since the last HMP are listed in the table below.[39]

Table 6.4.5: USDA Declared Disasters (2018-2023), Tornado

Crop Disaster Year	Disaster Description	Designation Number
	None	

Probability of Future Occurrences

Tornado season usually refers to the time of year the U.S. sees the most tornadoes. The peak "tornado season" for the southern Plains (e.g., Texas, Oklahoma, and Kansas) is from May into early June. On the Gulf Coast, it is earlier in the spring.[66] According to the FEMA NRI for tornadoes within Brazoria County, annualized frequency values are 1.1 events per year over 72 years of record (1950-2021), with 63 events on record for this timeframe.[42]

Populations at Risk

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions.

The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year. The CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards) and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions) into the NRI. The outcome, the risk index, represents the potential negative impacts of natural hazards. The NRI EAL score, and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[42]

All residents within the county are exposed to this hazard. The impacts of a tornado on the life, health, and safety of City of Angleton residents depend on several factors, including the severity of the event and adequate warning time being provided to residents to take shelter. Tornadoes can lead to a disruption in emergency response services, shelters, electricity, clean water, and other forms of necessary medical assistance while repairs are made to critical facilities or power is being restored within the county.

The NCHH summarizes at-risk populations for several hazards. These include older adults, people experiencing homelessness, people with disabilities, and people with chronic health conditions. In addition to the dangers listed above, older adults can face social isolation, lack of electricity needed to run medical equipment, lack of access to a vehicle for evacuation, and lack of access to other critical supplies. Evacuation for these events is fast-paced, and older adults may not be able to seek adequate shelter before a tornado impacts their area. For people experiencing homelessness, adequate shelter is critical in keeping populations safe during a tornado. People with disabilities may require additional assistance to stay safe and prepare for these hazards and their after-effects such as creating a support network, finding accessible transportation to evacuate or get medical attention, and loss of power for needed medical equipment. Likewise, those with chronic health conditions may need similar assistance as those with disabilities. Residents impacted may be displaced or require temporary to long-term sheltering. In addition, downed trees, damaged buildings, and debris carried by winds associated with tornadoes can lead to further injury or loss of life. Socially vulnerable populations are most susceptible based on several factors, including their physical and financial ability to react or respond during or directly following a hazard event. These issues disproportionately affect low-income communities and families who may lack the resources to pay for damages to their homes, lack insurance, or lack the resources to replace home contents or personal belongings.[43] Those living in mobile/manufactured housing are also at greater risk from this hazard as even anchored mobile homes can be seriously damaged or destroyed when winds gust over 80 mph.[68]

EAL Exposure Values and EAL Values for Brazoria County can be found in the tables below.

Table 6.4.6: Expected Annual Loss Exposure Values, Tornado

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agricultural Value ($)	EAL Total ($)
Tornado	$57,514,822,174	$4,309,098,400,000/ 371,474	$91,232,428	$4,366,704,454,602

Table 6.4.7: Expected Annual Loss Values, Tornado

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agriculture Value
Tornado	$3,081,036	$15,053,946/ 1.30	$1,815

N/A- Not Applicable

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for tornado events for these census tracts is listed as relatively high, with one tract rating relatively moderate. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below.[44] Additionally, the FEMA NRI lists the HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for tornado within Brazoria County as very low.[44]

Figure 6.4.4: Risk Index by Census Tract, Tornado

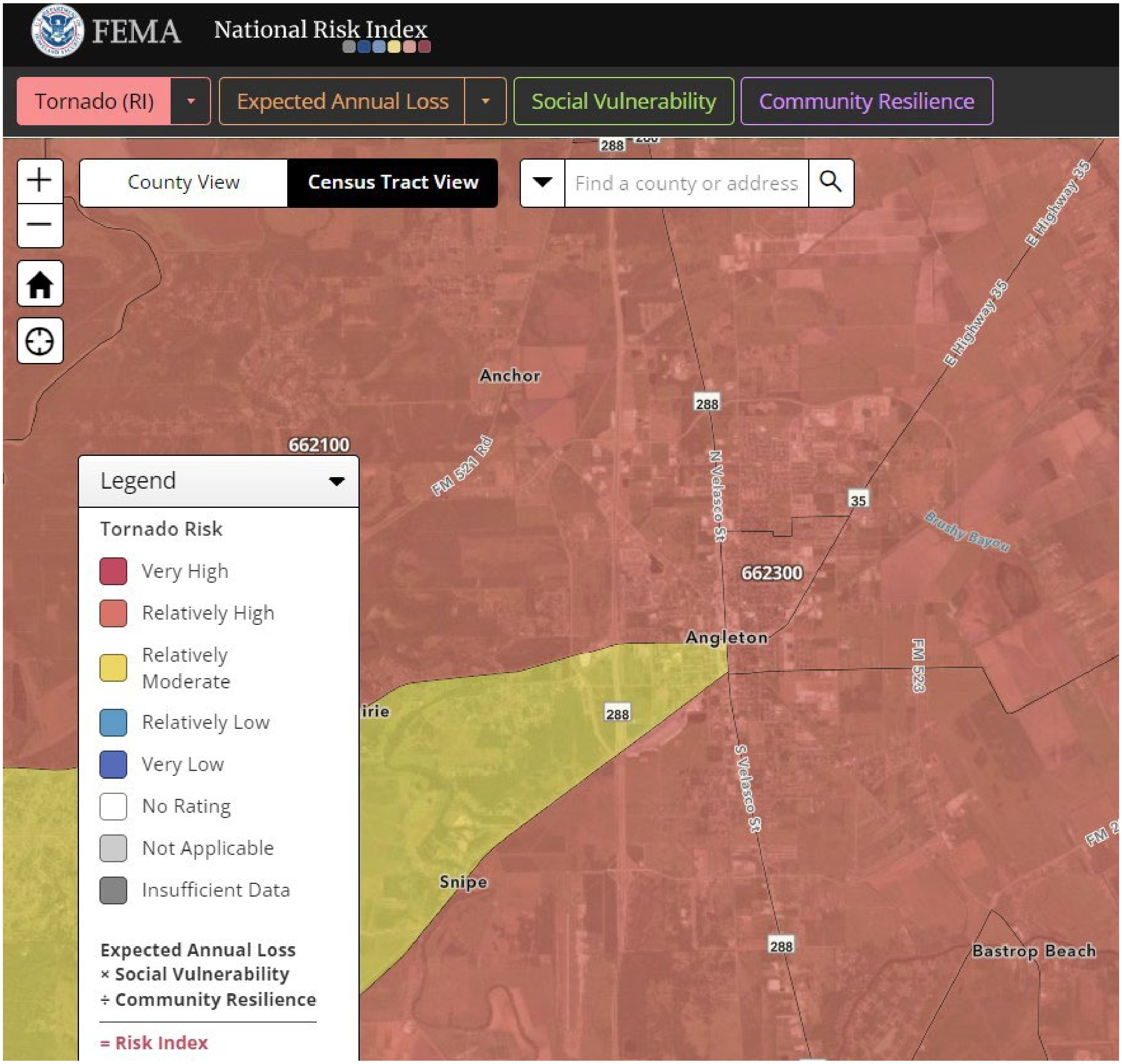


Figure 6.4.5: Social Vulnerability by Census Tract, City of Angleton

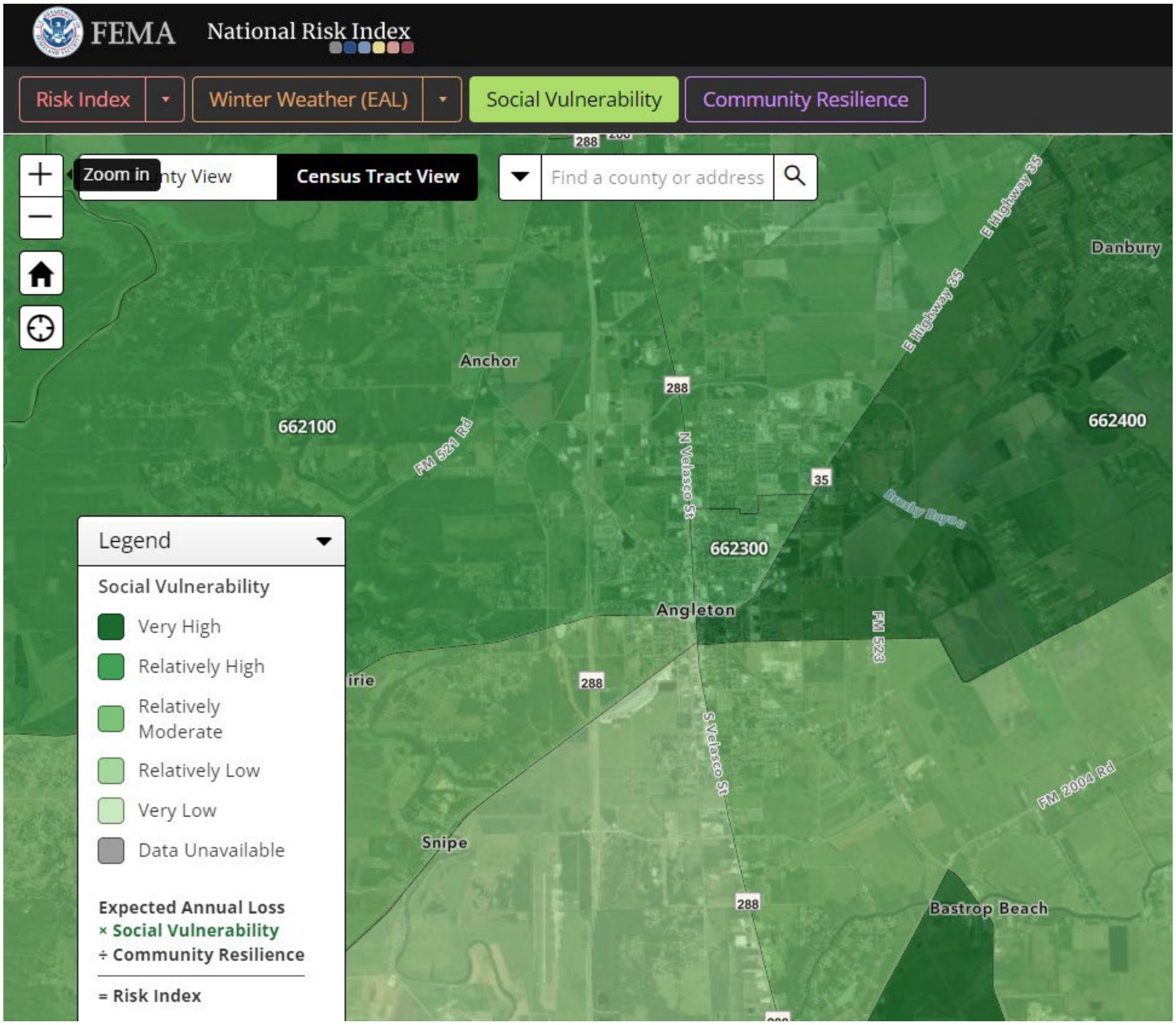


Figure 6.4.6: Community Resilience by Census Tract, City of Angleton

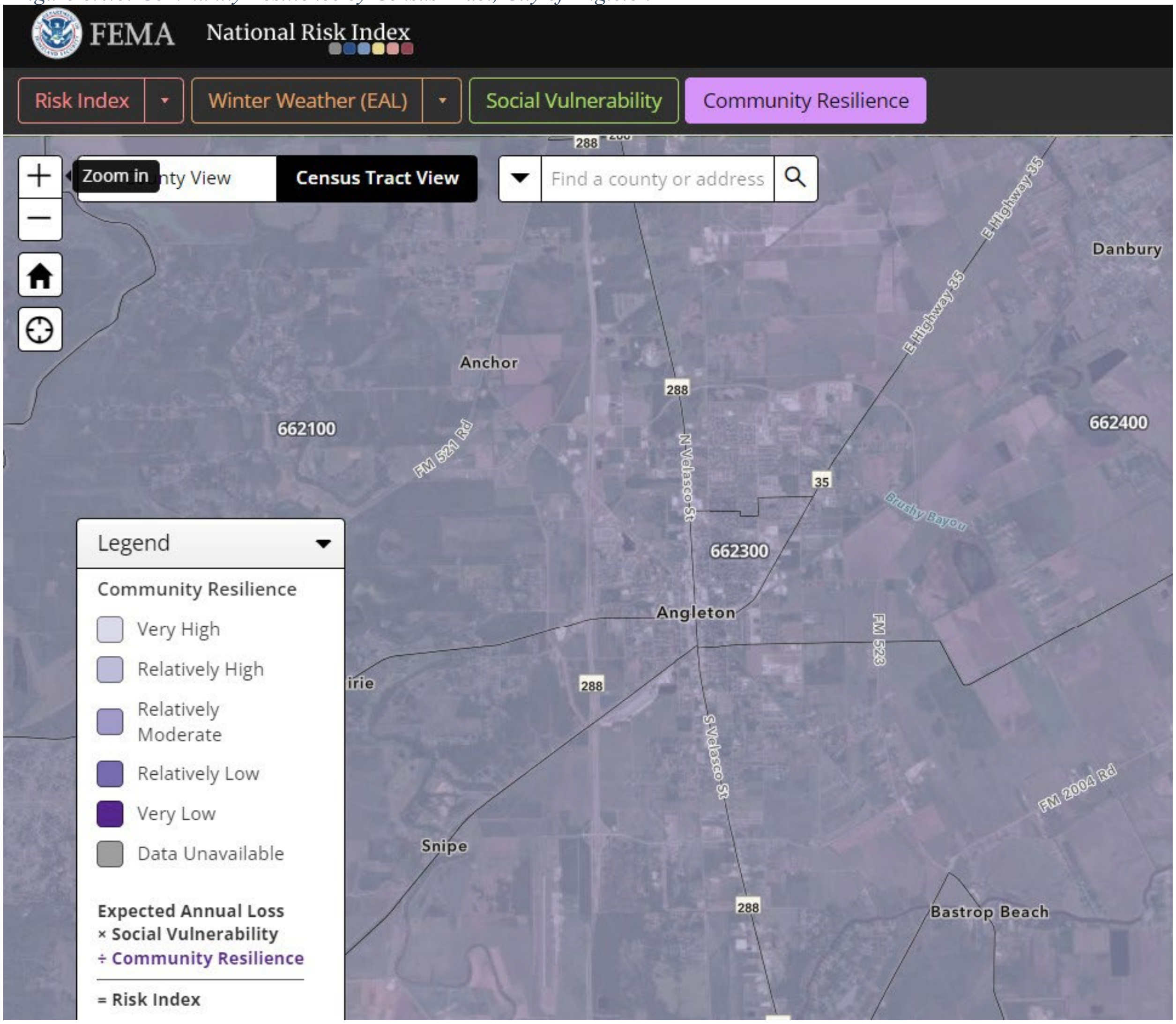


Figure 6.4.7: FEMA NRI Summary, Tornado

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039662200	TX	Relatively High	90.46	0 100
2	Census tract 48039662400	TX	Relatively High	88.45	0 100
3	Census tract 48039662100	TX	Relatively High	87.86	0 100
4	Census tract 48039663100	TX	Relatively High	85.62	0 100
5	Census tract 48039664100	TX	Relatively High	82.1	0 100
6	Census tract 48039662300	TX	Relatively High	81.79	0 100
7	Census tract 48039662500	TX	Relatively Moderate	68.07	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039662200	TX	$277,476	Relatively High	Relatively Moderate	1.34	$371,144	90.46
2	Census tract 48039662400	TX	$234,585	Very High	Relatively Moderate	1.43	$336,599	88.45
3	Census tract 48039662100	TX	$267,801	Relatively High	Relatively Moderate	1.22	$327,686	87.86
4	Census tract 48039663100	TX	$296,693	Relatively Low	Relatively Moderate	1	$296,939	85.62
5	Census tract 48039664100	TX	$245,675	Relatively Moderate	Relatively Moderate	1.05	$257,449	82.1
6	Census tract 48039662300	TX	$184,461	Relatively High	Relatively Moderate	1.38	$254,228	81.79
7	Census tract 48039662500	TX	$131,736	Relatively Moderate	Relatively Moderate	1.12	$147,118	68.07

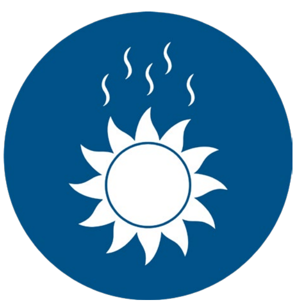
Climate Change Impacts

According to the Office of the Texas State Climatologist, “The most robust trend in tornado activity is a tendency of more tornadoes in large outbreaks, but the factors apparently driving that trend are not projected to continue.”[58] Severe thunderstorms and lightning are more likely to occur in summer months when temperatures are higher and moisture from the gulf helps to fuel thunderstorm development, which could lead to the development of tornadoes along the front of the storm if the right conditions exist.

Table 6.4.8: Climate Change Impacts, Tornado

Location	The location of tornadoes is not expected to change.
Extent/Intensity	The extent and intensity of tornadoes within the county may change (increase) due to increased temperatures and energy available to fuel severe thunderstorms from the warm air within the Gulf of Mexico.
Frequency	Tornado frequency is not expected to change. 62.7 percent of all Texas tornadoes occurred within the three-month period of April, May, and June, with almost one-third of the total tornadoes occurring in May
Duration	The duration of tornado events is not likely to change, however the intensity of them, or outbreaks is expected to increase.

Section 6.5: Extreme Heat



6.5 Extreme Heat

Heat events, or extreme heat, is defined by the CDC as summertime temperatures that are much hotter and/or humid than average.[69] The US Department of Homeland Security's Ready.gov website takes this definition a step further by defining extreme heat as "a period of high heat and humidity with temperatures above 90°F for at least two to three days." Among all weather-related hazards, extreme heat is responsible for the highest number of annual deaths as the body must work extra hard to maintain a normal temperature.[70] Heat-related illnesses, like heat exhaustion or heat stroke, happen when the body is not able to properly cool itself. While the body normally cools itself by sweating, during extreme heat, this might not be enough. In these cases, a person's body temperature rises faster than it can cool itself down. This can cause damage to the brain and other vital organs. The table below provides classifications of various heat-related NWS warnings and watches for extreme heat.[71]

Table 6.5.1: NWS Heat-Related Watches and Warnings

Name	Definition
Excessive Heat Outlook	**Be Aware!** The outlooks are issued when the potential exists for an excessive heat event in the next 3-7 days. An Outlook provides information to those who need considerable lead-time to prepare for the event.
Excessive Heat Watch	**Be Prepared!** Heat watches are issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.
Excessive Heat Warning	**Take Action!** An Excessive Heat Warning is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Warning is when the maximum heat index temperature is expected to be 105°F or higher for at least 2 days and nighttime air temperatures will not drop below 75°F; however, these criteria vary across the country, especially for areas not used to extreme heat conditions. If you don't take precautions immediately when conditions are extreme, you may become seriously ill or even die.
Heat Advisory	**Take Action!** A Heat Advisory is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Advisory is when the maximum heat index temperature is expected to be 100°F or higher for at least 2 days, and nighttime air temperatures will not drop below 75°F; however, these criteria vary across the country, especially for areas that are not used to dangerous heat conditions. Take precautions to avoid heat illness. If you don't take precautions, you may become seriously ill or even die.

Location

The risk of an extreme heat event occurring applies the same to the entire county. The City of Angleton experiences the highest temperatures in the months of June to August, with average temperatures between 90°F and 100°F degrees. In more developed areas, the "urban heat island" effect (increased air temperatures in urban areas in contrast to cooler surrounding rural areas.) can occur due to higher concentrations of buildings and pavement. These materials absorb more heat during the day and radiate it at night, prohibiting temperatures from cooling as much compared to rural areas.[72]

Extent

The intensity of heat and extreme heat events are measured by temperature and humidity. NOAA's heat index or the "Apparent Temperature" is an accurate measure of how hot it feels when the relative humidity is added to the actual air temperature.[99] The figure below outlines the NOAA NWS heat index for shaded areas. In direct sunlight, these heat index values can be increased by up to 15°F. At temperatures over 103°F dangerous heat disorders can begin with prolonged exposure to the heat or increased physical activity in the heat.[73]

Figure 6.5.1: NOAA NWS Heat Index

NWS Heat Index

Temperature (°F)

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

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution | Extreme Caution | Danger | Extreme Danger

The table below outlines various effects on the body in relation to the heat index and associated temperature from the figure above.

Table 6.5.2: Heat Index

Color	Heat Index	Classification	Effect on the body
	Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
	Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
	Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
	Extreme Danger	125°F or higher	Heat stroke highly likely

Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the NCEI Storm Events Database. These events are shown at the county level with some referencing a specific location, city, or zone. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The table below highlights events for this hazard that have occurred within Brazoria County from 1950-2023.[38] The previous *13 occurrences* of heat or excessive heat all occurred within the last year, 2023.

Table 6.5.3: Heat Events (1950-2023)

Event Date	Event Type	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
6/26/1999	Heat	0	0	$-	$-
8/1/1999	Heat	0	0	$-	$-
7/6/2000	Heat	0	0	$-	$-
8/29/2000	Heat	0	0	$-	$-
9/1/2000	Heat	0	0	$-	$-
6/24/2009	Heat	0	0	$-	$-
6/9/2019	Heat	0	0	$-	$-
6/9/2019	Heat	0	0	$-	$-
6/16/2023	Excessive Heat	0	0	$-	$-
6/16/2023	Excessive Heat	0	0	$-	$-
6/25/2023	Excessive Heat	0	0	$-	$-
7/12/2023	Excessive Heat	0	0	$-	$-
8/5/2023	Excessive Heat	0	0	$-	$-
8/5/2023	Excessive Heat	0	0	$-	$-
8/5/2023	Excessive Heat	0	0	$-	$-
8/23/2023	Excessive Heat	0	0	$-	$-
8/23/2023	Excessive Heat	0	0	$-	$-
8/23/2023	Excessive Heat	0	0	$-	$-
9/5/2023	Heat	0	0	$-	$-
9/5/2023	Heat	0	0	$-	$-
9/5/2023	Heat	0	0	$-	$-

Presidential Disaster Declarations

There have been no federally declared heat or extreme heat disaster declarations in Brazoria County or the City of Angleton since 1950.

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader, or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for Brazoria County and the City of Angleton since 2018 are listed in the table below.[39]

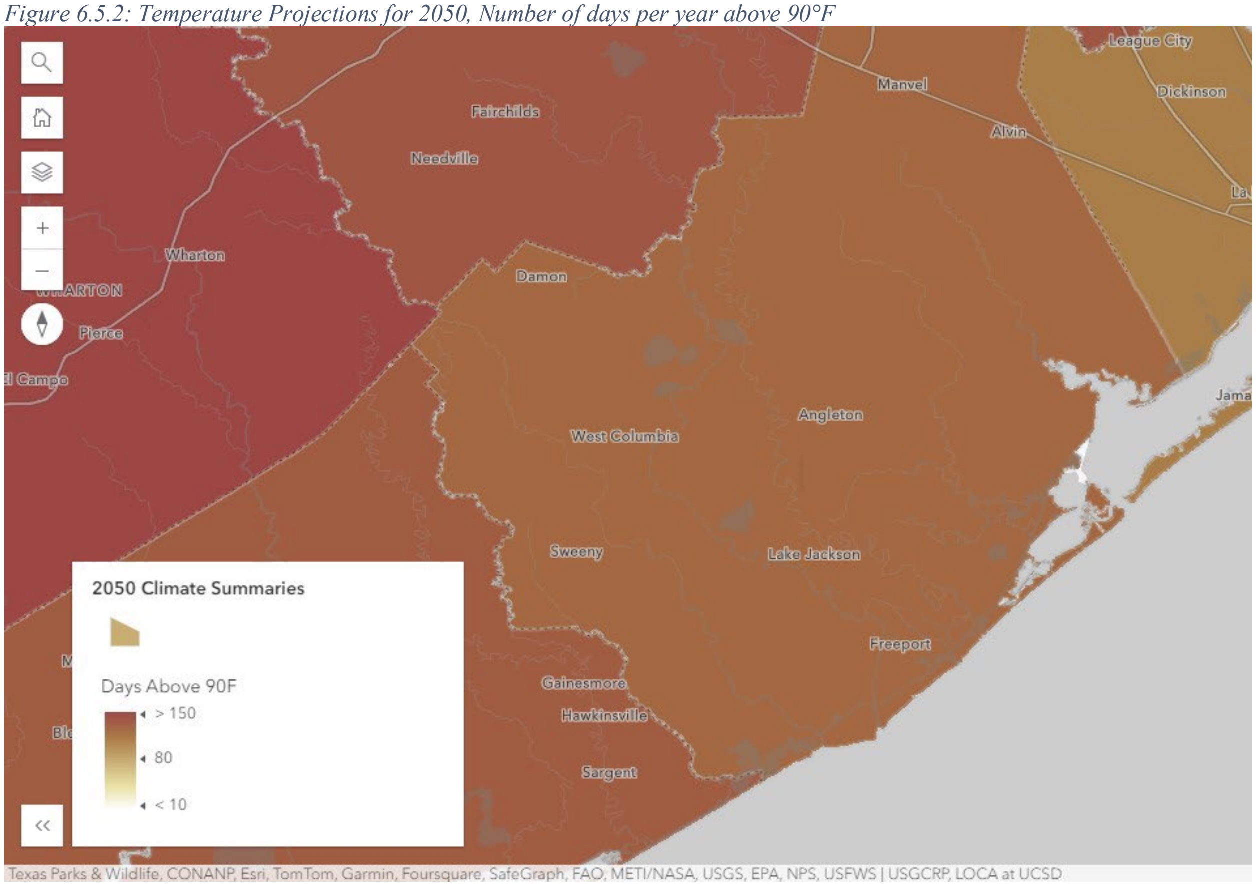
Table 6.5.4: USDA Declared Disasters (2018-2023), Extreme Heat

Crop Disaster Year	Disaster Description	Designation Number
2022	Excessive Heat	S5350
2023	Excessive Heat and Drought	S5569

Probability of Future Occurrences

The State of Texas HMP estimates the occurrence of extreme heat and heat events is trending upward, with a 600.5% increase in the 5-year planning cycle between 2017-2021.[40] According to the FEMA NRI for heat waves in Brazoria County, in which the City of Angleton is located, annualized frequency values are 0.2 events per year over a 16-year period of record (2005-2021), with 2 events on record for this timeframe.[42] This may change in the near future as NRI data is updated and more recent heat events that have occurred within the county occurred after the reporting period used by the NRI. Additionally, as seen in the figures below, projections for the number of days per year above 90°F, and the number of days per year warmer than the top 1% historically, have both increased since previous reporting periods. These projections are expected to increase further by 2050.[74]

Figure 6.5.2: Temperature Projections for 2050, Number of days per year above 90°F



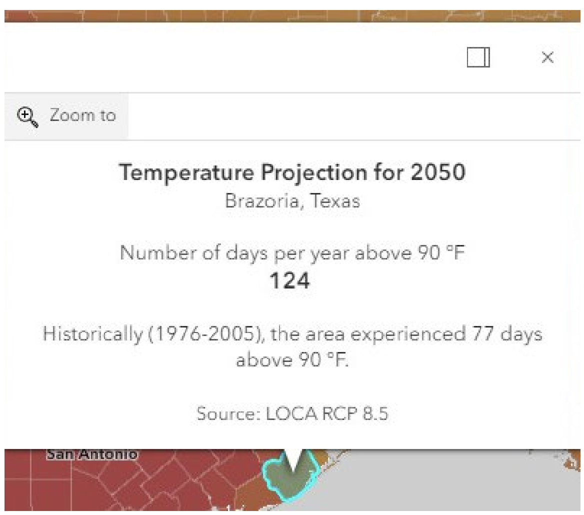
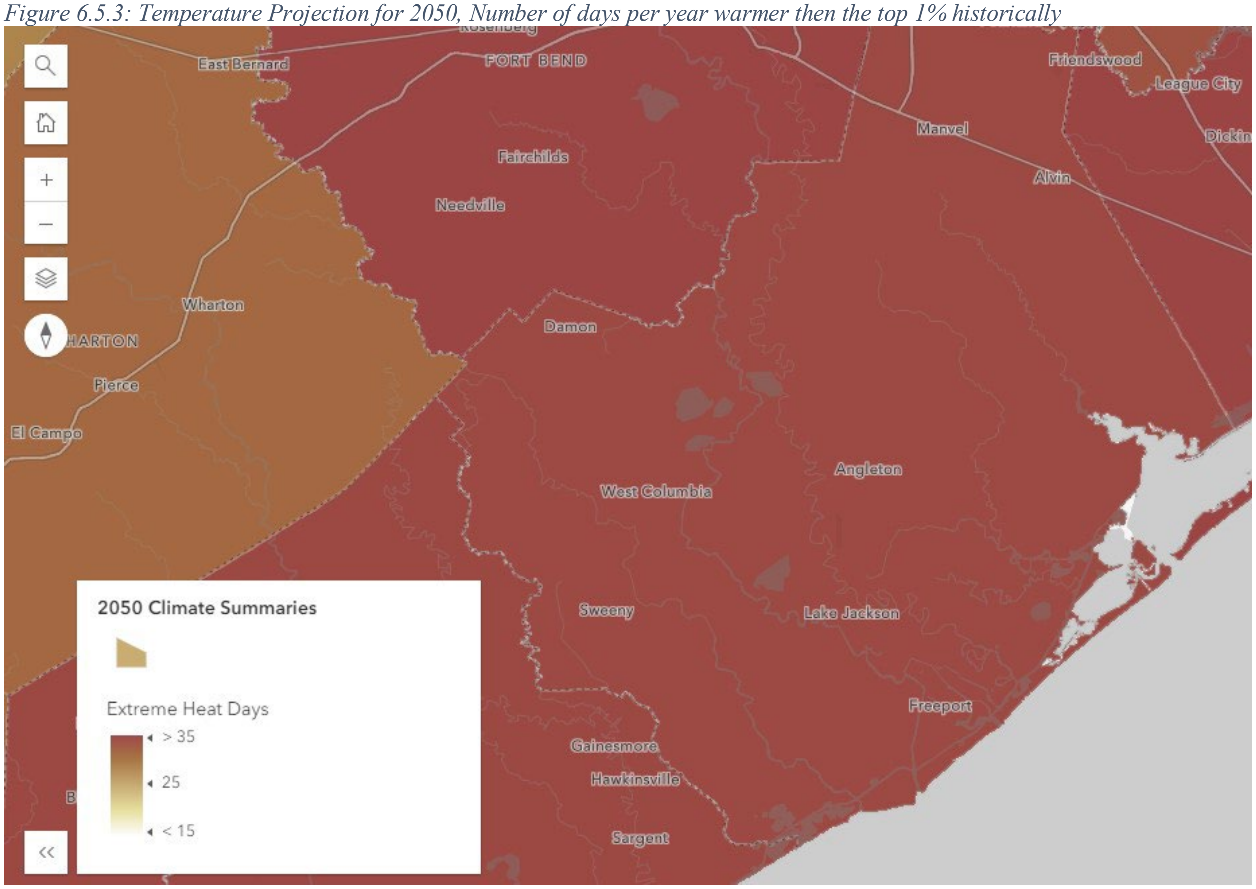


Figure 6.5.3: Temperature Projection for 2050, Number of days per year warmer then the top 1% historically



Temperature Projection for 2050

Brazoria, Texas

Number of days per year warmer than the top 1% historically

35

Historically (1976-2005), the area experienced 4 extreme heat days.

Source: LOCA RCP 8.5

Populations at Risk

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions.

The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year. The CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards) and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions) into the NRI. The outcome, the risk index, represents the potential negative impacts of natural hazards. The NRI EAL score, and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[42]

While heat events have the potential to damage buildings and crops, vulnerable populations are most at risk in the county during these events. The National Integrated Heat Health Information System lists those most at risk for extreme heat as older/elderly adults, children, athletes, pregnant people, people with disabilities, people with chronic health conditions/pre-existing conditions, homeless populations, emergency responders, pets and service animals, and outdoor/indoor workers.

In older populations, health conditions like cardiovascular issues can be exacerbated by extreme heat. During power outages that may occur during peak heat hours of the day, older populations may be disproportionately affected if they require access to life-sustaining devices. Older adults and children are more vulnerable to this hazard because they are unable to thermoregulate. Children also play outside often which exposes them to the same risks due to the combination of exposure and exertion. Athletes are similar in their risk as outdoor activities, sometimes while wearing protective gear, in combination with exposure and exertion will trap heat. As athletes are expected to push themselves physically, the line between acceptable levels of exertion and dangerous levels of exertion during heat may be blurred. Those who are pregnant are more vulnerable to this hazard due to a general increase in their core body temperature regardless of the air temperature, but also because extreme heat events can increase the likelihood of common challenges during pregnancy (excessive sweating and heat rash). Extreme heat also poses health risks for pregnant people and the developing fetus. There is increasing evidence that extreme heat can increase the risk of preterm birth, low birth weight, fetal death, and infant mortality. High temperatures can cause stress on the body which exacerbates respiratory and cardiovascular diseases, diabetes, and renal disease. Some medical conditions, such as obesity and heart disease, increase people's sensitivity to heat, putting them at greater risk of heat illnesses. In addition, some medications (such as some antidepressants, diuretics, and beta-blockers) taken for a chronic illness may increase an individual's sensitivity to heat by interfering with the body's ability to regulate temperature, fluids, or electrolytes. Homeless populations are more at risk of this hazard as they may face significant stress due to their living conditions, insomnia due to poor sleeping arrangements, and lack of food or spoiled food, which also contributes to a higher risk for heat-related illness and death. Additionally, they may not seek medical treatment during a heat event due to distance, lack of access to transportation, and lack of financial resources. Their access to cooling centers or shelters may be limited due to distance and lack of transportation, building hours of access, stigma, and several other factors. People who live in rural areas may have even less access to these resources and services. If the temperature at night remains high, homeless populations are further at risk as the body will be unable to cool itself off. Emergency responders are at a greater risk due to their often heavy and bulky equipment that can trap heat it, like firefighters. Pets and service animals have differing thermoneutral zones depending on their age, size, and breed. Pets and service animals have a higher metabolic rate which makes them more vulnerable to this hazard. Service animals also face the added risk of burning their paw pads as paved surfaces become hot during a heat wave. Those who work outdoors, or indoors without access to air conditioning are also at a higher risk for heat-related illnesses. Most often these jobs require a level of physical exertion and exposure, and can also require personal protective clothing that can trap heat and prevent cooling. Workers may also not have access to water and shade.[75]

EAL Exposure Values and EAL Values for Brazoria County can be found in the tables below.

Table 6.5.5: Expected Annual Loss Exposure Values, Heat Wave

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agricultural Value ($)	EAL Total ($)
Heat Wave	$57,514,792,486	$4,309,091,556,009/ 371,4733.41	$91,232,428	$4,366,697,580,923

Table 6.5.6: Expected Annual Loss Values, Heat Wave

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agriculture Value
Heat Wave	$236	$321,675/ 0.03	$11

N/A- Not Applicable

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for heat wave events for these census tracts is listed as relatively low. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below.[44] Additionally, the FEMA NRI lists the HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for heat wave within Brazoria County is listed as very low.[44] This may change in the near future as the FEMA NRI data is updated and recent heat events that have occurred within the county are added to the reporting and analyzation period used by the NRI.

Figure 6.5.4: Risk Index by Census Tract, Heat Wave

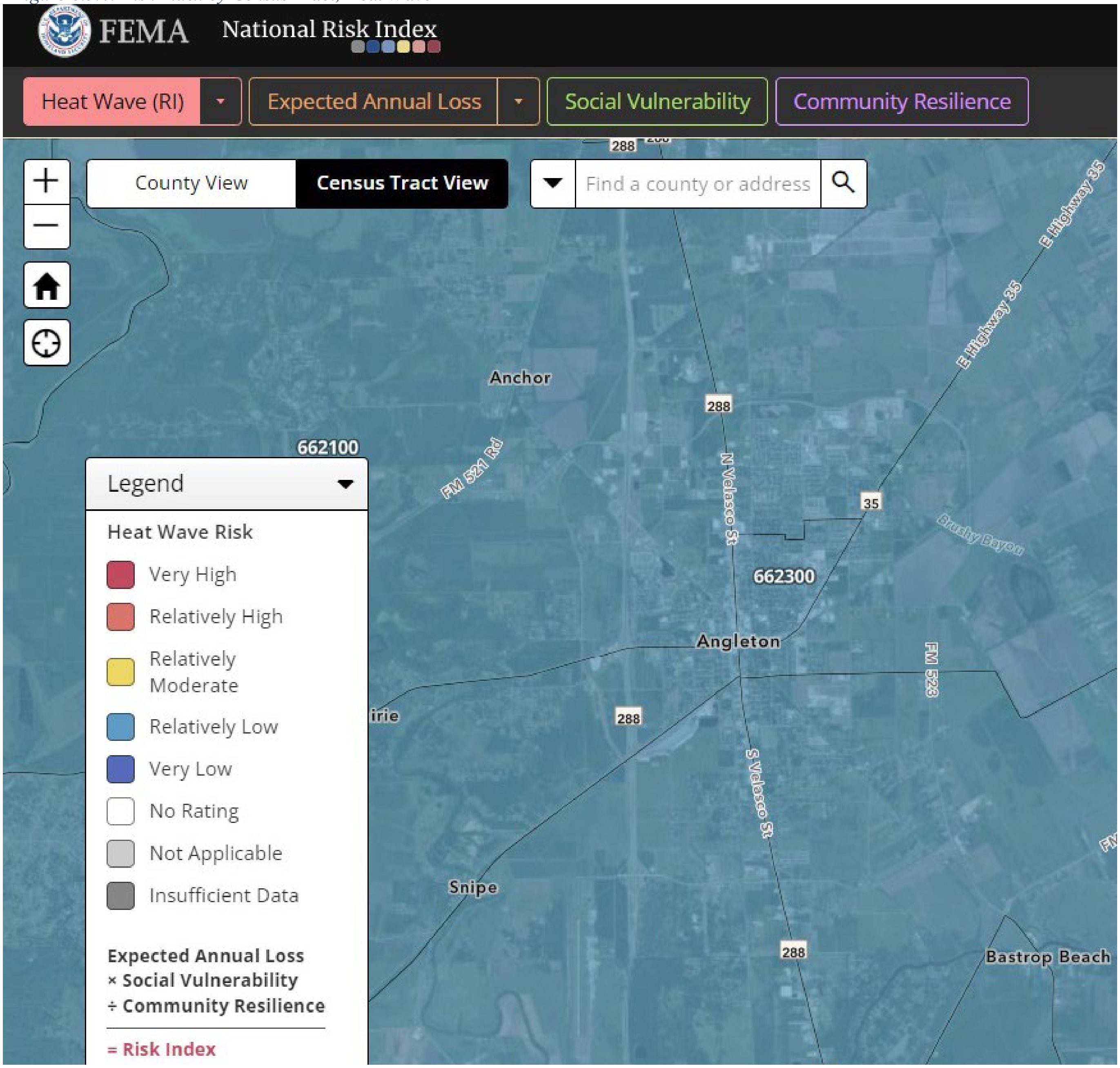


Figure 6.5.5: Social Vulnerability by Census Tract, City of Angleton

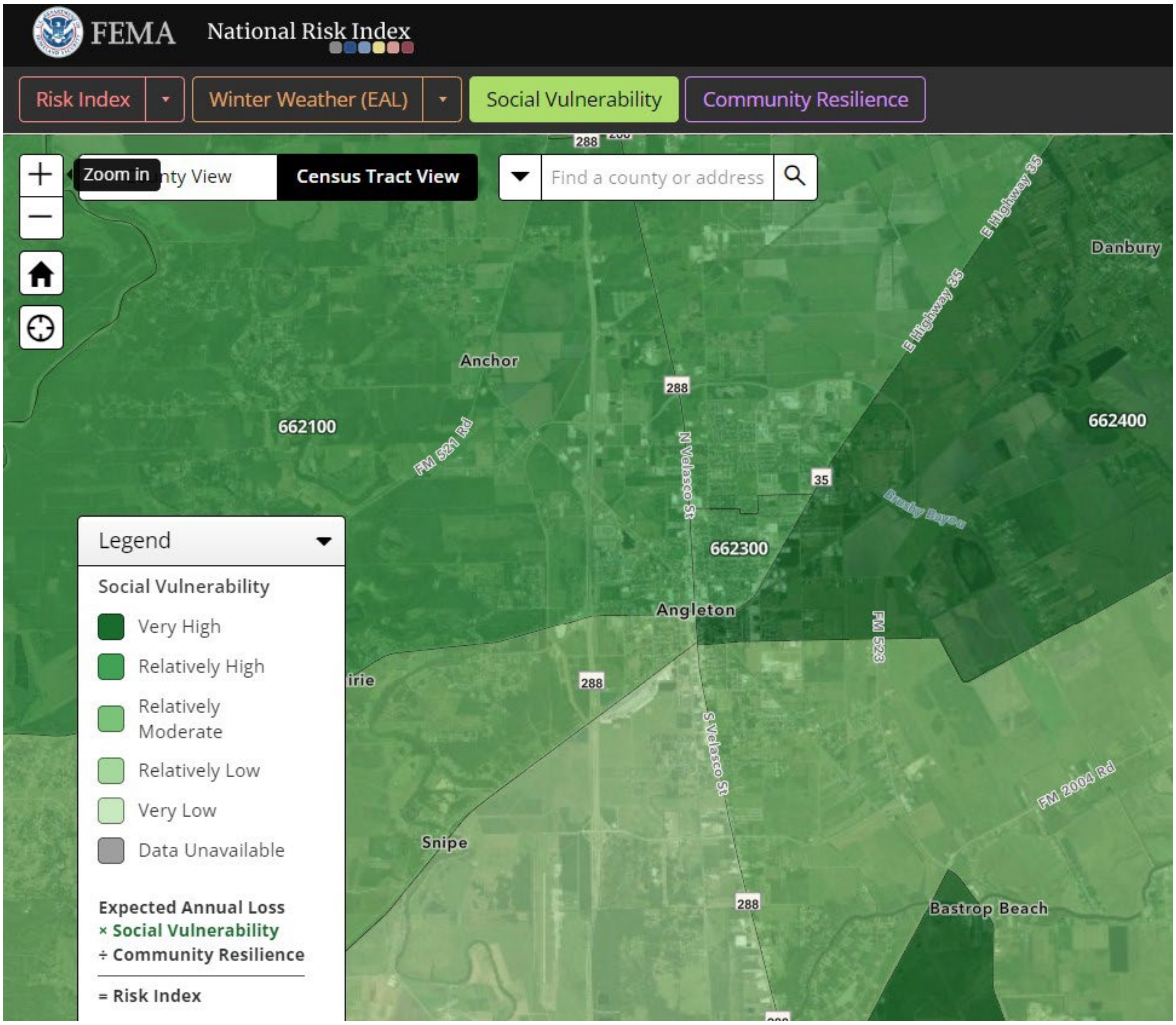


Figure 6.5.6: Community Resilience by Census Tract, City of Angleton

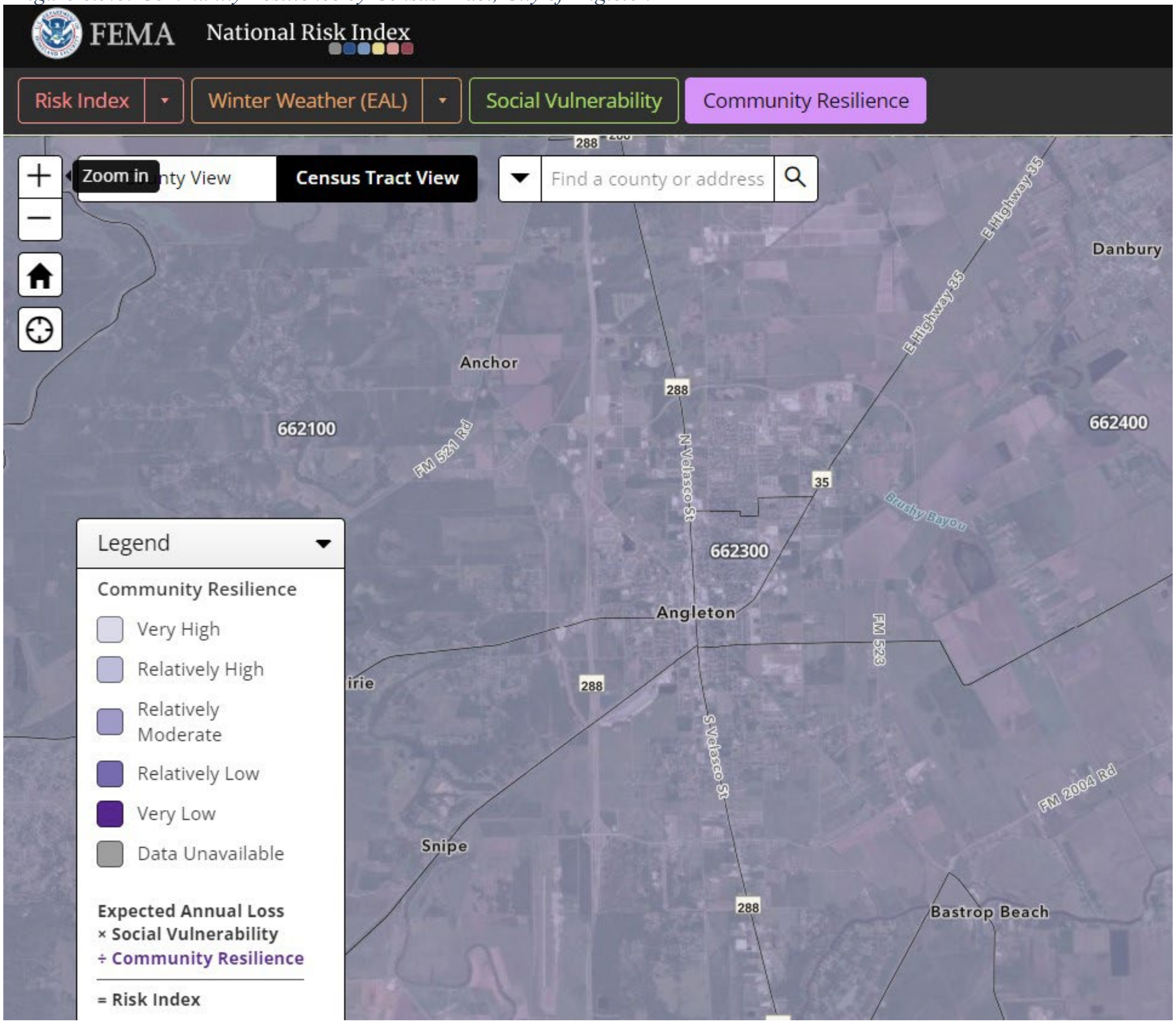


Figure 6.5.7: FEMA NRI Summary, Heat Wave

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039663100	TX	Relatively Low	46.39	0 100
2	Census tract 48039662200	TX	Relatively Low	45.74	0 100
3	Census tract 48039662400	TX	Relatively Low	44.53	0 100
4	Census tract 48039662100	TX	Relatively Low	43.69	0 100
5	Census tract 48039664100	TX	Relatively Low	43.18	0 100
6	Census tract 48039662300	TX	Relatively Low	40.17	0 100
7	Census tract 48039662500	TX	Relatively Low	31.52	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039663100	TX	$7,459	Relatively Low	Relatively Moderate	1	$7,465	46.39
2	Census tract 48039662200	TX	$5,372	Relatively High	Relatively Moderate	1.34	$7,186	45.74
3	Census tract 48039662400	TX	$4,659	Very High	Relatively Moderate	1.43	$6,685	44.53
4	Census tract 48039662100	TX	$5,185	Relatively High	Relatively Moderate	1.22	$6,345	43.69
5	Census tract 48039664100	TX	$5,880	Relatively Moderate	Relatively Moderate	1.05	$6,161	43.18
6	Census tract 48039662300	TX	$3,699	Relatively High	Relatively Moderate	1.38	$5,099	40.17
7	Census tract 48039662500	TX	$2,480	Relatively Moderate	Relatively Moderate	1.12	$2,770	31.52

Climate Change Impacts

According to the Office of the Texas State Climatologist, extreme heat has recently become more frequent and more severe. For example, extreme summer heat is approaching values not seen since the early part of the 20th Century and is likely to surpass those numbers by 2036. The typical number of triple-digit days by 2036 is projected to be substantially larger, about 40%, than typical values so far in the 21st Century.[43] Additionally, with an increase in development and impervious pavement in areas the heat island effect will become more prominent in urban areas of the county. The fourth national climate assessment, an authoritative assessment of the science of climate change with a focus on the United States, notes that the annual average temperature over the contiguous U.S. increased by 1.2°F over the period 1986–2016 relative to 1901–1960. The frequency of heat waves has increased since the mid-1960s. Climate projections indicate that extreme heat events will be more frequent and intense in coming decades.[76]

Table 6.5.7: Climate Change Impacts Summary, Extreme Heat

Location	The location of extreme heat and heat events are expected to increase in urban areas of the county.
Extent/Intensity	The extent and intensity of extreme heat and heat events are expected to increase.
Frequency	The frequency of extreme heat and heat events is expected to increase.
Duration	The duration of extreme heat and heat events is expected to increase.

Section 6.6: Wildfire

6.6 Wildfire

Wildfire refers to any non-structure fire that occurs in the wildland, an area in which development is essentially nonexistent except for roads, railroads, power lines, and similar transportation or utility structures. This definition does not refer to fires that are conducted via prescribed burns.[77] Wildfires typically occur more often in the summer during dry months and can be exacerbated by droughts or drought-like conditions when plants and other brush contain less moisture and easily ignite. In Texas, nearly 85 percent of wildfires occur within two miles of a community. Wildfires can be ignited by a variety of causes from lightning strikes, downed powerlines, smoking (or improper disposal of cigarettes), debris burning, and fireworks.

Location

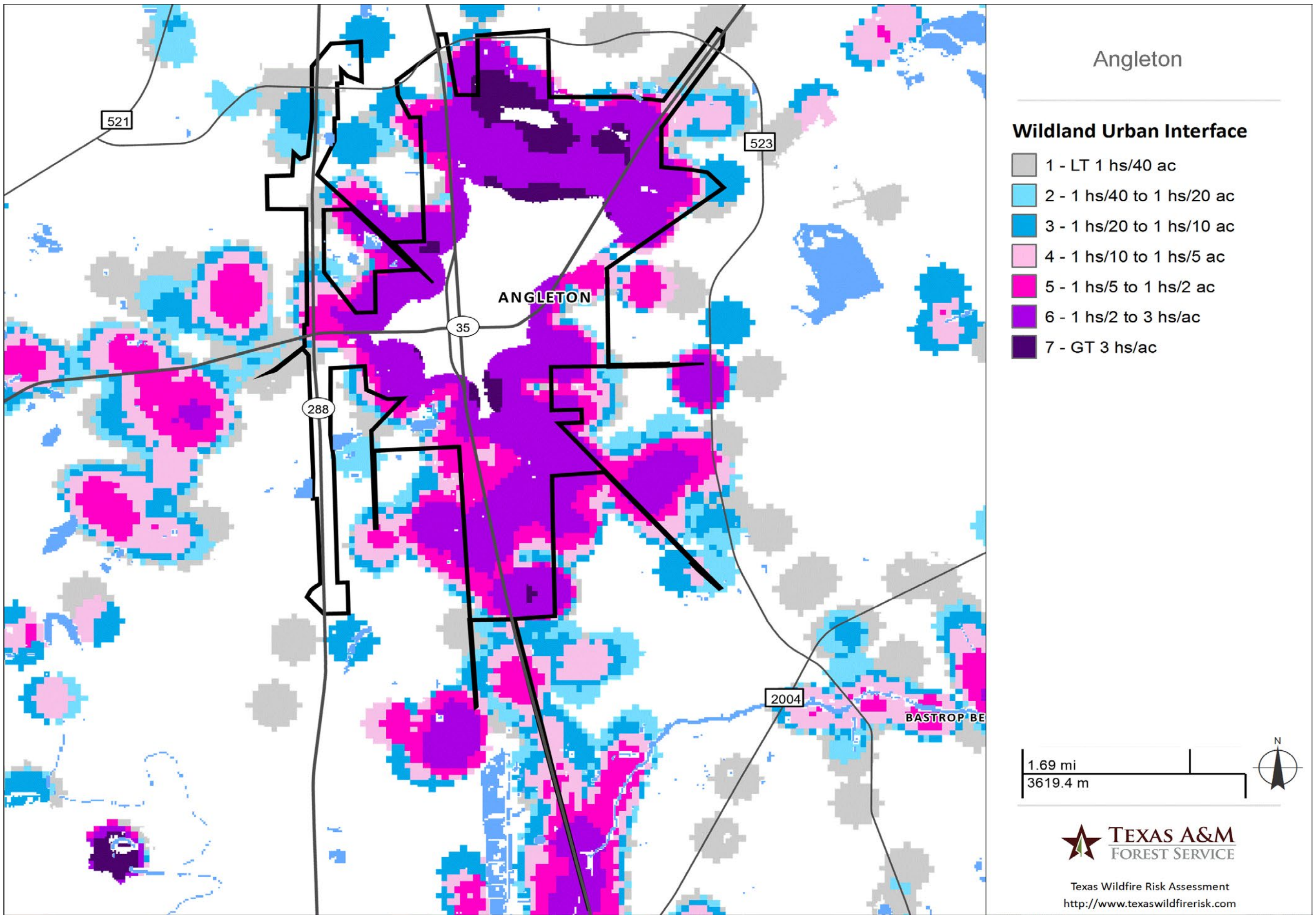
This is a reoccurring natural hazard in every Texas county and has no geographic boundary. The Texas Wildfire Risk Assessment (TWRA) Explorer is the primary mechanism for the Texas A&M Forest Service to deploy wildfire risk information and create awareness about wildfire issues across the state.[78] The Texas Wildfire Risk Assessment Portal (TxWRAP) allows users to easily view their wildfire risk online. TxWRAP uses a variety of factors such as wildfire threat, wildland urban interface, surface fuels, historic wildfire ignitions, fire behavior, and much more to determine the fire potential of specific land areas and depicts through a set of rating areas that are most prone to wildfires.[79] Particularly vulnerable are the Wildland Urban Interface (WUI) areas.

The WUI is the area where development, people, and homes, mix with areas of wildland or other vegetation. It is within these areas that wildfire risks substantially increase. With continued population growth throughout the county, the WUI zones will become more abundant. Since most wildfires are caused by human activities, the intersection of WUI and drought is particularly dangerous. Wildfires and their size can vary greatly depending on a variety of factors such as location, fire intensity, and duration. It is estimated that 6,168 people or 68.5 % percent (23,596) of residents within the City of Angleton live within the WUI. The table and Figure below depict the population and acreage in each of the WUI zones within the City of Angleton, which closely follow housing density.

Table 6.6.1: WUI Population and Acres, City of Angleton

	Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
	LT 1hs/40ac	4	0.0 %	236	5.2 %
	1hs/40ac to 1hs/20ac	0	0.0 %	111	2.4 %
	1hs/20ac to 1hs/10ac	18	0.1 %	210	4.6 %
	1hs/10ac to 1hs/5ac	43	0.3 %	261	5.7 %
	1hs/5ac to 1hs/2ac	386	2.4 %	683	15.0 %
	1hs/2ac to 3hs/1ac	10,464	64.7 %	2,661	58.5 %
	GT 3hs/1ac	5,253	32.5 %	390	8.6 %
	Total	**16,168**	**100.0 %**	4,552	100.0 %

Figure 6.6.1: WUI Zones, City of Angleton



Extent

Characteristic Fire Intensity Scale (FIS) specifically identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on a weighted average of four percentile weather categories. This is like the Richter scale for earthquakes. FIS provides a standard scale to measure potential wildfire intensity. FIS consists of 5 classes where the order of magnitude between classes is ten-fold. The minimum class, Class 1, represents very low wildfire intensities, and the maximum class, Class 5, represents very high wildfire intensities. The Characteristic FIS is described in the table below.

Table 6.6.2: Characteristic FIS Descriptions

	Wildfire Intensity Class	Description
	1- Very Low	Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.
	2- Low	Small flames, usually less than two feet long; small amount of very short-range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.
	3- Moderate	Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.

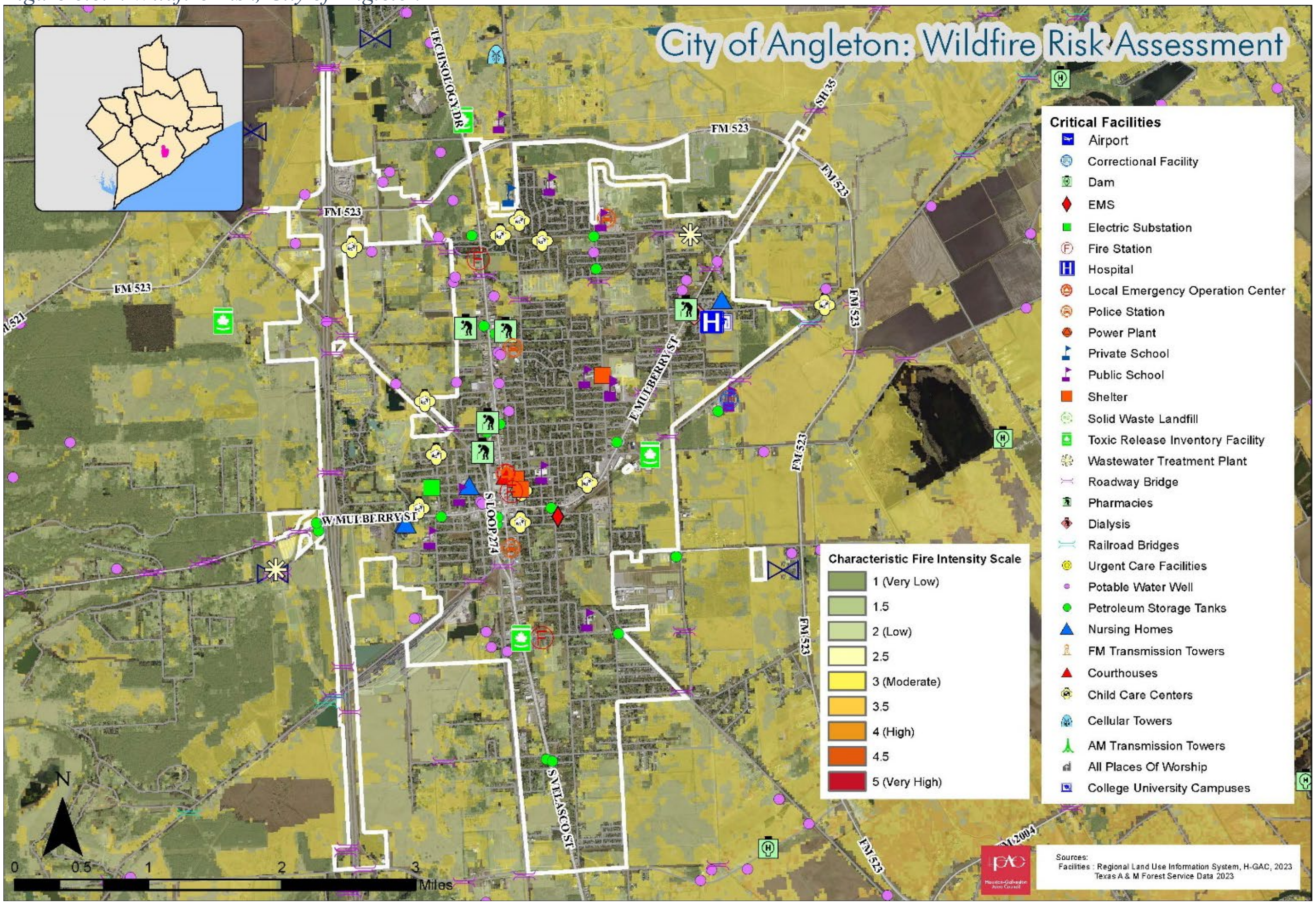
	4- High	Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
	5- Very High	Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

The table below show the class, acreage, and percent within each class within the City of Angleton. The figure below shows these wildfire intensity areas from TxWrap in relation to critical facilities within the city.

Table 6.6.3: Fire Intensity Scale Acreage, City of Angleton

	Class	Acres	Percent
	Non-Burnable	4,284	64.6 %
	1 (Very Low)	323	4.9 %
	1.5	168	2.5 %
	2 (Low)	1,022	15.4 %
	2.5	34	0.5 %
	3 (Moderate)	799	12.0 %
	3.5	2	0.0 %
	4 (High)	0	0.0 %
	4.5	0	0.0 %
	5 (Very High)	0	0.0 %
	Totals:	**6,632**	**100.0 %**

Figure 6.6.2: Wildfire Risk, City of Angleton



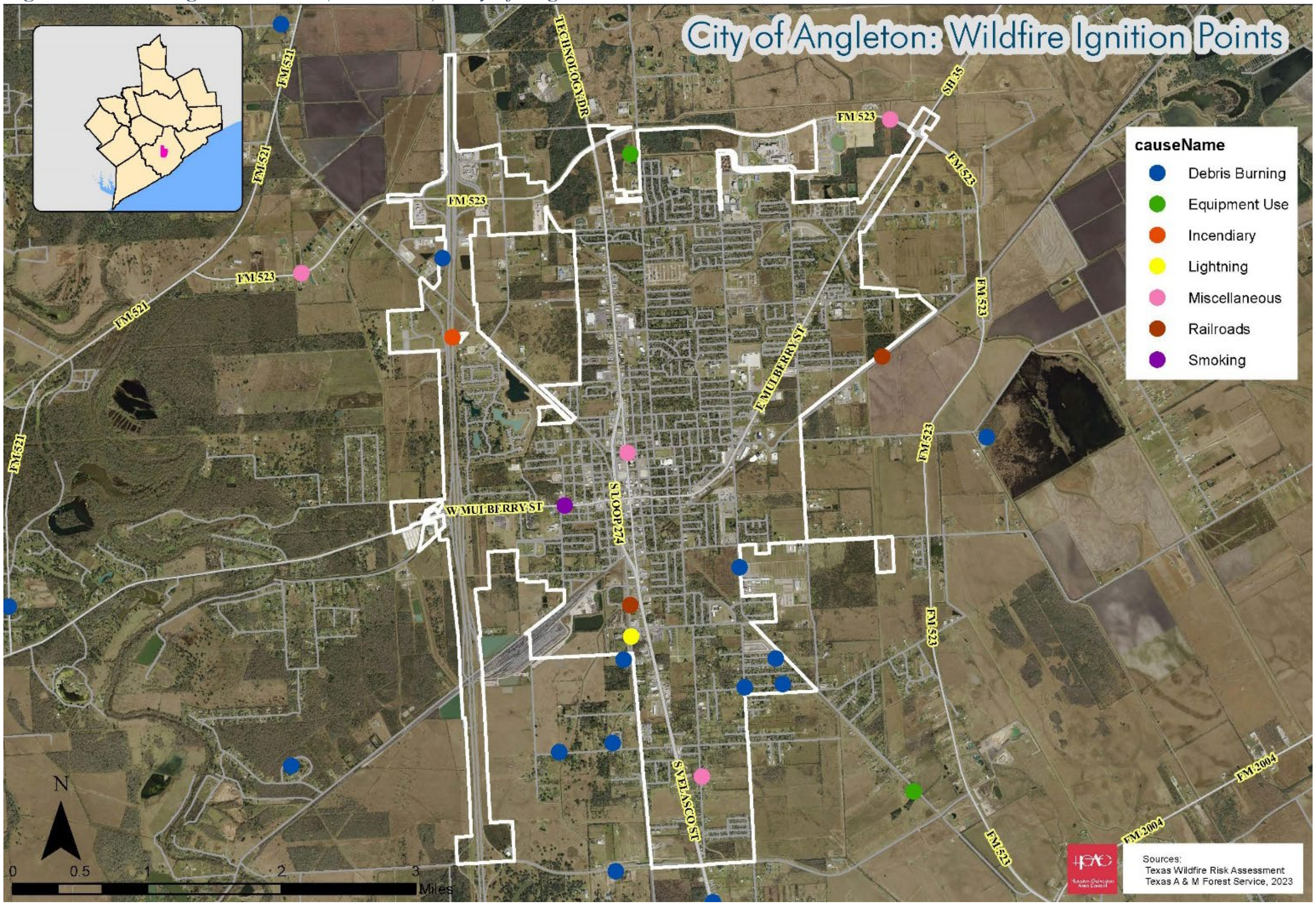
Historic Occurrences

The Texas A&M Forest Service tracks wildfire events, acres destroyed, and the initial ignition cause of the fire. The table below shows the historical data associated with burns that caused recorded damage. Figure 6.6.3 shows the point location of all fire ignitions from 2005-2024, symbolized by color to depict the cause of the fire. There were no ignition points reported after 2012 for the City of Angleton.

Table 6.6.4: Fire Ignition Point Causes (2018-2021)

Cause Name	Damaged Acres	Start Date
Railroads	2	1/1/2009
Debris Burning	1	1/23/2009
Debris Burning	1	1/25/2009
Incendiary	6	1/29/2009
Miscellaneous	2	1/29/2009
Miscellaneous	1	6/28/2012
Miscellaneous	1	8/3/2012
Smoking	0.1	8/29/2012
Lightning	0.1	9/23/2012
Debris Burning	2	9/26/2012

Figure 6.6.3: Fire Ignition Points (2000-2023), City of Angleton



The measure of wildfire occurrence used in the TWRA is called the Wildfire Ignition Density. 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 1000 acres. Five years of historic fire report data was used to create the ignition points for all Texas fires. Data was obtained from federal, state and local fire department report data sources for the years 2005 to 2009. The compiled wildfire occurrence database was cleaned to remove duplicate records and to correct inaccurate locations. The database was then modeled to create a density map reflecting historical fire ignition rates. The Ignition Density map, below, is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county, or local planning efforts.[80]

Figure 6.6.4: Wildfire Ignition Density, City of Angleton

Presidential Disaster Declarations

There have been 2 disaster declarations for fire/wildfire within Brazoria County, in which the City of Angleton is located, since 1953, as depicted in the table below.[1]

Table 6.6.5: Disaster Declarations, Wildfire

Declaration Date	Incident Type	Title	Disaster Number	Declaration Type
9/1/1999	Fire	Extreme Fire Hazards	3142	Emergency Declaration
1/11/2006	Fire	Extreme Wildfire Threat	1624	Major Disaster Declaration

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for the City of Angleton since the last HMP are listed in the table below.[40]

Table 6.6.6: USDA Declared Disasters (2018-2023), Wildfire

Crop Disaster Year	Disaster Description	Designation Number
None		

Probability of Future Occurrences

As jurisdictions across the state move into wildland and increase the WUI areas, the potential for wildfires substantially increases. Wildfire probability depends on a variety of factors such as local weather conditions, topographic factors, and existing fuels within a given area (natural vegetation or wildlands). A variety of activities can spark wildfires, most of which are human induces such as camping, debris burning, and smoking can affect the number and the extent of wildfires within a given year. Wildfires can occur at any time of the year under the right conditions. Wildfires can be exacerbated by droughts, which are more likely to occur in summer months when temperatures are higher, and precipitation is less frequent. according to the FEMA NRI for drought, annualized frequency values for drought are 22.3 events per year over a 22-year period of record for Brazoria County (2000-2021), while annualized frequency values for wildfires is 0.162% chance per year based on the 2021 dataset. The probability of future occurrences of wildfires for the county, per FEMA's NRI, is relatively mmoderate.[42]

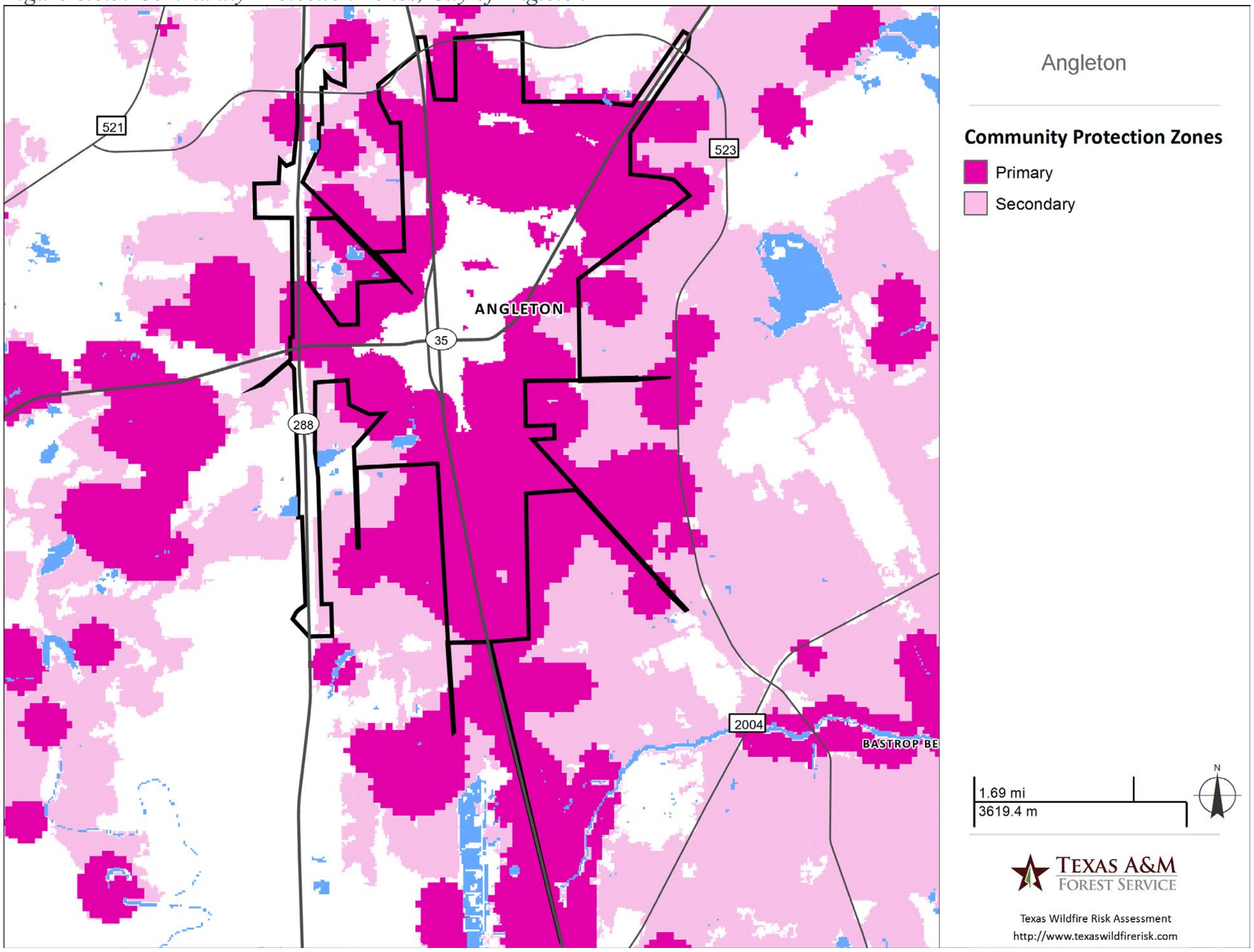
Populations at Risk

The TFS outlines Community Protection Zones (CPZ), areas that are outlined as primary and secondary and should be the highest priority for mitigation planning activities. CPZs are based on where population and housing density is highest using data regarding surrounding fire potential and fire behavior. Per the TFS "General consensus among fire planners is that for fuel mitigation treatments to be effective in reducing wildfire hazard, they must be conducted within a close distance of a community. In Texas, the WUI housing density has been used to reflect populated areas in place of community boundaries. This ensures that CPZs reflect where people are living in the wildland, not jurisdictional boundaries." The table and figure below outline these primary and secondary CPZs and their acreage within the City of Angleton.

Table 6.6.7: Community Protection Zone Acreage

	Class	Acres	Percent
	Primary	4,355	88.6 %
	Secondary	563	11.4 %
	Total	**4,918**	**100.0 %**

Figure 6.6.5: Community Protection Zones, City of Angleton



Wildfires negatively impact air quality impacting the surrounding areas and areas further away depending on how wind direction and the fire intensity distribute the smoke. This smoke exposure can put certain vulnerable populations at greater risk of adverse effects from this hazard event. According to the Environmental Protection Agency, these vulnerable populations include People with asthma and other respiratory diseases, people with cardiovascular disease, children (18 years of age or younger), pregnant people older adults, people of low socio-economic status, and outdoor workers. Underlying respiratory diseases result in compromised health status that can result in the triggering of severe respiratory responses by environmental irritants, such as wildfire smoke. Underlying circulatory diseases result in compromised health status that can result in the triggering of severe cardiovascular events by environmental irritants, such as wildfire smoke. In younger populations, children's lungs are still developing, and there is a greater likelihood of increased exposure to wildfire smoke resulting from more time spent outdoors, engagement in more vigorous activity, and inhalation of more air per pound of body weight compared to adults. Pregnancy-related physiologic changes (e.g., increased breathing rates) may increase vulnerability to environmental exposures, such as wildfire smoke. In addition, during critical development periods, the fetus may experience increased vulnerability to these exposures. In older populations, there is a higher prevalence of pre-existing lung and heart disease and decline of physiologic process, such as defense mechanisms. This can lead to exacerbation of heart and lung diseases can lead to emergency department visits, hospital admissions, and even death. Those of low socioeconomic status are vulnerable to these types of hazards as they have less access to health care which could lead to higher likelihood of untreated or insufficient treatment of underlying health conditions (asthma, diabetes), and greater exposure to wildfire smoke resulting from less access to measures to reduce exposure such as air conditioning. Outdoor workers can be more vulnerable to this hazard due to increased exposure of smoke.[81]

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions.

The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year. The CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards) and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions) into the NRI. The outcome, the risk index, represents the potential negative impacts of natural hazards. The NRI EAL score, and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[42]

EAL Exposure Values and EAL Values for Brazoria County can be found in the tables below.

Table 6.6.8: Expected Annual Loss Exposure Values, Wildfire

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agricultural Value ($)	EAL Total ($)
Wildfire	$3,126,143,435	$215,215,491,648/ 18,553.06	$6,997,533	$218,348,632,616

Table 6.6.9: Expected Annual Loss Values, Wildfire

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agriculture Value
Wildfire	$950,240	$99,306/ 0.01	$370

N/A- Not Applicable

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for wildfire events for these census tracts is listed as relatively moderate, with one tract rating relatively high and one rating relatively low. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below.[44] Additionally, the FEMA NRI lists the HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for wildfire within Brazoria County is listed as very low.[44]

Figure 6.6.6: Risk Index by Census Tract, Wildfire

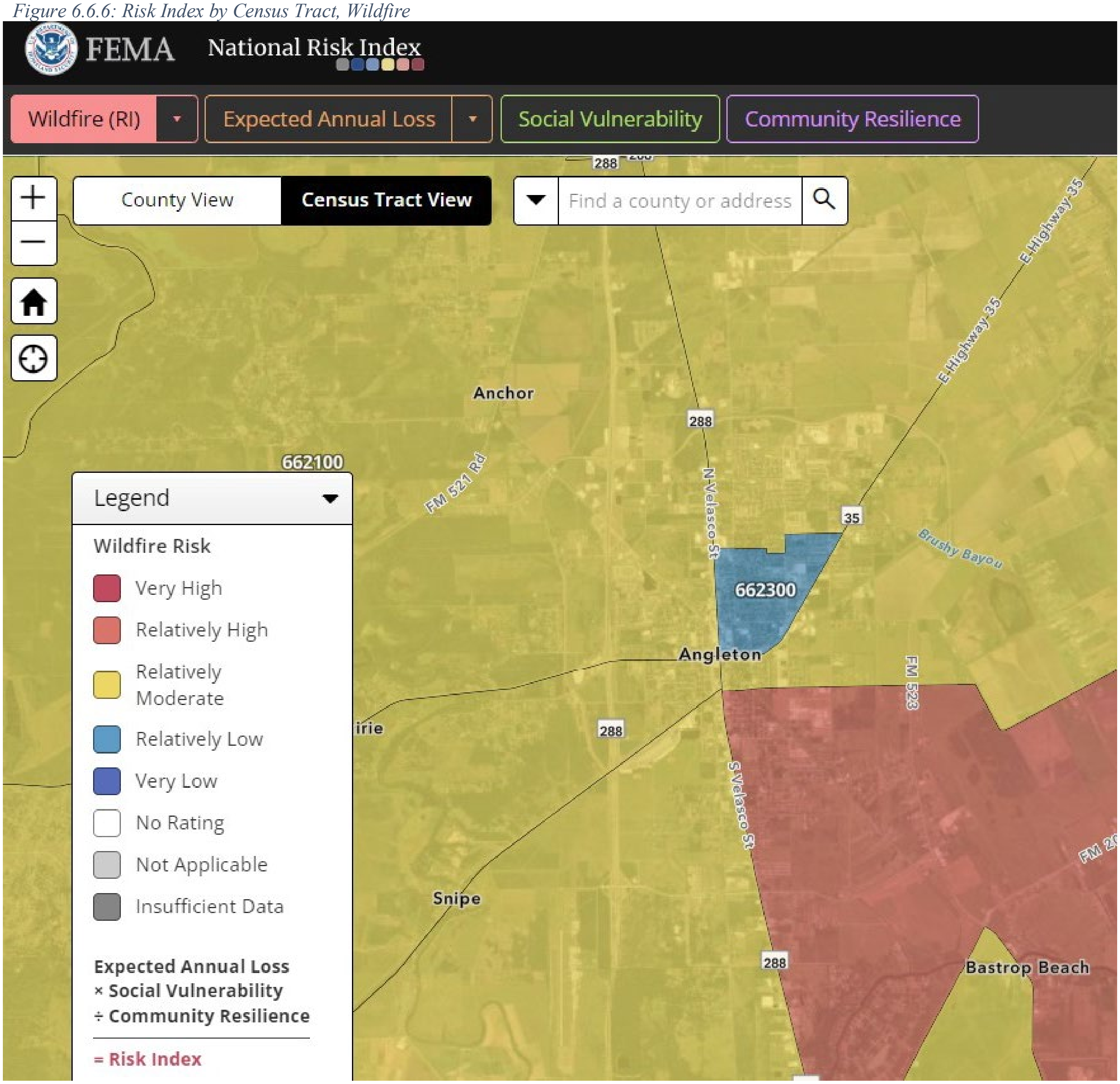


Figure 6.6.7: Social Vulnerability by Census Tract, City of Angleton

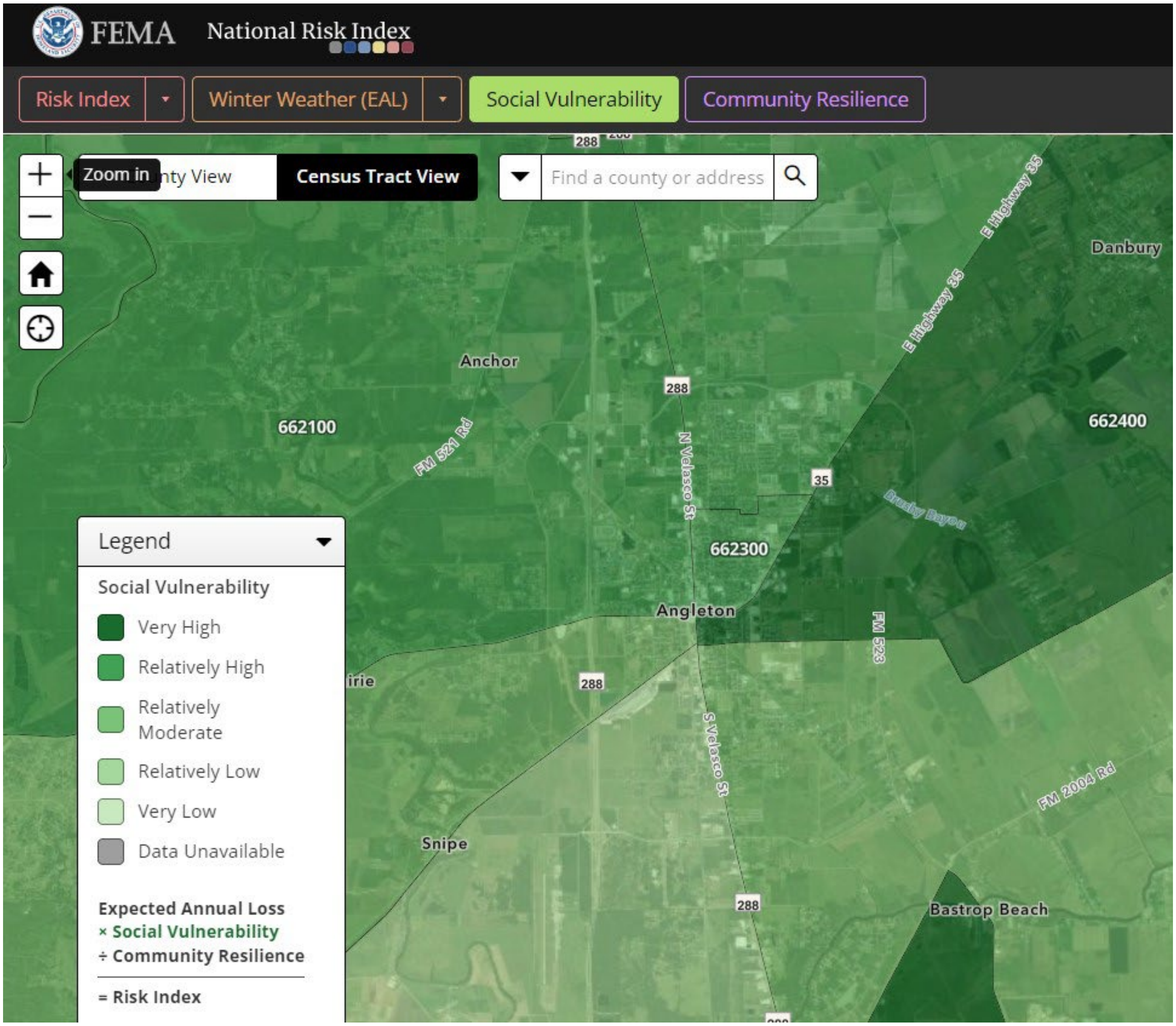


Figure 6.6.8: Community Resilience by Census Tract, City of Angleton

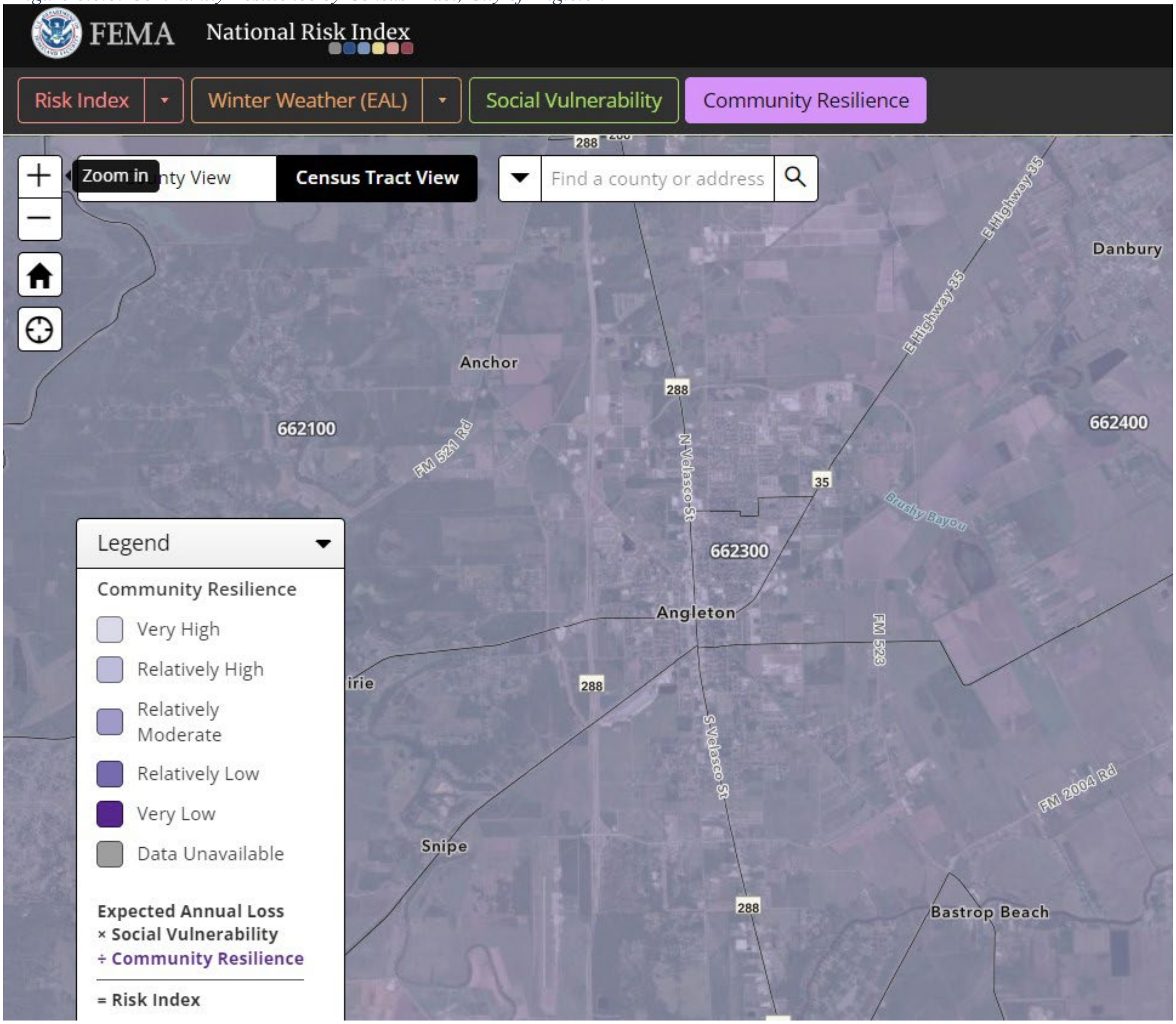


Figure 6.6.9: FEMA NRI Summary, Wildfire

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039664100	TX	Relatively High	96.61	0 100
2	Census tract 48039662400	TX	Relatively Moderate	91.8	0 100
3	Census tract 48039662100	TX	Relatively Moderate	91.48	0 100
4	Census tract 48039662200	TX	Relatively Moderate	89.74	0 100
5	Census tract 48039663100	TX	Relatively Moderate	89.63	0 100
6	Census tract 48039662500	TX	Relatively Moderate	85.48	0 100
7	Census tract 48039662300	TX	Relatively Low	82.69	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039664100	TX	$238,969	Relatively Moderate	Relatively Moderate	1.05	$250,422	96.61
2	Census tract 48039662400	TX	$40,817	Very High	Relatively Moderate	1.43	$58,566	91.8
3	Census tract 48039662100	TX	$44,275	Relatively High	Relatively Moderate	1.22	$54,176	91.48
4	Census tract 48039662200	TX	$26,570	Relatively High	Relatively Moderate	1.34	$35,539	89.74
5	Census tract 48039663100	TX	$34,568	Relatively Low	Relatively Moderate	1	$34,597	89.63
6	Census tract 48039662500	TX	$12,653	Relatively Moderate	Relatively Moderate	1.12	$14,131	85.48
7	Census tract 48039662300	TX	$5,669	Relatively High	Relatively Moderate	1.38	$7,813	82.69

Climate Change Impacts

Wildfires are often a natural phenomenon and part of the normal cycle of the natural environment that help keep ecosystems healthy. Weather conditions often affect the duration of a wildfire and how it will gro. These factors are lower precipitation, high temperatures, wind, and more.[82] Wildfires are more likely to occur during summer months and during periods of drought. According to the Office of the Texas State Climatologist, drivers of wildfire risk are projected to increase the risk of wildfires throughout the state, primarily due to increased rates of drying and increased fuel load.[43]

Table 6.6.10: Climate Change Impacts, Wildfire

Location	The location of wildfires is not expected to change. Areas within or near the WUI are at the greatest risk.
Extent/Intensity	The extent and intensity of wildfires within the county may change (increase) due to rising surface temperatures, heat events, and increases in drought severity.
Frequency	Weather and other factors that lead to wildfires are expected to increase throughout the state, thus the frequency of wildfires is expected to increase.
Duration	There is no clear trend regarding the duration of wildfire events.

Section 6.7: Drought & Expansive Soils

6.7 Drought & Expansive Soils

The NWS defines drought as "A deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area." The American Meteorological Survey defines drought as "A period of abnormally dry weather sufficiently long enough to cause a serious hydrological imbalance."[83] Drought can have several different classifications for monitoring purposes. Table 6.7.1 below outlines these classifications and their definitions.

Table 6.7.1: Drought Classifications

Drought Classification	Definition
Meteorological	When dry weather patterns dominate an area.
Hydrological	When low water supply becomes evident in the water system.
Agricultural	When crops become affected by drought.
Socioeconomic	When the supply and demand of various commodities is affected by drought.
Ecological	When natural ecosystems are affected by drought.

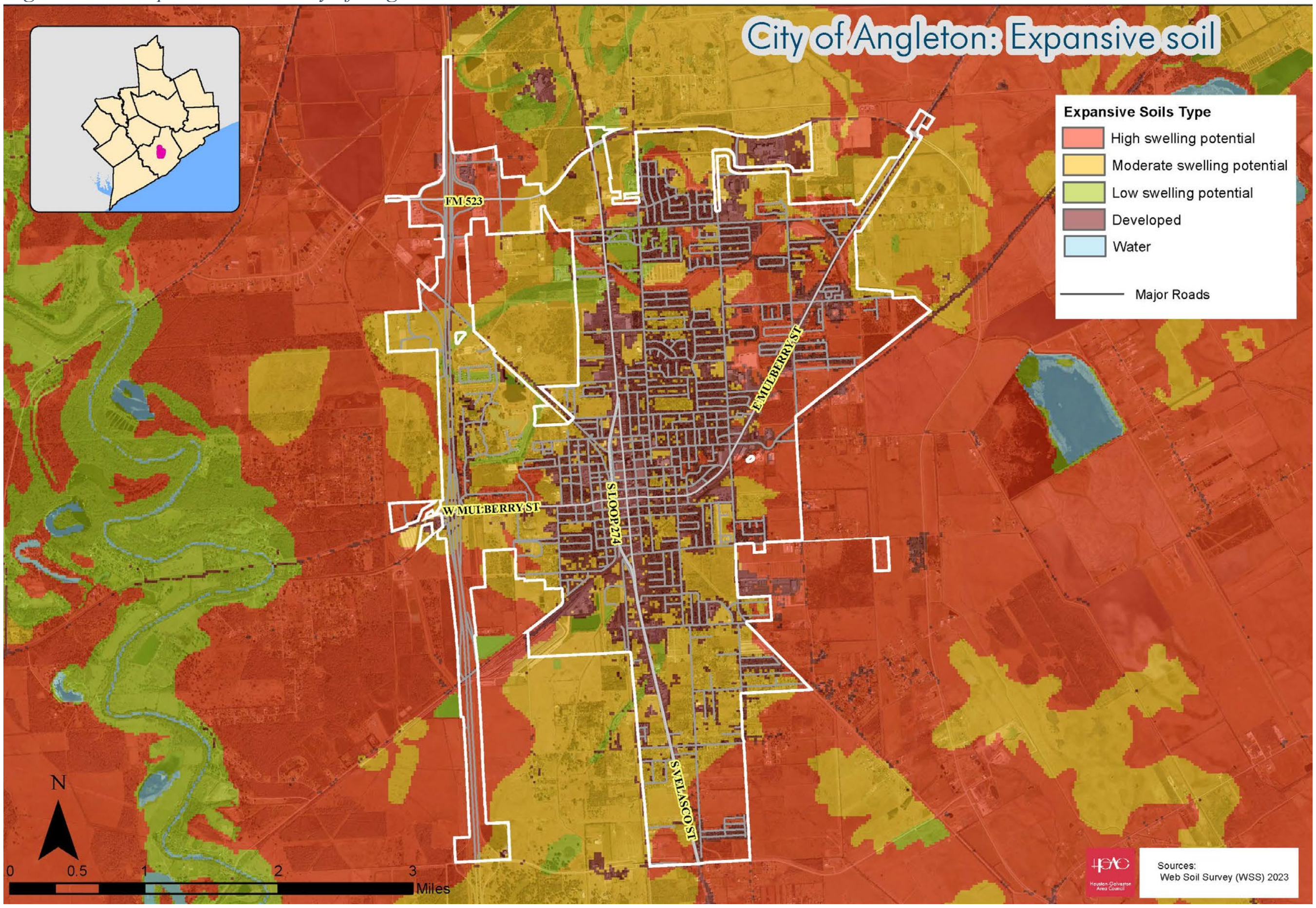
Expansive or swelling soils are soils intertwined with layers of various clay particles that can absorb large quantities of water. Changes in precipitation or other moisture conditions cause these soils to shrink and swell. They can expand up to 20% by volume when exposed to water and exert a force of up to 30,000 pounds per square foot, enough to break up any structure they encounter. Expansive soils are one of the nation's most prevalent causes of damage to buildings and construction. Annual losses are estimated in the billions of dollars. Losses include severe structural damage, cracked driveways, cracked or upheaval in sidewalks, slab on grade foundations, roads, and highway structures, which can lead to the condemnation of buildings and disruption of pipelines and sewer lines. The destructive forces of these soils may be upward, horizontal, or both, and can be exacerbated by drought conditions.[84] For this plan update, drought & expansive soils are included in the same hazard profile as they directly correlate to greater losses and risk for the county.

Location

Drought can lead to a wide range of impacts on agriculture, public health, water quality, ecosystems, transportation, and wildfire risk. This is a reoccurring natural hazard in every Texas county and has no geographic boundary. Droughts are also difficult to predict and monitor as the effects vary from region to region.[85] All of the City of Angleton and its residents are susceptible to drought and its impacts.

Similarly, expansive soils pose a greater risk during times of drought followed by heavy rainfall and periods of dryness. Figure 6.7.1 below shows the expansive soil locations and their shrink-swell potentials within the City of Angleton. Areas with high shrink-swell potentials are more at risk for damage than those with low shrink-swell potential.

Figure 6.7.1: Expansive Soils, City of Angleton



Extent

The U.S. Drought Monitor (USDM) is a map that is updated each Thursday to show the location and intensity of drought across the country. The USDM uses a five-category system to classify levels of drought. These categories, seen in Figure 6.7.9 below, show experts' assessments of conditions related to dryness and drought including observations of how much water is available in streams, lakes, and soils compared to usual for the same time of year.[86]

Figure 6.7.2: Drought Monitor Categories

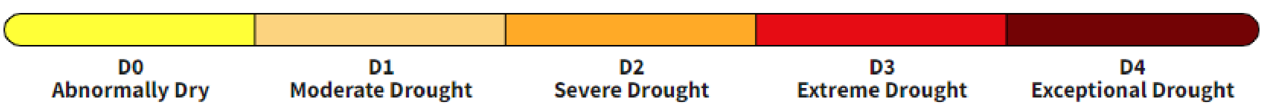
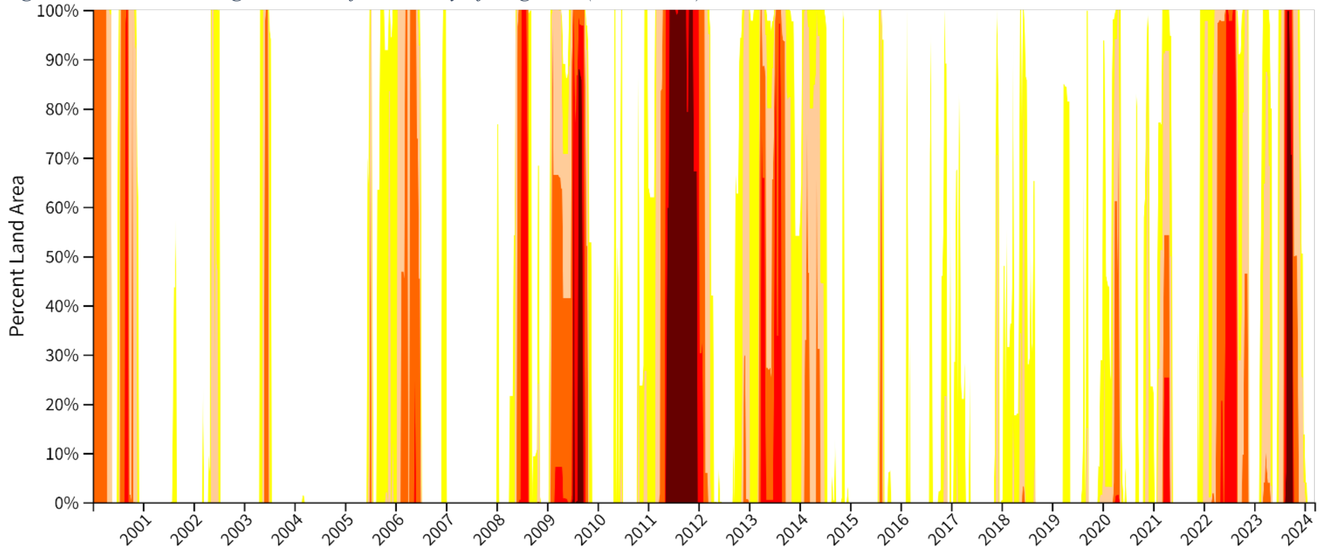


Figure 6.7.3 shows the USDM Drought Categories for Brazoria County, of which the City of Angleton is located, since 2000. The risk of drought occurring applies the same to the entire county. There are no known factors that make one area or community more prone to drought events than another. However, drought can adversely impact individuals employed in agriculture and natural resources over other industries. Severe droughts can also lead to crop and livestock losses, impacting the food supply and economy.[87]

Figure 6.7.3: U.S. Drought Monitor for the City of Angleton (2000-2024)



The chart below shows the Linear Extensibility Percent (LEP) and Coefficient of Linear Extent (COLE) to show the Shrink-Swell Class of expansive soils. COLE is a test frequently used to characterize expansive soils. COLE is a measure expressed as a fraction of the change in a soil sample dimension from the moist to dry state. The LEP is a measure expressed as a percentage of the change in a soil sample dimension from the moist to dry state. The Shrink-Swell Class is found in comparing these two measurements. A Moderate to Very High rating marks soils that have the potential to contract and expand, leading to damage to critical infrastructure, foundations, and transportation structures. The city is located almost entirely within areas that have soils with moderate and high shrink-swell potentials.

Table 6.7.2: Linear Extensibility Percent & Coefficient of Linear Extent for Expansive Soils

Shrink-Swell Class	Linear Extensibility Percent	Coefficient of Linear Extent
Low	3	0.03
Moderate	3 to 6	.03-.06
High	6 to 9	.06-.09
Very High	Greater than or equal to 9	Greater than or equal to 0.09

Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the NCEI Storm Events Database. These events are shown at the county level with some referencing a specific location, city, or zone. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The table below highlights events for this hazard that have occurred within Brazoria County from 1950-2023.

Table 6.7.3: Brazoria County Drought Events (1950-2023)

Event Date	Event Type	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)
4/1/1996	Drought	0	0	$-	$-
5/1/1996	Drought	0	0	$-	$-

6/1/1996	Drought	0	0	$-	$-
5/1/1998	Drought	0	0	$-	$-
6/1/1998	Drought	0	0	$-	$-
7/1/1998	Drought	0	0	$-	$-
8/1/1998	Drought	0	0	$1,000,000	$7,300,000
8/1/2000	Drought	0	0	$-	$-
9/1/2000	Drought	0	0	$-	$-
4/5/2022	Drought	0	0	$-	$-
4/5/2022	Drought	0	0	$-	$-
4/26/2022	Drought	0	0	$-	$-
5/1/2022	Drought	0	0	$-	$-
5/1/2022	Drought	0	0	$-	$-
5/1/2022	Drought	0	0	$-	$-
5/1/2022	Drought	0	0	$-	$-
6/1/2022	Drought	0	0	$-	$-
6/1/2022	Drought	0	0	$-	$-
6/1/2022	Drought	0	0	$-	$-
7/1/2022	Drought	0	0	$-	$-
7/1/2022	Drought	0	0	$-	$-
8/1/2022	Drought	0	0	$-	$-
8/1/2022	Drought	0	0	$-	$-
9/1/2023	Drought	0	0	$-	$-
9/1/2023	Drought	0	0	$-	$-
9/1/2023	Drought	0	0	$-	$-
10/1/2023	Drought	0	0	$-	$-
10/1/2023	Drought	0	0	$-	$-
10/1/2023	Drought	0	0	$-	$-

Presidential Disaster Declarations

Presidential major disaster declarations, which must be requested of the President by a governor, are administered through FEMA. A Presidential major disaster declaration can be made within days or hours of the initial request. There have been no federally declared drought disasters for drought within the county since 1950.[1]

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader, or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for Brazoria County since 2018 are listed in the table below.[39]

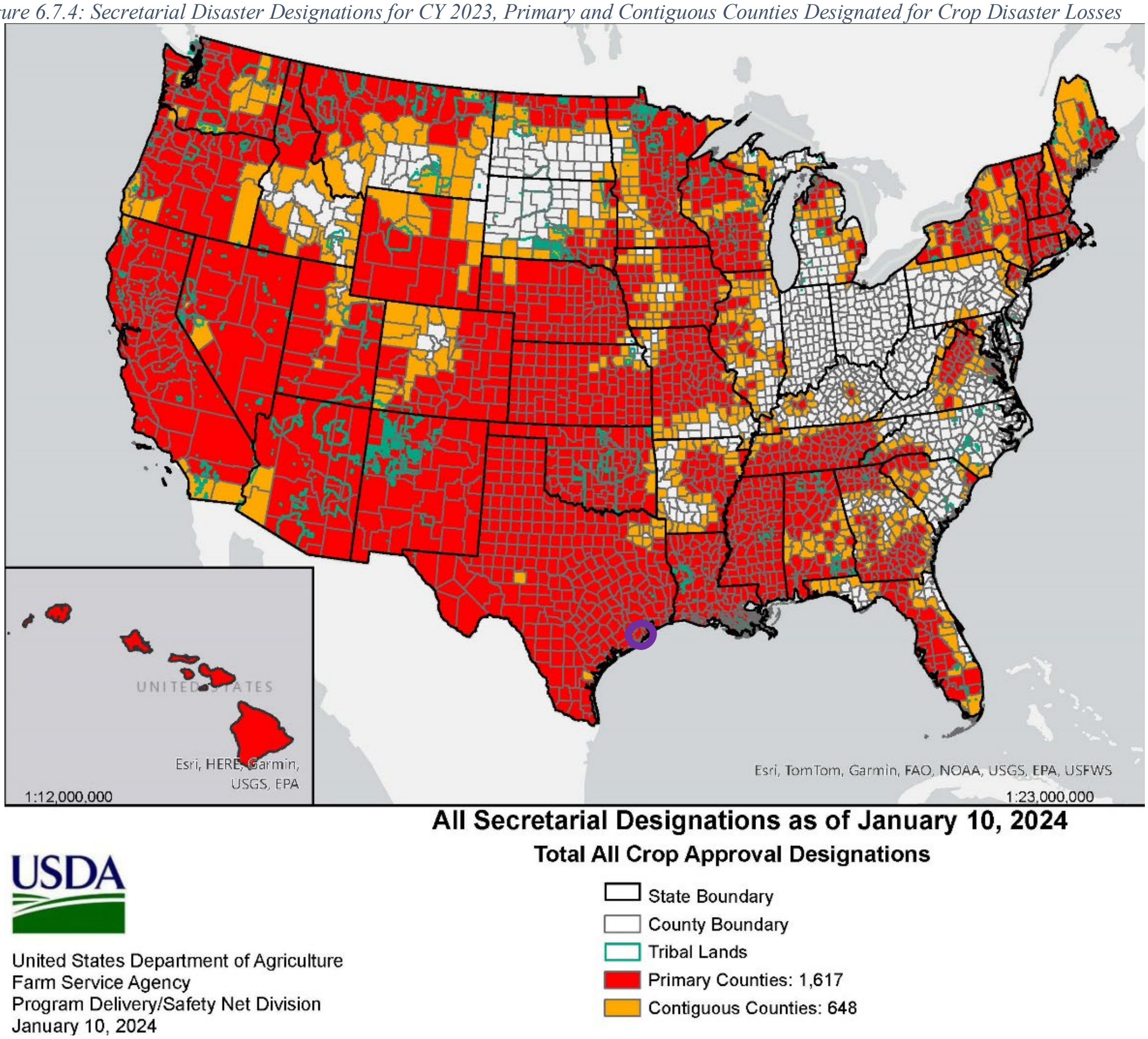
Table 6.7.4: USDA Declared Disasters (2018-2023), Drought

Crop Disaster Year	Disaster Description	Designation Number
2020	Drought-FAST TRACK	S4654
2020	Drought-FAST TRACK	S4669
2021	Drought-FAST TRACK	S4932
2022	Drought-FAST TRACK	S5188
2022	Drought-FAST TRACK	S5197

2022	Drought-FAST TRACK	S5209
2022	Drought-FAST TRACK	S5214
2023	Drought-FAST TRACK	S5499

Figure 6.7.4 below displays counties declared primary (red) or contiguous (orange) disaster counties, where producers may be eligible for emergency aid. Brazoria is listed as a primary county for CY 2023 and is outlined in purple.

Figure 6.7.4: Secretarial Disaster Designations for CY 2023, Primary and Contiguous Counties Designated for Crop Disaster Losses



Historic occurrences of expansive soils and related damages are not currently tracked or documented in any dataset from local, state, or national levels. Damages to homeowners and business owners are typically shouldered by the individuals when they are discovered. Though the effects and extent of expansive soils have been studied over a great period, there is no system in place and no future tracking method for these damages or associated costs. Thus, there is no way to quantify or show historic occurrences of this hazard.

Probability of Future Occurrences

Droughts are more likely to occur in summer months when temperatures are higher, and precipitation is less frequent. according to the FEMA NRI for drought, annualized frequency values for drought are 22.3 events per year over a 22-year period of record (2000-2021).[42] There have been 770 reports of drought for the county during this period of record. Impacts from expansive soils are directly associated with both drought and flooding hazards. The probability of future occurrences of drought can be found above in this hazard profile. The flooding hazard profile can be found in section 6.2.

Populations at Risk

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions.

The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year. The CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards) and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions) into the NRI. The outcome, the risk index, represents the potential negative impacts of natural hazards. The NRI EAL score, and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[42]

Populations most at risk, or that may be disproportionately affected by drought impacts according to the National Integrated Drought Information System are people with chronic health conditions or respiratory illnesses, people with compromised immune systems, and people with mental health or mood disorders. Drought impacts on public health include changes in air quality, changes in water quality and quantity, increased incidence of illness and disease, and mental health effects. Air quality can decrease during drought events because of dust storms or wildfires. Particulates in the air irritate the lungs and bronchial passages and exacerbate chronic respiratory conditions. Drought conditions can also put those with compromised immune systems at risk as drought conditions can change how often and where certain diseases occur. Mosquitoes that carry West Nile virus can move to new locations when water bodies become stagnant and create new breeding grounds. There is also a higher risk for contracting a lung infection called Valley Fever, caused by a fungus in the soil, in dry and dusty soil conditions. Complex relationships between drought and its associated economic consequences can increase mood disorders, domestic violence, and suicide.[88]

EAL Exposure Values and EAL Values for Brazoria County for drought can be found below.

Table 6.7.5: Expected Annual Loss Exposure Values, Drought

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agricultural Value ($)	EAL Total ($)
Drought	N/A	N/A	$44,293,143	$44,293,143

N/A- Not Applicable

Table 6.7.6: Expected Annual Loss Values, Drought

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agriculture Value
Drought	N/A	N/A	$305,509

N/A- Not Applicable

Expansive soils are not included in the NRI. However, businesses and residents can be impacted by expensive financial costs to repair foundations and water lines for public facilities. School districts, homeowners, and business owners could also be impacted by broken pipes, cracked foundations, and other structural costly repairs caused by expanding and contracting soils. Pipes in critical facilities may also lead to a loss of service, or damaged roads/bridges can increase response time for emergency personnel. While newer buildings can be impacted; older buildings including critical facilities and homes are more likely to be impacted due to older buildings being exposed to numerous weather events and seasons, having building standards that do not take expansive soils into account, and the lack of engineering solutions to mitigate expansive soils used in the past.

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for drought events for these census tracts is listed as relatively low, with two tract rating relatively moderate and one with no rating. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below.[44] Additionally, the FEMA NRI lists the HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for drought within Brazoria County is listed as very low.[44]

Figure 6.7.5: Risk Index by Census Tract, Drought

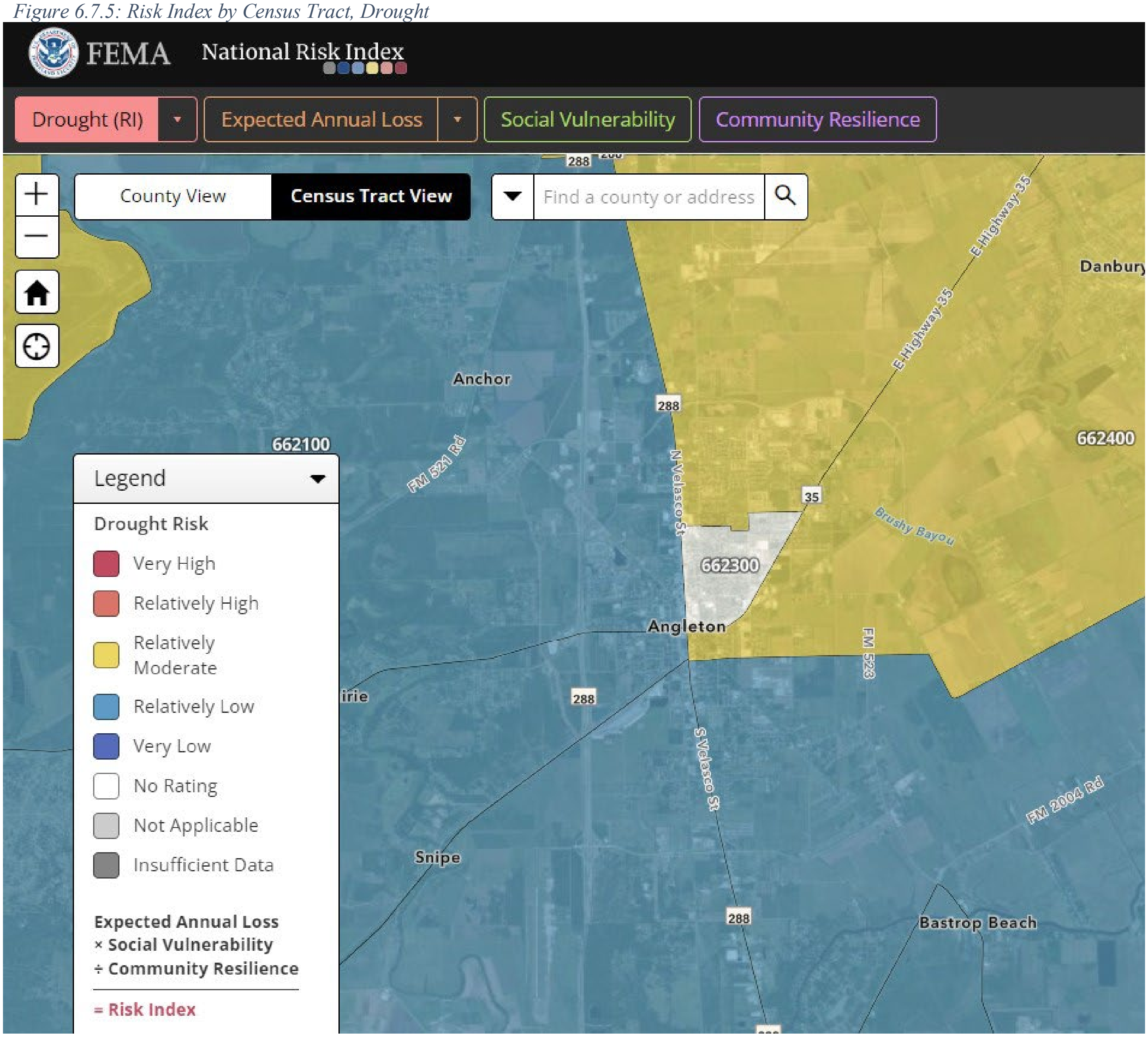


Figure 6.7.6: Social Vulnerability by Census Tract, City of Angleton

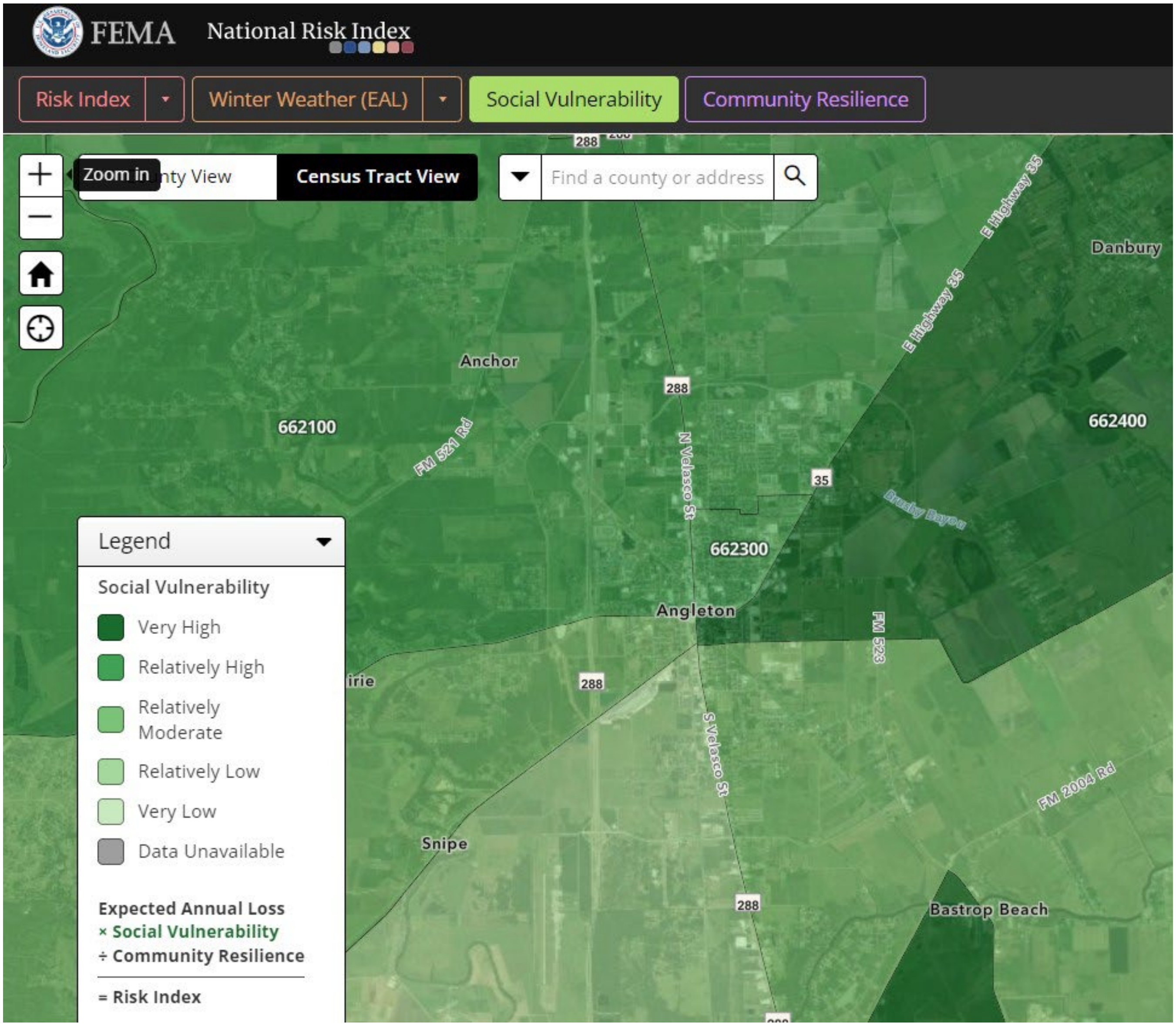


Figure 6.7.7: Community Resilience by Census Tract, City of Angleton

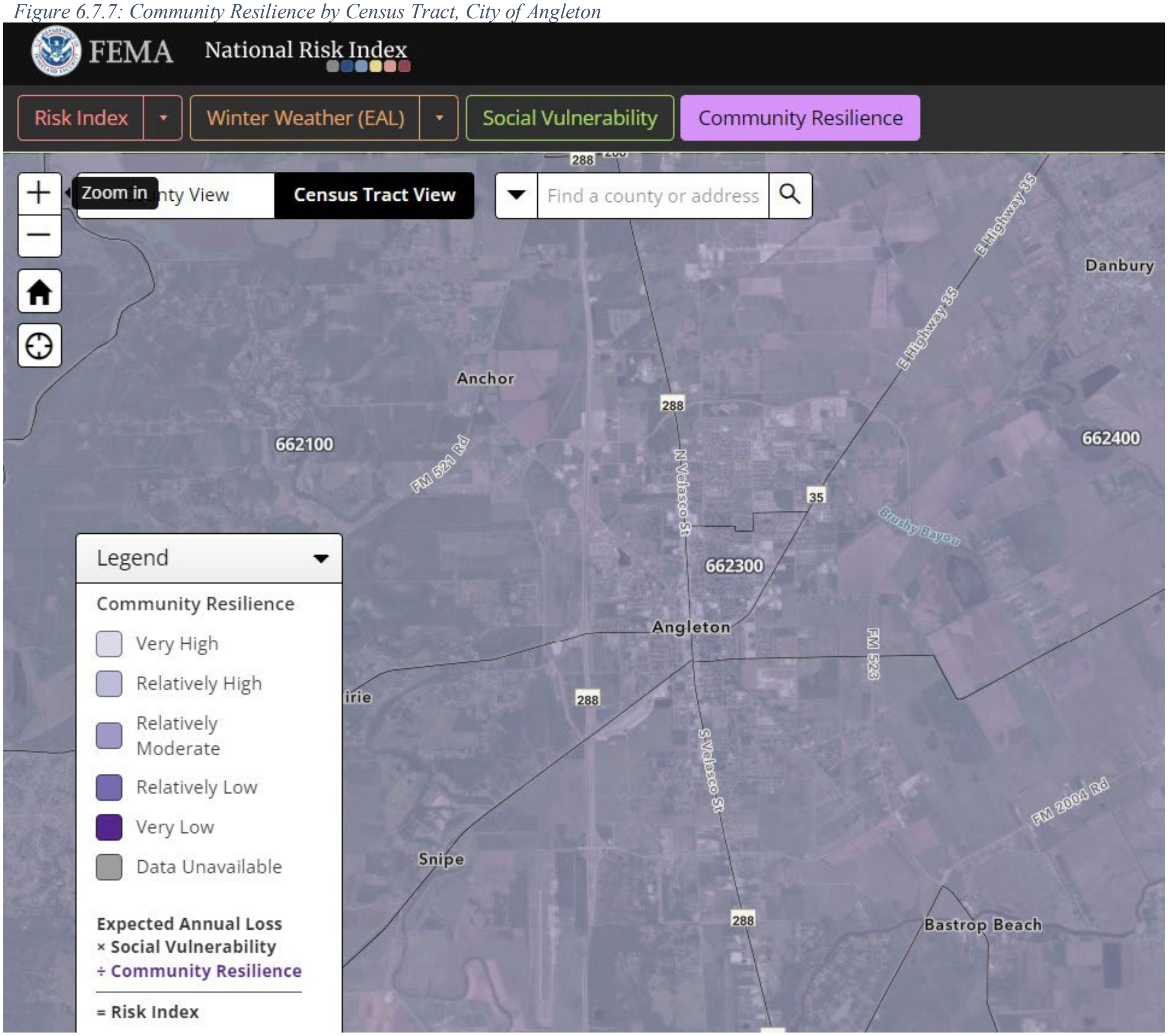


Figure 6.7.8: FEMA NRI Summary, Drought

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039662400	TX	Relatively Moderate	94.82	0 100
2	Census tract 48039662200	TX	Relatively Moderate	94.81	0 100
3	Census tract 48039663100	TX	Relatively Low	90.6	0 100
4	Census tract 48039662100	TX	Relatively Low	88.91	0 100
5	Census tract 48039664100	TX	Relatively Low	87.92	0 100
6	Census tract 48039662500	TX	Relatively Low	86.45	0 100
	Census tract 48039662300	TX	No Rating	0	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039662400	TX	$19,096	Very High	Relatively Moderate	1.43	$27,400	94.82
2	Census tract 48039662200	TX	$20,340	Relatively High	Relatively Moderate	1.34	$27,206	94.81
3	Census tract 48039663100	TX	$6,833	Relatively Low	Relatively Moderate	1	$6,839	90.6
4	Census tract 48039662100	TX	$3,455	Relatively High	Relatively Moderate	1.22	$4,228	88.91
5	Census tract 48039664100	TX	$3,030	Relatively Moderate	Relatively Moderate	1.05	$3,175	87.92
6	Census tract 48039662500	TX	$1,856	Relatively Moderate	Relatively Moderate	1.12	$2,072	86.45
	Census tract 48039662300	TX	$0	Relatively High	Relatively Moderate	1.38	$0	0

Climate Change Impacts

According to the Office of the Texas State Climatologist, it is impossible to make a quantitative statewide projection of drought trends. However, most factors at play point to an increase in drought severity.[58] It can be inferred that the impacts of climate change on expansive soils will grow as drought and flooding risks and associated impacts become more prevalent.

Table 6.7.7: Climate Change Impacts, Drought & Expansive Soils

Location	The location of droughts and expansive soils is not expected to change.
Extent/Intensity	The extent and intensity of drought and associated risks from expansive soils within the county may change (increase) due to increased precipitation and stronger storms which can lead to an increase in flooding events and rising surface temperatures, heat events, and increases in drought severity.
Frequency	There are no clear trends in drought frequency due to considerable variability in conditions that lead to droughts. Since expansive soils pose the most risk during periods of drought and flooding, and there is no way to data to track losses due to expansive soils, the frequency of expansive soil impacts also shows no clear trends.
Duration	The duration of drought events is not likely to change, however the intensity of droughts is expected to increase.

Section 6.8: Severe Thunderstorms & Lightning

6.8 Severe Thunderstorm & Lightning

The NWS defines a thunderstorm as "A local storm produced by a cumulonimbus cloud and accompanied by lightning and thunder." A severe thunderstorm is defined as "A thunderstorm that produces a tornado, winds of at least 58 mph (50 knots), and/or hail at least 1" in diameter. Structural wind damage may imply the occurrence of a severe thunderstorm. A thunderstorm wind equal to or greater than 40 mph (35 knots) and/or hail of at least 1" is defined as approaching severe."[89] Thunderstorms form when certain factors are present. These are moisture, instability, lifting, and in the case of severe thunderstorms wind shear. The difference between thunderstorms and severe thunderstorm formation resides in the wind field or wind sheer.[90] There are different types of thunderstorms with varying characteristics and degrees of severity.[91] Descriptions of these can be found in Table 6.3.1.

Table 6.8.1: Types of Thunderstorms

Type of Thunderstorm	Description
Ordinary Cell (Pulse Thunderstorm)	A one-time updraft and one-time downdraft. The rising updraft will suspend growing raindrops until the point where the weight of the water is greater than what can be supported. Drag between the air and the falling drops begins to diminish the updraft, which allows more raindrops to fall. While hail and gusty wind can develop, these occurrences are typically not severe. However, if atmospheric conditions are right and the ordinary cell is strong enough, more than one cell can potentially form and can include microburst winds (usually less than 70 mph/112 km/h) and weak tornadoes.
Multi-Cell Cluster	A thunderstorm with numerous cells in various stages of development merging together. While each individual thunderstorm cell in a multi-cell cluster behaves as a single cell, the prevailing atmospheric conditions are such that as the first cell matures, it is carried downstream by the upper-level winds, with a new cell forming upwind of the previous cell to take its place. Sometimes the atmospheric conditions encourage vigorous new cell growth – they form so fast that each new cell develops further and further upstream. Tremendous rainfall amounts can be produced over very small areas by back-building thunderstorms.
Multi-cell Line (Squall Line)	Thunderstorms that form in a line and can extend laterally for hundreds of miles. These "squall lines" can persist for many hours and produce damaging winds and hail. Updrafts, and therefore new cells, continually re-form at the leading edge of the system, with rain and hail following behind. Individual thunderstorm updrafts and downdrafts along the line can become quite strong, resulting in episodes of large hail and strong outflow winds that move rapidly ahead of the system. While the leading edge of squall lines occasionally form tornadoes, they primarily produce "straight-line" wind damage, a result of the force of the downdraft spreading horizontally as it reaches the Earth's surface.
Supercell Thunderstorms	Supercell thunderstorms are a special kind of single cell thunderstorm that can persist for many hours. They are responsible for nearly all of the significant tornadoes produced in the U.S. and for most of the hailstones larger than golf ball size. Supercells are also known to produce extreme winds and flash flooding.

Lightning is defined by NWS as "A visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground, or between the ground and a cloud."[92] Lightning accompanies all thunderstorms and poses a threat to lives and property. While the odds of being struck by lightning are relatively low (1/1,222,000)[93], lightning kills about 20 people per year while hundreds more are injured or suffer lifelong neurological damage.[94] There are different types of lightning with varying characteristics. Most lighting starts within a thunderstorm and travels through the cloud.[95] Descriptions of these can be found in Table 6.8.2.

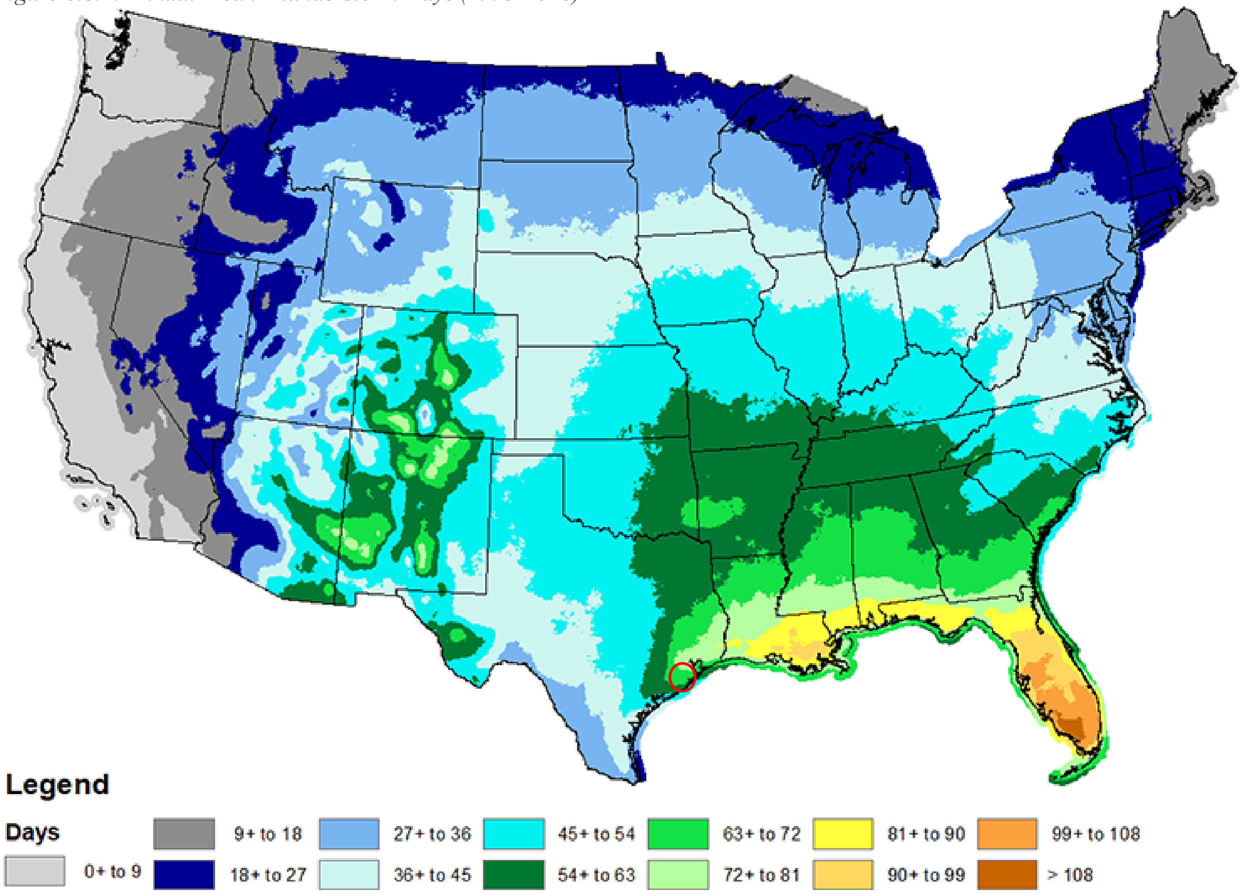
Table 6.8.2: Types of Lightning

Type of Lightning	Description
Cloud-to-Ground Flashes (Cloud-to-Ground Lightning)	A channel of negative charge, called a stepped leader, will zigzag downward in roughly 50-yard segments in a forked pattern. This stepped leader is invisible to the human eye, and shoots to the ground in less time than it takes to blink. As it nears the ground, the negatively charged stepped leader causes streamer channels of positive charge to reach upward, normally from taller objects in the area, such as a tree, house, or telephone pole. When the oppositely charged leader and streamer connect, a powerful electrical current begins flowing. This return stroke current of bright luminosity travels about 60,000 miles per second back towards the cloud.
	A "**bolt from the blue**" is Cloud-to-Ground lightning which starts inside a cloud, goes out the side of the storm, then travels horizontally away from the cloud before going to ground. A bolt from the blue can strike ground at a spot with "blue sky" above it. *Even a storm that is 6 miles away can be dangerous.*
Cloud Flashes (Intra-Cloud Lightning)	Many flashes of lightning within a cloud that do not reach the ground. Cloud flashes sometimes have visible channels that extend out into the air around the storm

Location

Thunderstorms, and the accompanying lightning, are not confined to any geographic boundaries. These hazards can happen anywhere, during any time of the year. However, typically thunderstorms will occur in warmer months such as Summer and Spring, and during the warmest parts of the day. Figure 6.8.1 shows the average number of thunderstorm days each year throughout the U.S. (defined as two lightning flashes within 10 nautical miles (nmi) radius). The most frequent occurrence is in the southeastern states due to warm, moist air from the Gulf of Mexico and Atlantic Ocean are readily available to fuel atmospheric conditions that produce thunderstorms. The City of Angleton is in an area that can see anywhere from 63-72 thunderstorm days per year as indicated by the red circled area on the figure below.[96]

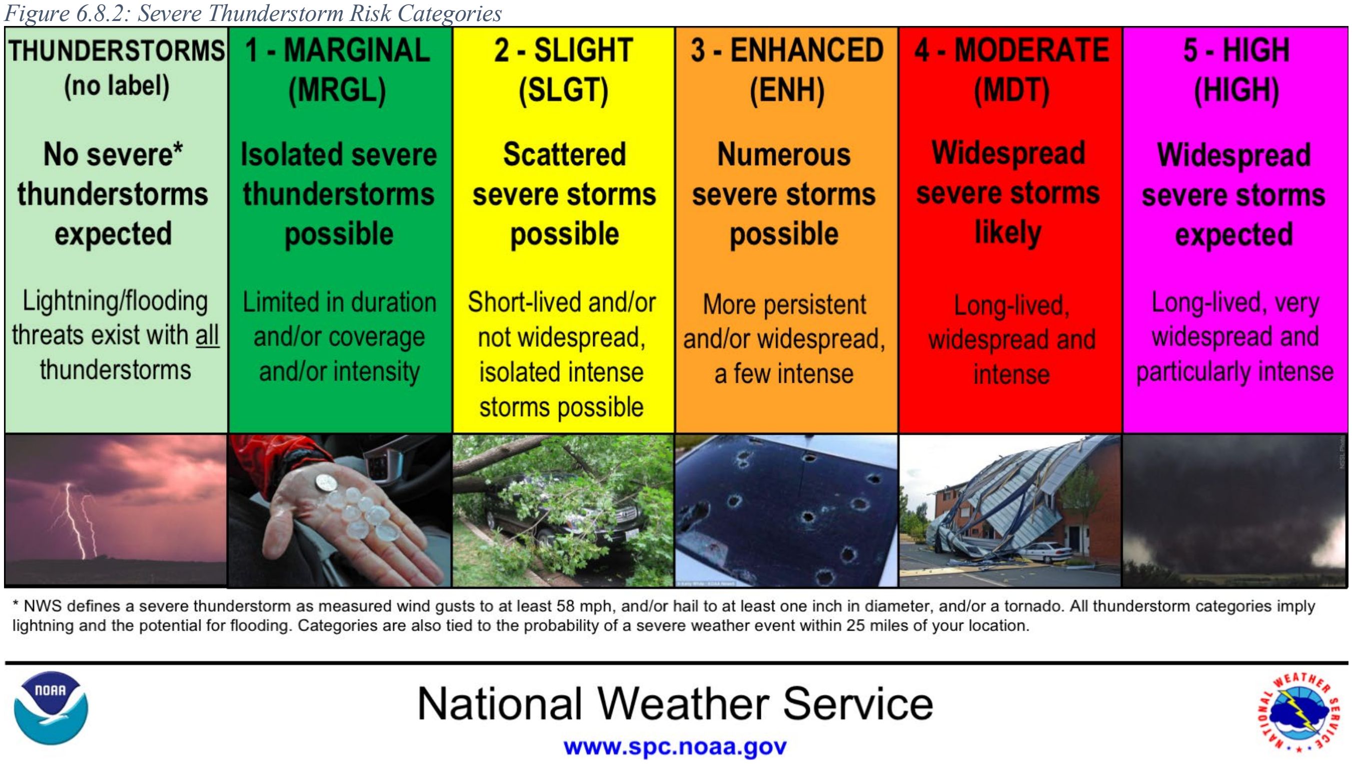
Figure 6.8.1: Annual Mean Thunderstorm Days (1993-2018)



Extent

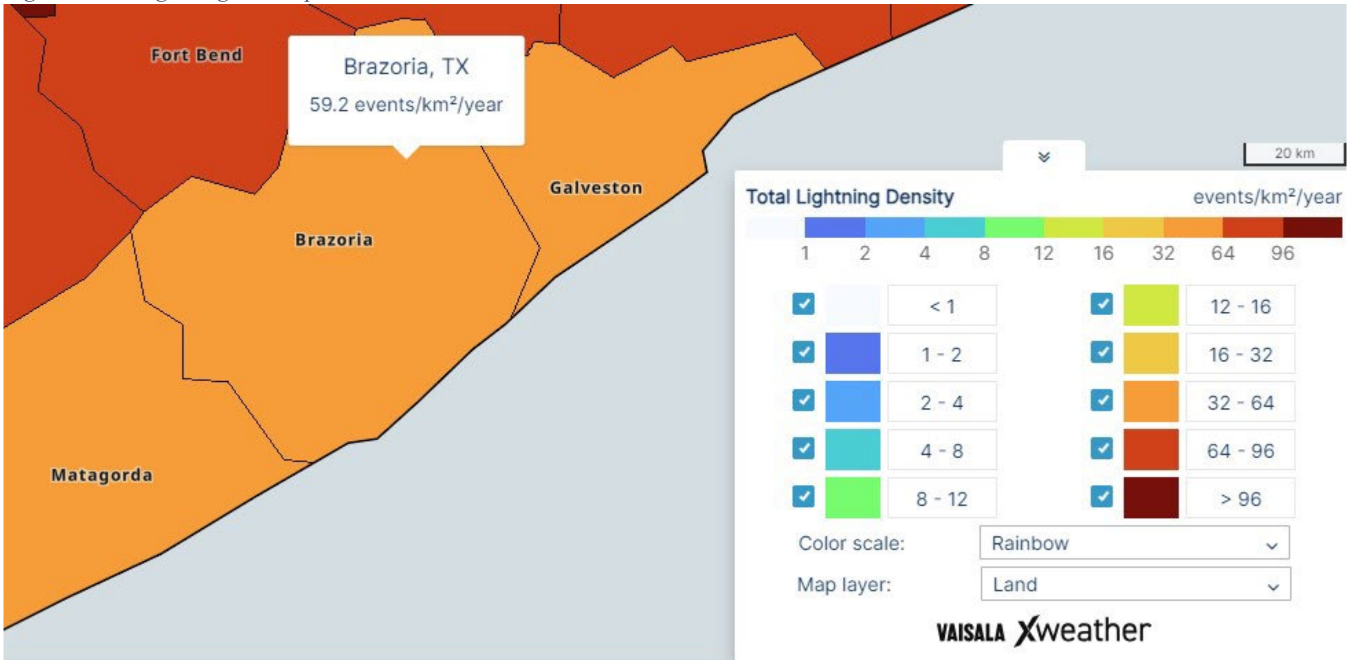
Thunderstorm intensity can be measured by NWS and the Storm Prediction Center (SPC) of the NWS risk categories. The SPC issues Convective Outlooks that depict non-severe thunderstorm areas and severe thunderstorm threats across the contiguous United States, along with a text narrative. The categorical forecast specifies the level of the overall severe weather threat via numbers, descriptive labeling, and colors, as seen in the figure below. The probabilistic forecast directly expresses the best estimate of a severe weather event occurring within 25 miles of a given point.[97]

Figure 6.8.2: Severe Thunderstorm Risk Categories



The National Lightning Detection Network (NLDN) consists of over 100 remote, ground-based sensing stations located across the United States that instantaneously detect the electromagnetic signals given off when lightning strikes the earth's surface. These remote sensors send the raw data via a satellite-based communications network to the Network Control Center (NCC) operated by Vaisala Inc. in Tucson, Arizona. Within seconds of a lightning strike, the NCC's central analyzers process information on the location, time, polarity, and communicated to users across the country. Through a partnership with Vaisala and cooperative effort with the U.S. Air Force 14th Weather Squadron, summarized daily files from 1986 to present are archived at the NOAA NCEI. Through a contract with Vaisala, the raw data from NCEI is available only to government and military users. [98] Through use of Vaisala's Interactive Global Lightning Density Map, Figure 6.8.3 shows the average number of lightning events per km2 per year for the Brazoria County. This interactive map utilizes data from 2016 to 2022.[99]

Figure 6.8.3: Lightning Events per Year



Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the NCEI Storm Events Database. These events are shown at the county level with some referencing a specific location, city, or zone. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. There are 198 events listed in the Storm Events Database for thunderstorm and lightning. The table below highlights a condensed version of events for this hazard that have occurred within Brazoria County from 2018-2023. Events that occurred within the City of Angleton are highlighted in purple.[38]

Table 6.8.3: City of Angleton Severe Thunderstorm and Lightning Events (2018-2023)

Date	Location	Event Type	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Wind Speed (knots)
3/29/2018	Brazoria	Thunderstorm Wind	0	0	$1,000	$-	51
3/29/2018	Sweeny	Thunderstorm Wind	0	0	$-	$-	52
3/29/2018	Alvin	Thunderstorm Wind	0	0	$-	$500	50
5/26/2018	Iowa Colony	Thunderstorm Wind	0	0	$3,000	$3,000	56
5/26/2018	Bonney	Thunderstorm Wind	0	0	$15,000	$0	58
5/26/2018	Angleton	Thunderstorm Wind	0	0	$-	$-	52
5/26/2018	Van Pelt	Thunderstorm Wind	0	0	$-	$-	51
10/31/2018	Alvin	Thunderstorm Wind	0	0	$-	$-	50
4/7/2019	Oyster Creek	Thunderstorm Wind	0	0	$7,000	$3,000	51
5/4/2019	Pearland	Thunderstorm Wind	0	0	$-	$2,000	52
8/14/2019	Iowa Colony	Lightning	0	0	$-	$-	ND
1/11/2020	Pearland	Thunderstorm Wind	0	0	$3,000	$-	52
5/16/2020	Pearland	Thunderstorm Wind	0	0	$2,000	$2,000	53
1/6/2021	Manvel	Thunderstorm Wind	0	0	$-	$-	50
5/18/2021	Angleton	Thunderstorm Wind	0	0	$-	$-	50

5/28/2021	Alvin	Thunderstorm Wind	0	0	$-	$-	50
12/18/2021	Pearland Arpt	Thunderstorm Wind	0	0	$-	$-	52
3/22/2022	Old Brazoria	Thunderstorm Wind	0	0	$20,000	$-	50
5/25/2022	Iowa Colony	Thunderstorm Wind	0	0	$-	$-	50
6/21/2023	Hastings	Thunderstorm Wind	0	0	$-	$-	50

Rows highlighted in purple are events that reference the City of Angleton within the event narrative or event location (beginning or end).
$- No dollar amount ($0.00).
ND- No Data

Presidential Disaster Declarations

There have been 6 disaster declarations for severe storms within Brazoria County, in which the City of Angleton is located, as depicted in the table below. There were 0 disaster declarations for lightning.[1]

Table 6.8.4: Federal Disaster Declarations, Severe Thunderstorm

Declaration Date	Incident Type	Title	Disaster Number	Declaration Type
4/12/1991	Severe Storm	Severe Storms, Tornadoes & Flooding	900	Major Disaster Declaration
8/26/1998	Severe Storm	Tropical Storm Charley	1239	Major Disaster Declaration
9/23/1998	Severe Storm	Hurricane Georges- Texas	1245	Major Disaster Declaration
11/5/2002	Severe Storm	Severe Storms, Tornadoes & Flooding	1439	Major Disaster Declaration
5/29/2015	Severe Storm	Severe storms, tornadoes, straight-line winds, and flooding	4223	Major Disaster Declaration
11/25/2015	Severe Storm	Severe storms, tornadoes, straight-line winds, and flooding	4245	Major Disaster Declaration

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for Brazoria County since 2018 are listed in the table below. These declarations included USDA declarations for excessive rain. There were no USDA disaster declaration categorized under severe storms or thunderstorms.[39]

Table 6.8.5: USDA Declared Disasters (2018-2023), Severe Thunderstorm and Lightning

Crop Disaster Year	Disaster Description	Designation Number
2019	Excessive moisture and flooding	S4534
2021	Excessive moisture and excessive rainfall	S5052
2021	Excessive moisture and excessive rainfall	S5053
2021	Excessive Moisture	S5088
2021	Excessive Moisture	S5089

Probability of Future Occurrences

Severe thunderstorms and lightning are more likely to occur in summer months when temperatures are higher and moisture from the gulf helps to fuel thunderstorm development. According to the FEMA NRI for lightning, annualized frequency values for lightning in Brazoria County are 80.2 events per year over a 22-year period of record (1991-2012), with 1,590 events on record for this timeframe. Severe thunderstorm is not included in the FEMA NRI.[42]

Populations at Risk

Populations at risk for severe thunderstorms and lightning include similar groups to those listed under Section 6.1 as hurricanes, tropical storms, and tropical depressions can bring some of the same hazards to vulnerable populations. Severe storms and lightning can cause property damage, flooding, lack of access to critical facilities that provide food, water, medications, or other forms of medical assistance, and lack of utilities such as electricity and clean water, which can increase the risk of illness. According to the NCHH, those at a greater risk from these hazards include older adults, children, people experiencing homelessness, people with disabilities, and people with chronic health conditions. Older adults, in addition to the dangers listed above, can also face social isolation, lack of electricity needed to run medical equipment, and lack of access to other critical supplies. In younger populations, such as children, severe storms can disrupt schooling via power outages, the need to shelter in place during the school-day, or even necessary evacuation or early-release days due to inclement weather. This can not only jeopardize their academic success, but it can also cause mental and emotional stress, as well as add stress to adults who work full-time and rely on schooling during normal work hours to keep children occupied and safe. Children are more vulnerable to certain medical conditions like asthma, lead poisoning, allergies, and bacterial infections which can be caused by the resulting flood damage and increased moisture of severe storms. For people experiencing homelessness, housing and adequate shelter are critical in keeping populations safe during these types of hazard events. People with disabilities may require additional assistance to stay safe and prepare for these hazards such as creating a support network, finding accessible transportation to evacuate or get medical attention, and loss of power for needed medical equipment. Likewise, those with chronic health conditions may need similar assistance as those with disabilities. People with chronic health conditions also face exposure to diseases or illnesses from standing water and increased exposure to these illnesses when utilizing a shelter or evacuation centers due to power outages or the resulting flooding. People living in mobile homes are also at greater risk of injury and death from these hazards. Despite mobile homes providing a form of shelter, severe storms are the catalyst for strong winds and tornadoes. Dangerous winds can cause mobile homes and even mobile homes that utilize anchoring to be seriously damaged or destroyed when winds gust over 80 mph.[69]

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions. The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year. The CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards) and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions) into the NRI. The outcome, the risk index, represents the potential negative impacts of natural hazards. The NRI EAL score, and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[42]

EAL Exposure Values and EAL Values for Brazoria County can be found in the tables below. The FEMA NRI does not include severe storms in its analysis, lightning is included in the tables below.

Table 6.8.6: Expected Annual Loss Exposure Values, Lightning

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agricultural Value ($)	EAL Total ($)
Lightning	$57,514,822,174	$4,309,098,400,000 / 371,474.00	$6,997,533	$4,366,613,222,174

Table 6.8.7: Expected Annual Loss Values, Lightning

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agriculture Value
Lightning	$52,101	$2,076,681 / 0.18	N/A

N/A- Not Applicable

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for lightning events for these census tracts is listed as relatively high, with two tracts rating very high. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below.[44] Additionally, the FEMA NRI lists the HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for lightning within Brazoria County is listed as relatively low.[42]

Figure 6.8.4: Risk Index by Census Tract, Lightning

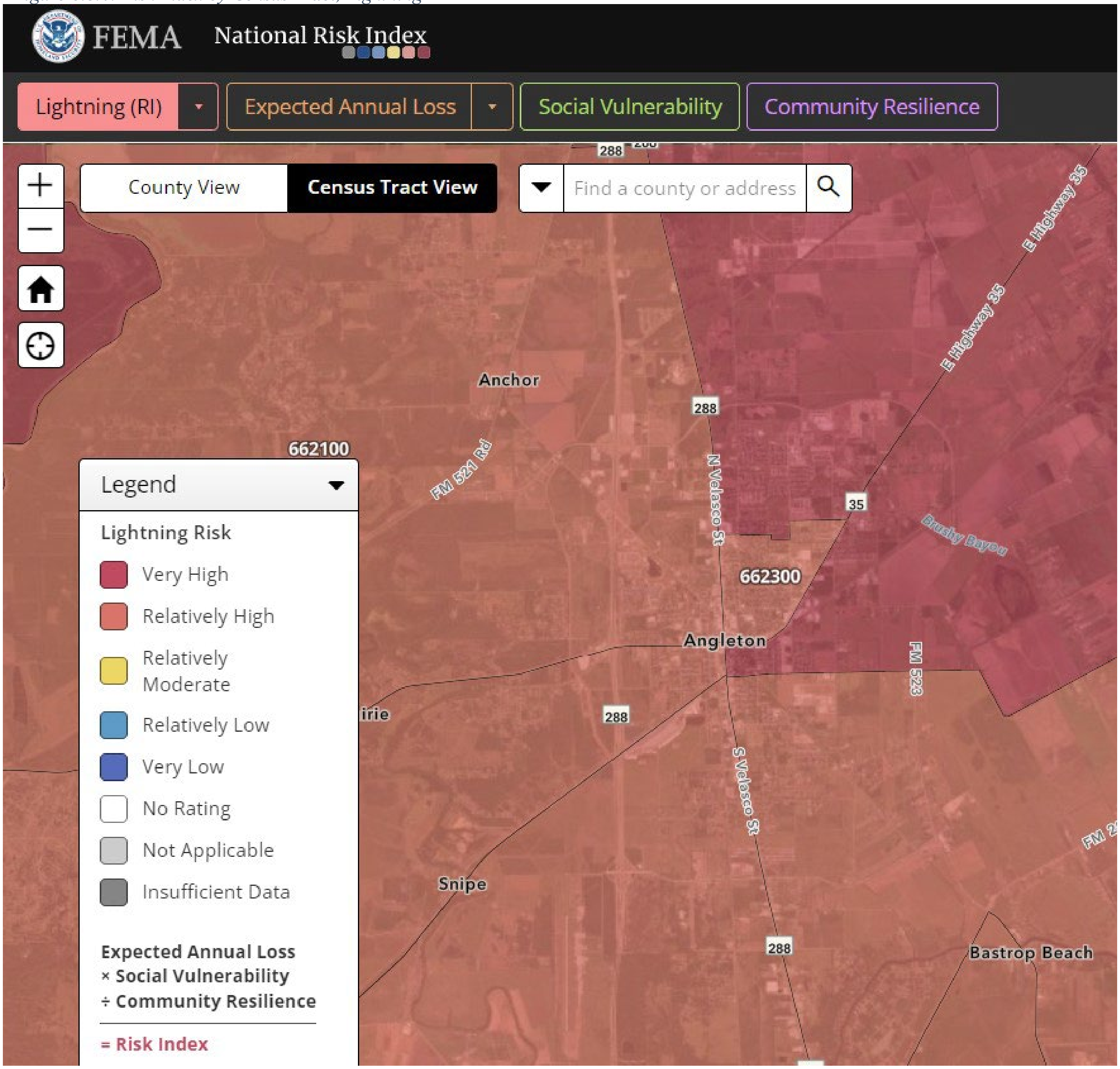


Figure 6.8.5: Social Vulnerability by Census Tract, City of Angleton

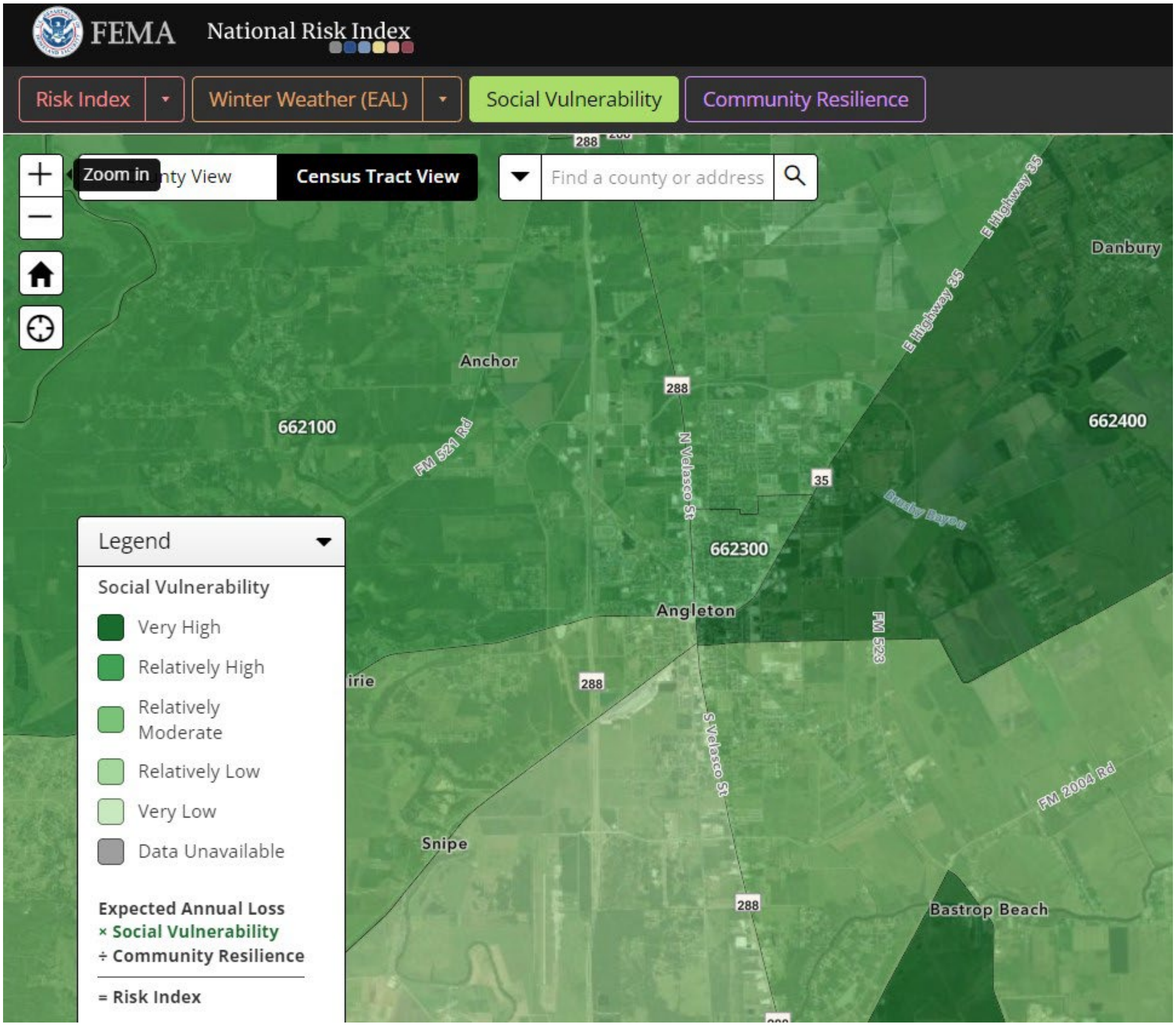


Figure 6.8.6: Community Resilience by Census Tract, City of Angleton

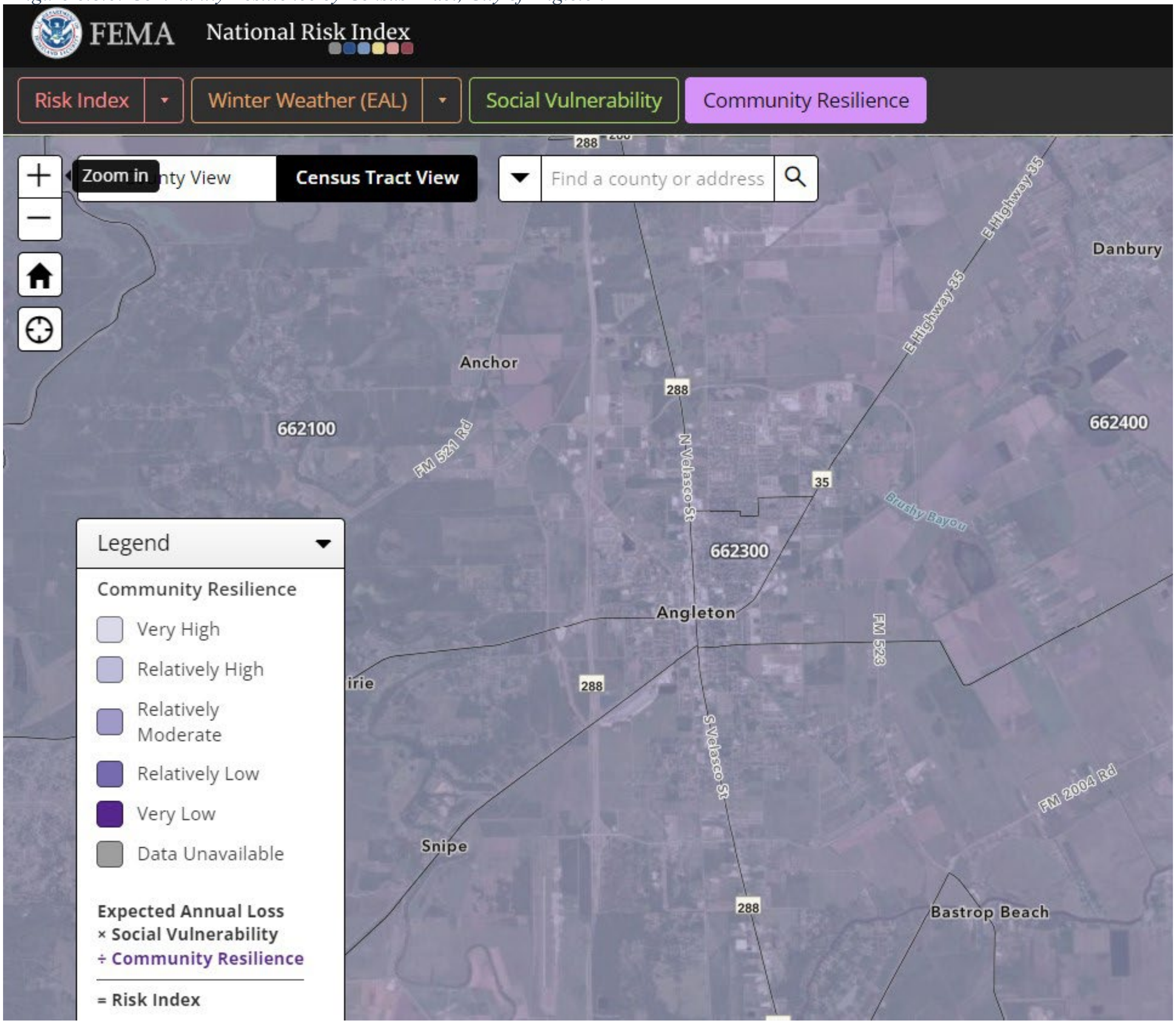


Figure 6.8.7: FEMA NRI Summary, Lightning

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039662200	TX	Very High	95.22	0 100
2	Census tract 48039662400	TX	Very High	94.59	0 100
3	Census tract 48039662100	TX	Relatively High	93.43	0 100
4	Census tract 48039664100	TX	Relatively High	91.13	0 100
5	Census tract 48039663100	TX	Relatively High	90.49	0 100
6	Census tract 48039662300	TX	Relatively High	89.72	0 100
7	Census tract 48039662500	TX	Relatively High	77.54	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039662200	TX	$30,018	Relatively High	Relatively Moderate	1.34	$40,152	95.22
2	Census tract 48039662400	TX	$26,441	Very High	Relatively Moderate	1.43	$37,939	94.59
3	Census tract 48039662100	TX	$28,243	Relatively High	Relatively Moderate	1.22	$34,559	93.43
4	Census tract 48039664100	TX	$28,218	Relatively Moderate	Relatively Moderate	1.05	$29,571	91.13
5	Census tract 48039663100	TX	$28,448	Relatively Low	Relatively Moderate	1	$28,471	90.49
6	Census tract 48039662300	TX	$19,807	Relatively High	Relatively Moderate	1.38	$27,298	89.72
7	Census tract 48039662500	TX	$14,173	Relatively Moderate	Relatively Moderate	1.12	$15,828	77.54

Climate Change Impacts

According to the Office of the Texas State Climatologist, the climate data record for severe thunderstorms is poor, and severe thunderstorms are too small to be simulated directly by present-day climate models. Over the past few decades, the severe storm environment over Texas has changed in complex and opposing ways. The amount of energy available for convection has decreased, and the amount of energy needed to initiate convection has increased at the same time. This suggests that environmental conditions have become less favorable for the occurrence of thunderstorms. However, the amount of low-level shear has increased, which would be expected to make thunderstorms more likely to become severe once they develop.

Changes in severe storm environments have not been uniform throughout the year, with environments becoming more favorable for severe thunderstorms and significant hail in Texas early in the spring and less favorable later in the spring. Lightning occurs most often during the months of May and June. Climate model simulations imply different prospects going forward. As temperatures increase, the amount of energy available to fuel these storms is simulated to increase as temperature and low-level moisture increase. This results in an overall increase in the number of days capable of producing severe thunderstorms. With these complex trends and partially contradictory information between models and observations, there is low confidence in any ongoing trend in the overall frequency and severity of severe thunderstorms.[43]

Table 6.8.8: Climate Change Impacts, Severe Thunderstorm and Lightning

Location	The location of severe thunderstorms and lightning is not expected to change.
Extent/Intensity	The extent and intensity of severe thunderstorms and lightning within the county may change (increase) due to increased temperatures and energy available to fuel severe thunderstorm development and the accompanying lightning.
Frequency	There are no clear trends in severe thunderstorms and lightning frequency due to considerable variability in conditions that lead to them occurring. However, these hazards occur most frequently in warmer months, around May and June.
Duration	The duration of severe thunderstorms and lightning events is not likely to change, however the intensity of them is expected to increase due to rising temperatures and the proximity of the County to the Gulf of Mexico.

Section 6.9: Hail

6.9 Hail

NOAA's National Severe Storms Laboratory (NSSL) defines hail as "A form of precipitation consisting of solid ice that forms inside thunderstorm updrafts. Hail can damage aircraft, homes and cars, and can be deadly to livestock and people."[100] Hail varieties are determined by how they grow and the maximum size. These differentiating frozen precipitations and their definitions from NOAA's NSSL can be seen in the table below.[101]

Table 6.9.1: Types of Frozen Precipitation

Frozen Precipitation Type	Description
Snow	forms mainly when water vapor turns to ice without going through the liquid stage. This process is called deposition. Snow can form in the gentle updrafts of stratus clouds or at high altitudes in very cold regions of a thunderstorm.
Graupel	soft, small pellets formed when supercooled water droplets (at a temperature below 32°F) freeze onto a snow crystal, a process called riming. If the riming is particularly intense, the rimed snow crystal can grow to an appreciable size but remain less than 0.2 inches. Graupel is also called snow pellets or soft hail, as the graupel particles are particularly fragile and generally disintegrate when handled.
Sleet	small ice particles that form from the freezing of liquid water drops, such as raindrops. At ground level, sleet is only common during winter storms when snow melts as it falls, and the resulting water refreezes into sleet prior to hitting the ground. In thunderstorms, sleet is possible above the melting level where cloud droplets become supercooled and may instantaneously freeze when making contact with other cloud particles or debris, such as dust particles. Sleet is also called ice pellets.
Hail	frozen precipitation that can grow to very large sizes through the collection of water that freezes onto the hailstone's surface. Hailstones begin as embryos, which include graupel or sleet, and then grow in size. Hailstones can have a variety of shapes and include lumps and bumps that may even take the shape of small spikes. Hailstones must be at least 0.2 inches in size.

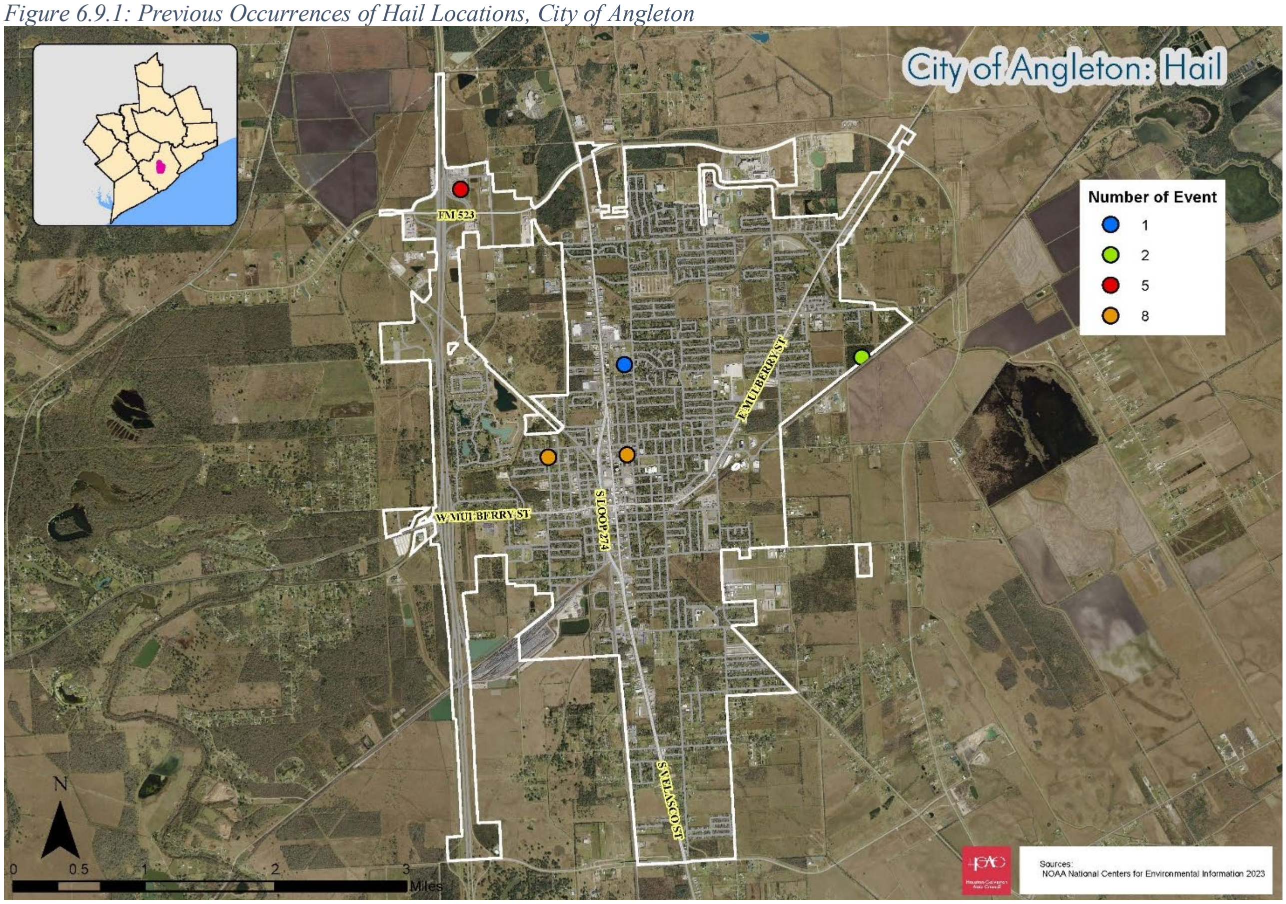
When forecasting for hail, forecasters look for deep moist convection, in addition to adequate updraft to keep the hailstone aloft for an appropriate amount of time, sufficient supercooled water near the hailstone to enable growth as it travels through an updraft, and a piece of ice, snow or dust for it to grow upon. There is no clear distinction between storms that do and do not produce hailstones. Nearly all severe thunderstorms probably produce hail aloft, though it may melt before reaching the ground.

Multi-cell thunderstorms can produce many small hailstones that are relatively short-lived and do not grow. In contrast, supercell thunderstorms have sustained updrafts that support large hail formation by repeatedly lifting the hailstones into the very cold air at the top of the thunderstorm cloud where they can accumulate more layers of ice. In general, hail 2 inches or larger in diameter is associated with supercells. Hail falls to the ground when the thunderstorm's updraft can no longer support the weight of the ice. The stronger the updraft, the larger the hailstone can grow. Additionally, large hail often appears near the area within a thunderstorm where tornadoes are most likely to form[102]

Location

Similar to the Severe Thunderstorms & Lightning (Section 6.8) hazard profile, and the Tornado (Section 6.4) hazard profile, hail is not confined to any geographic boundaries and can occur if the right conditions are present within a thunderstorm, such as a supercell with a strong updraft. The entire county is at risk for this hazard. Thunderstorms and hail can happen at any time of the year. Typically, they occur most in warmer months such as Summer and Spring, and during the warmest parts of the day. Warm, moist air from the Gulf of Mexico is readily available to help fuel atmospheric conditions that produce thunderstorms and the updrafts that bring hail and damaging winds associated with them. City of Angleton is in an area that can see anywhere from 54-81 thunderstorm days per year.[97] Figure 6.9.1 depicts the locations within the county where previous hails events have occurred.

Figure 6.9.1: Previous Occurrences of Hail Locations, City of Angleton



Extent

The NWS classifies a hailstorm as "severe" if there is hail 0.75 inches in diameter or greater. Hail threats are categorized from non-threatening to extreme with associated map colors to depict hazard levels, as seen in the table below. NWS also generalizes hail sizes as small (less than 0.75 inches in diameter), large (0.75-1.75 inches in diameter), very large (1.75-2.75 inches in diameter), and giant (hail larger than 2.75 inches).[103]

Table 6.9.2: Severe Hail Threat Levels and Descriptions

Severe Hail Threat Level	Map Color	Threat Level Descriptions
Extreme		**"An Extreme Threat to Life and Property from Severe Hail."** • Within 12 miles of a location, a moderate likelihood or greater (16% probability or greater) of severe hail, with storms capable of baseball to softball sized stones. *See diameter description below.* • A high likelihood or greater (26% probability or greater) of severe hail, with storms capable of golf ball to baseball sized hail stones. • Avery high likelihood (36% or greater) of severe hail, with storms capable of nickel to golf ball sized hail stones.
High		**"A High Threat to Life and Property from Severe Hail."** • Within 12 miles of a location, a low likelihood (6% to 15% probability) of severe hail, with storms capable of baseball to softball sized stones. • A moderate likelihood (16% to 25% probability) of very large hail (golf ball to baseball sized hail stones). • A high likelihood (26% to 35% probability) of large hail (nickel to golf ball sized hail stones).
Moderate		**"A Moderate Threat to Life and Property from Severe Hail."** • Within 12 miles of a location, a very low likelihood (2% to 5% probability) of severe hail, with storms capable of baseball to softball sized stones. • A low likelihood (6% to 15% probability) of severe hail, with storms capable of golf ball to baseball sized hail stones. • A moderate likelihood (16% to 25% probability) of severe hail, with storms capable of nickel to golf ball sized hail stones.
Low		**"A Low Threat to Life and Property from Severe Hail."** • Within 12 miles of a location, a very low likelihood (2% to 5% probability) of severe hail, with storms capable of golf ball to baseball sized hail stones • A low likelihood (6% to 15% probability) of severe hail, with storms capable of nickel to golf ball sized hail stones.
Very Low		**" A Very Low Threat to Life and Property from Severe Hail."** • Within 12 miles of a location, a very low likelihood (2% to 5% probability) of severe hail, with storms capable of nickel to golf ball sized hail stones. • A low likelihood or greater (6% or greater) of small hail (less than 3/4 inch).
Non-Threatening		**" No Discernable Threat to Life and Property from Severe Hail."** • Within 12 miles of a location, environmental conditions do not support the occurrence of severe hail.

Hail intensity is measured by the TORRO scale. The scale starts with H0 and goes to H10 with each increment of intensity or damage potential related to hail size, texture, numbers, fall speed, speed of storm translation, and strength of the accompanying wind. The table below outlines the TORRO Hail Intensity Scale and some associated size comparisons.[104]

Table 6.9.3: TORRO Hail Intensity Scale

Scale	Intensity category	Typical hail diameter (in)	Size Comparison	Typical damage impacts
H0	Hard hail	Up to 0.33	Pea	No damage
H1	Potentially damaging	0.33-0.60	Marble	Slight general damage to plants, crops
H2	Significant	0.60-0.80	Dime	Significant damage to fruit, crops, vegetation
H3	Severe	0.80-1.20	Nickel	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	1.20-1.60	Quarter	Widespread glass damage, vehicle bodywork damage
H5	Destructive	1.60-2.0	Half Dollar	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries

H6	Destructive	2.0-2.4	Ping Pong Ball	Bodywork of grounded aircraft dented; brick walls pitted
H7	Destructive	2.4-3.0	Golf Ball	Severe roof damage, risk of serious injuries
H8	Destructive	3.0-3.5	Hen Egg	(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	3.5-4.0	Tennis Ball	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>4.0	Baseball	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the NCEI Storm Events Database. These events are shown at the county level with some referencing a specific location, city, or zone. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. There have been 124 recorded events for hail within the storm events database. The table below highlights a condensed versions of events for this hazard that have occurred within Brazoria County since 2018. Events that occurred within the City of Angleton are highlighted in purple.[38]

Table 6.9.4: City of Angleton Hail Events (2018-2023)

Date	Location	Event Type	Injuries	Fatalities	Property Damage	Crop Damage	Magnitude (in.)
5/26/2018	Manvel	Hail	0	0	$-	$-	1
5/26/2018	Manvel	Hail	0	0	$-	$-	0.75
5/26/2018	Angleton	Hail	0	0	$-	$-	0.75
2/26/2019	Iowa Colony	Hail	0	0	$-	$-	1
2/26/2019	Alvin	Hail	0	0	$-	$-	1
1/6/2021	Manvel Coyle Arpt	Hail	0	0	$-	$-	1
5/6/2022	Pearland Arpt	Hail	0	0	$-	$-	0.88

Rows highlighted in purple are events that reference the City of Angleton within the event narrative or event location (beginning or end).
$- No dollar amount ($0.00).
ND- No Data

Presidential Disaster Declarations

There have been no disaster declarations in which hail was included Brazoria County.[1]

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader, or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for Brazoria County, in which the City of Angleton since the last HMP for this hazard are listed in the table below.[39]

Table 6.9.5: USDA Declared Disasters (2018-2023), Hail

Crop Disaster Year	Disaster Description	Designation Number
None		

Probability of Future Occurrences

Severe thunderstorms and hail associated with them are more likely to occur in summer months when temperatures are higher and moisture from the gulf helps to fuel thunderstorm development. According to the FEMA NRI for hail, annualized frequency values are 1.7 events per year over a 34-year period of record (1986-2021), with 54 events on record for this timeframe. [42]

Populations at Risk

Hail can occur during thunderstorms, but larger hail occurs more often during warmer months because the heat that builds the thunderstorms up higher in the air also strengthens these storms and can create sustained updrafts, as mentioned above. Populations most at risk for hail include outdoor workers, athletes, and pets/animals. Outdoor workers, such as farmers or landscapers have a higher chance of exposure to hail due to the nature of their work. Likewise, athletes can be caught in a hailstorm and are more exposed to their hazard when engaged in outdoor activities. Pets and animals are also at risk from hail due to their increased exposure to outdoor elements. To cause serious injury to humans and animals, hail would have to be relatively larger in size (1” or larger).

FEMA’s NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions. The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year. The CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards) and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions) into the NRI. The outcome, the risk index, represents the potential negative impacts of natural hazards. The NRI EAL score, and rating, represent a community’s relative level of expected loss each year when compared to all other communities at the same level.[42]

EAL Exposure Values and EAL Values for Brazoria County can be found in the tables below.

Table 6.9.6: Expected Annual Loss Exposure Values, Hail

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agricultural Value ($)	EAL Total ($)
Hail	$57,514,822,174	$4,309,098,400,000 / 371,474.00	$91,232,428	$4,366,704,454,602

Table 6.9.7: Expected Annual Loss Values, Hail

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agriculture Value
Hail	$52,221	$283,548 / 0.02	$20,506

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for hail events for these census tracts is listed as relatively low. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below.[44] Additionally, the FEMA NRI lists the HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for hail within Brazoria County as very low.[42]

Figure 6.9.2: Risk Index by Census Tract, Hail

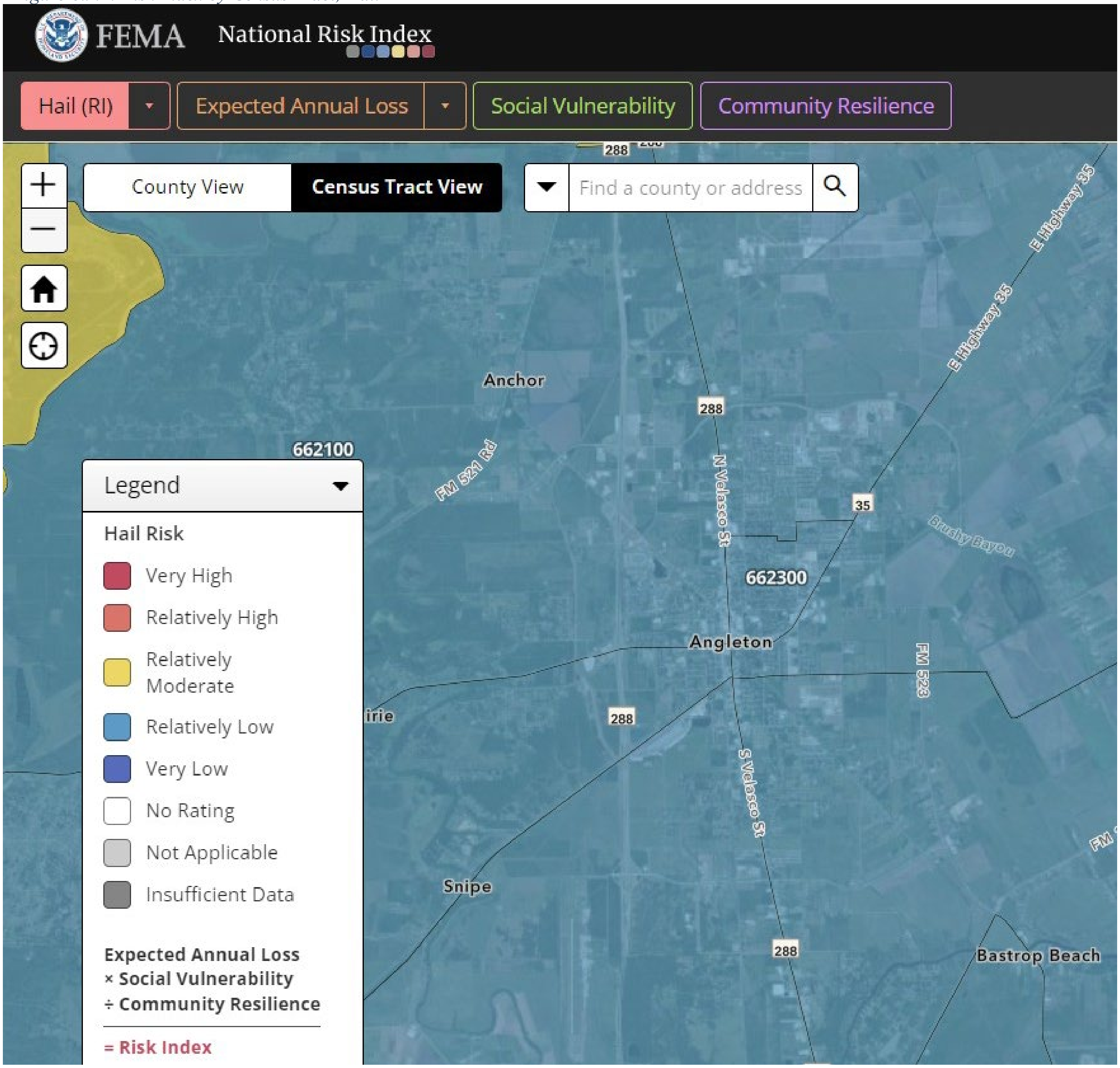


Figure 6.9.3: Social Vulnerability by Census Tract, City of Angleton

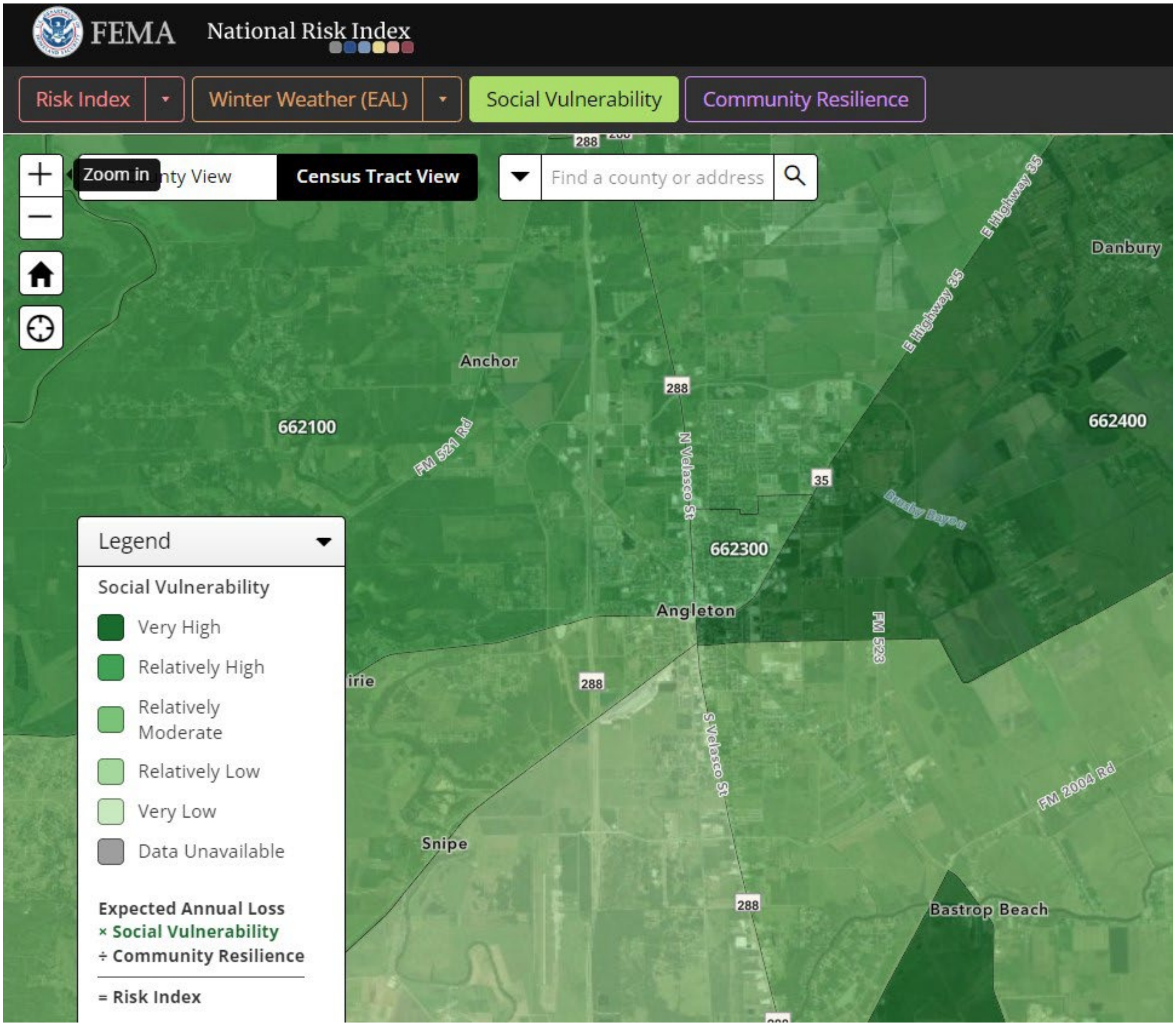


Figure 6.9.4: Community Resilience by Census Tract, City of Angleton

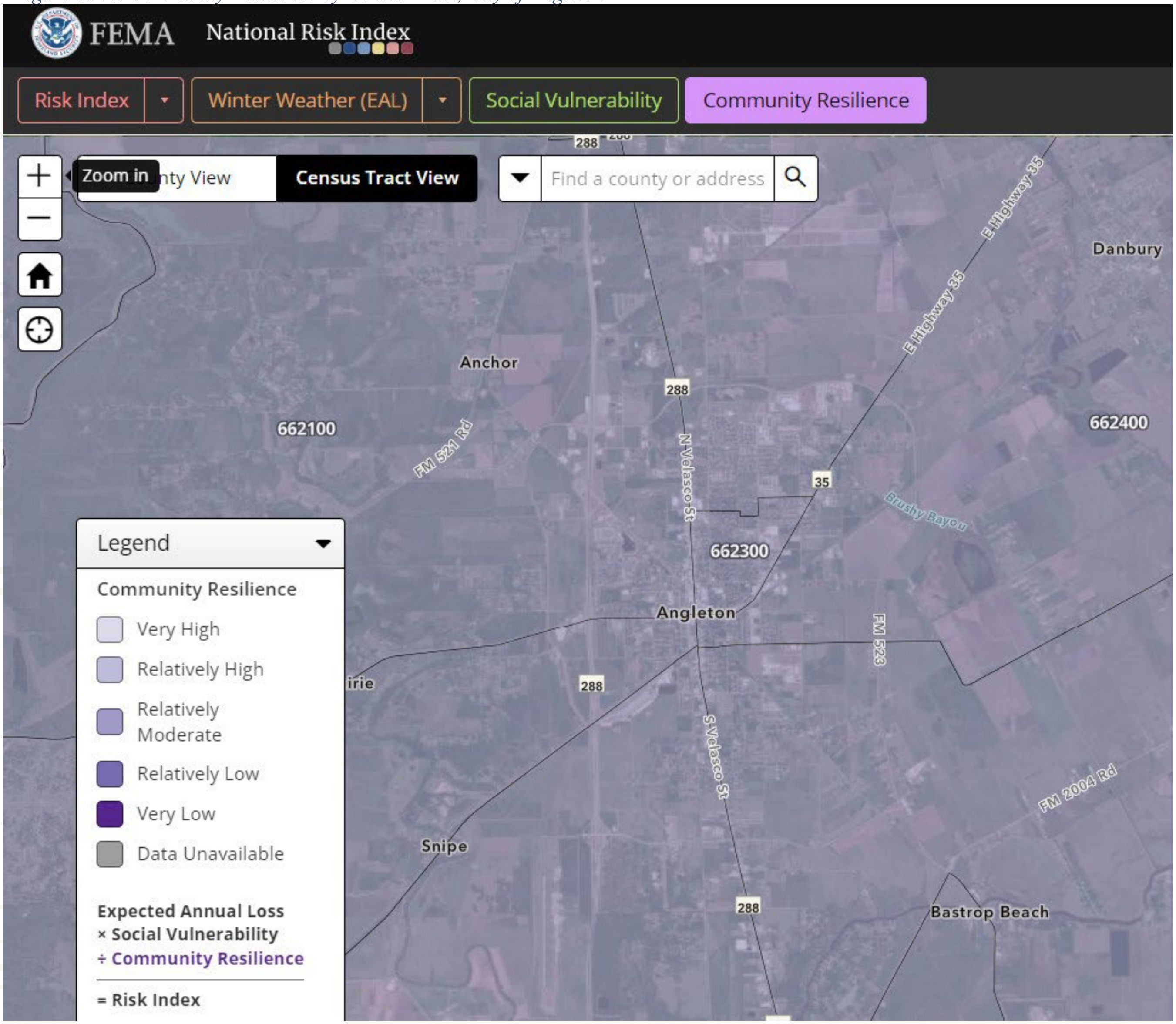


Figure 6.9.5: FEMA NRI Summary, Hail

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039662200	TX	Relatively Low	69.71	0 100
2	Census tract 48039662400	TX	Relatively Low	67.81	0 100
3	Census tract 48039662100	TX	Relatively Low	66.94	0 100
4	Census tract 48039663100	TX	Relatively Low	65.41	0 100
5	Census tract 48039664100	TX	Relatively Low	63.35	0 100
6	Census tract 48039662300	TX	Relatively Low	62.73	0 100
7	Census tract 48039662500	TX	Relatively Low	58.02	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039662200	TX	$6,099	Relatively High	Relatively Moderate	1.34	$8,158	69.71
2	Census tract 48039662400	TX	$4,842	Very High	Relatively Moderate	1.43	$6,948	67.81
3	Census tract 48039662100	TX	$5,260	Relatively High	Relatively Moderate	1.22	$6,436	66.94
4	Census tract 48039663100	TX	$5,602	Relatively Low	Relatively Moderate	1	$5,607	65.41
5	Census tract 48039664100	TX	$4,497	Relatively Moderate	Relatively Moderate	1.05	$4,713	63.35
6	Census tract 48039662300	TX	$3,249	Relatively High	Relatively Moderate	1.38	$4,477	62.73
7	Census tract 48039662500	TX	$2,789	Relatively Moderate	Relatively Moderate	1.12	$3,115	58.02

Climate Change Impacts

Since tornadoes, windstorms, and hail are heavily associated with severe thunderstorm development, this section will mirror that of Section 6.8, seen previously. According to the Office of the Texas State Climatologist, the climate data record for severe thunderstorms is poor and severe thunderstorms are too small to be simulated directly by present-day climate models. Over the past few decades, the severe storm environment over Texas has changed in complex and opposing ways. The amount of energy available for convection has decreased, and the amount of energy needed to initiate convection has increased at the same time. This suggests that environmental conditions have become less favorable for the occurrence of thunderstorms. However, the amount of low-level shear has increased, which would be expected to make thunderstorms more likely to become severe once they develop. Changes in severe storm environments have not been uniform throughout the year, with environments becoming more favorable for severe thunderstorms and significant hail in Texas early in the spring and less favorable later in the spring. Warmer temperatures are likely to lead to less hail overall, particular during the summer, but increases in available thunderstorm energy may lead to an increase of the risk of very large hail earlier in springtime. With these complex trends and partially contradictory information between models and observations, there is low confidence in any ongoing trend in the overall frequency and severity of severe thunderstorms.[58]

Table 6.9.8: Climate Change Impacts Summary, Hail

Location	The location of hail is not expected to change.
Extent/Intensity	The extent and intensity of hail is not expected to change. However, environments are becoming more favorable for hail in early spring.
Frequency	There are no clear trends in the frequency of hail within the county.
Duration	The duration of hail is not expected to change.

Section 6.10: Windstorm

6.10 Windstorm

Damaging winds are often called straight-line winds to differentiate the damage they cause from tornadoes or other hazards. Winds that cause damage at the ground are a result of outflows generated by a thunderstorm downdraft. Damaging winds are classified as those exceeding 50-60 mph. Damage from severe winds accounts for half of all damage reports and is more common than damage from tornadoes. Wind speeds can reach up to 100 mph and can produce a damage path extending for hundreds of miles. These damaging winds are often associated with other hazards such as thunderstorms, tornadoes, hurricanes, tropical storms, and tropical depressions.[105] Windstorms, or damaging winds, include many different variations. These damaging wind types and their definitions from NOAA can be seen in the table below.[106]

Table 6.10.8: Types of Damaging Winds

Damaging Wind Type	Description
Straight-line Wind	Used to define thunderstorm wind, which is not linked with rotation and is mainly used to differentiate from tornadic winds
Down Draft	A small-scale column of air that sinks toward the ground
Macroburst	An outward burst of strong winds that are more than 2.5 miles in diameter, occurs when a strong downdraft reaches the surface
Microburst	A small, concentrated downburst that produces an outward burst of relatively strong winds near the surface. Microbursts are less than 4 km in diameter and short-lived, lasting only five to 10 minutes. Maximum wind speeds sometimes exceed 100 mph. There are two kinds of microbursts: wet and dry. • A wet microburst is accompanied by heavy precipitation at the surface. • A dry microburst is common in places like the high plains and occur with little or no precipitation reaching the ground.
Downburst	A general term to describe macro and microbursts
Gust Front	The leading edge of rain-cooled air that clashes with a warm thunderstorm inflow
Derecho	A widespread and long-lived windstorm is associated with rapidly moving showers or thunderstorms. A typical derecho consists of numerous microbursts, downbursts, and downburst clusters. If the wind damage swath extends more than 240 miles and includes wind gusts of at least 58 mph or greater along most of its length, then the event may be classified as a derecho.

Location

Similar to thunderstorms (Section 6.8), and the Tornado (Section 6.4) hazard profiles, windstorms/ damaging winds are not confined to any geographic boundaries and can occur anywhere if the right conditions are present. The entire county is at risk for this hazard type. Thunderstorms will typically occur in warmer months such as Summer and Spring, and during the warmest parts of the day. Warm, moist air from the Gulf of Mexico is readily available to help fuel atmospheric conditions that produce thunderstorms and the damaging winds associated with them. The City of Angleton is in an area that can see anywhere from 63-72 thunderstorm days per year.[97]

Extent

Wind intensity is measured by the NWS through the Beaufort Wind Scale. One of the first scales to estimate wind speeds and their effects was created by Britain's Admiral Sir Francis Beaufort (1774-1857). He developed the scale in 1805 to help sailors estimate the winds via visual observations. The scale starts with 0 and goes to a force of 12. The Beaufort scale is still used today to estimate wind strengths.[107] The table below outlines the measurements used by the Beaufort Wind Scale for use on land.

Table 6.10.9: Beaufort Wind Scale

Force	Speed (mph)	Description	Specifications for use on land
0	0-1	Calm	Calm; smoke rises vertically.
1	1-3	Light Air	Direction of wind shown by smoke drift, but not by wind vanes.
2	4-7	Light Breeze	Wind felt on face; leaves rustle; ordinary vanes moved by wind.
3	8-12	Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag.
4	13-18	Moderate Breeze	Raises dust and loose paper; small branches are moved.
5	19-24	Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland waters.
6	25-31	Strong Breeze	Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty.
7	32-38	Near Gale	Whole trees in motion; inconvenience felt when walking against the wind.
8	39-46	Gale	Breaks twigs off trees; generally impedes progress.
9	47-54	Severe Gale	Slight structural damage occurs (chimneypots and slates removed)
10	55-63	Storm	Seldom experienced inland; trees uprooted; considerable structural damage occurs.
11	64-72	Violent Storm	Very rarely experienced; accompanied by wide-spread damage.
12	72-83	Hurricane	Reference the Saffir-Simpson Hurricane Scale

Additionally, NOAA and the NWS issues watches, warnings, and advisories for wind events when wind speeds can pose a hazard or are life-threatening. Table 6.10.3 describes the various wind-related warnings, watches, and advisories below.[108]

Table 6.10.10: Wind-Related Warnings, Watches, and Advisories

Watch/ Warning/ Advisory	Description
High Wind Warning	Sustained, strong winds with even stronger gusts are happening. Seek shelter. If you are driving, keep both hands on the wheels and slow down.
High Wind Watch	Sustained, strong winds are possible. Secure loose outdoor items and adjust plans as necessary so you're not caught outside.
Wind Advisories	Strong winds are occurring but are not so strong as to warrant a High Wind Warning. Objects that are outdoors should be secured and caution should be taken if driving.
Hurricane Force Wind Warning	Hurricane Force Wind Warnings are issued for locations along the water when one or both of the following conditions are expected to begin within 36 hours and are not directly associated with a tropical cyclone: sustained winds of 64 knots or greater or frequent gusts (duration of two or more hours) of 64 knots (74 mph) or greater.

Historic Occurrences

NOAA collects historic climate data for the entire nation. NOAA's storm event data can be accessed on the NCEI Storm Events Database. These events are shown at the county level with some referencing a specific location, city, or zone. The database currently contains data from January 1950 to December 2023, as entered by NOAA's NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The table below highlights events for this hazard that have occurred within Brazoria County from 1950-2023.[38]

Table 6.10.11: City of Angleton Wind Events (1950-2023)

Date	Location	Event Type	Injuries	Fatalities	Property Damage ($)	Crop Damage ($)	Wind Speed (knots/mph)
2/20/1997	Brazoria (Zone)	Strong Wind	0	0	$2,000	$-	ND
1/22/2017	Brazoria (Zone)	Strong Wind	0	0	$1,500	$-	38/43
TOTALS:			**0**	**0**	**$3,500**	**$-**	N/A

ND- No Data, N/A- Not Applicable
$- No dollar amount ($0.00).

Presidential Disaster Declarations

There has been 2 disaster declaration in which wind (straight-line winds) was included in the declaration title for Brazoria County. However, the declarations are listed as “severe storm” for the incident type.[1]

Table 6.10.12: Federal Disaster Declarations, Tornado/ Microburst

Declaration Date	Incident Type	Title	Disaster Number	Declaration Type
5/29/2015	Severe Storm	Severe storms, tornadoes, straight-line winds, and flooding	4223	Major Disaster Declaration
11/25/2015	Severe Storm	Severe storms, tornadoes, straight-line winds, and flooding	4245	Major Disaster Declaration

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor’s authorized representative, by an Indian Tribal Council leader, or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for Brazoria County since 2018 are listed in the table below.[39]

Table 6.10.13: USDA Declared Disasters (2018-2023), Windstorm

Crop Disaster Year	Disaster Description	Designation Number
None		

Probability of Future Occurrences

Severe thunderstorms and their associated damaging winds are more likely to occur in summer months when temperatures are higher and moisture from the gulf helps to fuel thunderstorm development. According to the FEMA NRI for strong wind events, annualized frequency values are 1.1 events per year over a 34-year period of record (1986-2021), with 34 events on record for this timeframe.[42]

Populations at Risk

Populations at risk for strong wind events include similar groups to those listed under the Section 6.4 (Tornado) and Section 6.8 (Severe Thunderstorms & Lightning) hazard profiles. All residents within the county are exposed to this hazard. The impacts of a strong winds on the life, health, and safety of City of Angleton residents depend on several factors, including the severity of the event and adequate warning time being provided to residents to secure projectiles and take shelter. Strong wind events can lead to a disruption in emergency response services, loss of electricity, loss of clean water, and delayed forms of necessary medical assistance while repairs are made to critical facilities or power is being restored within the county.

The NCHH summarizes at-risk populations for several hazards. For strong wind events, these include older adults, people experiencing homelessness, people with disabilities, and people with chronic health conditions. In addition to the dangers listed above, older adults can face social isolation, lack of electricity needed to run medical equipment, lack of access to a vehicle for evacuation, and lack of access to other critical supplies. Evacuation for these events is fast-paced, and older adults may not be able to seek adequate shelter or secure dangerous projectiles on their property before a wind event impacts their area. For people experiencing homelessness, adequate shelter is critical in keeping populations safe during these events as they are heavily associated with severe thunderstorms and even tornadoes. People with disabilities may require additional assistance to stay safe and prepare for these hazards and their after-effects such as creating a support network, finding accessible transportation to evacuate or get medical attention, and loss of power for needed medical equipment. Likewise, those with chronic health conditions may need similar assistance as those with disabilities. Residents impacted may be displaced or require temporary to long-term sheltering. In addition, downed trees, damaged buildings, and debris carried by the strong winds associated with severe thunderstorms or tornadoes can lead to further injury or loss of life. Socially vulnerable populations are most susceptible based on several factors, including their physical and financial ability to react or respond during or directly following a hazard event. These issues disproportionately affect low-income communities and families who may lack the resources to pay for damages to their homes, lack insurance, or lack the resources to replace home contents or personal belongings.[43] Those living in mobile/manufactured housing are also at greater risk from this hazard as even anchored mobile homes can be seriously damaged or destroyed when winds gust over 80 mph.[69]

FEMA's NRI utilizes data from multiple sources including historical hazard events, hazard intensity, exposure of people and property to hazards, socioeconomic factors, and community resilience indicators. The NRI also incorporates hazard data to determine the frequency and intensity of various natural hazards. This information helps assess the likelihood of specific hazards occurring in different regions. The NRI considers the exposure of communities to hazards and incorporates factors such as population density, infrastructure systems, and critical facilities that may be at risk during a hazard event. The NRI also generates risk scores for communities across the U.S. that provide a relative ranking of areas based on their overall risk level. This helps to identify areas that may require additional resources and attention for mitigation and planning efforts. The NRI risk equation includes 3 components. EAL represents the average economic loss in dollars resulting from natural hazards each year. The CRF is a scaling factor that incorporates social vulnerability (the susceptibility of social groups to the adverse impacts of natural hazards) and community resilience (the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions) into the NRI. The outcome, the risk index, represents the potential negative impacts of natural hazards. The NRI EAL score, and rating, represent a community's relative level of expected loss each year when compared to all other communities at the same level.[42]

EAL Exposure Values and EAL Values for Brazoria County can be found in the tables below.

Table 6.10.14: Expected Annual Loss Exposure Values, Strong Wind

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agricultural Value ($)	EAL Total ($)
Strong Wind	$57,514,822,174	$4,309,098,400,000 / 371,474.00	$6,997,533	$4,366,613,222,174

Table 6.10.15: Expected Annual Loss Values, Strong Wind

Hazard Type	Building Value ($)	Population Equivalence ($)/ Population (#)	Agriculture Value
Strong Wind	$161,599	$50,688 / 0.00	$512

N/A- Not Applicable

EAL for the City of Angleton was derived by creating a report that used census tract information for tracts that included the Angleton city limits. These were census tracts 48039662100, 48039662200, 48039662400, 48039662300, 48039662500, 48039663100, and 48039664100. EAL according to the FEMA NRI for strong wind events for these census tracts is listed as relatively low, with one tract rating very low. EAL values, risk index ratings, risk index scores, social vulnerability, and community resilience for each census tract can be found in the figures below.[44] Additionally, the FEMA NRI lists the HLR, a hazard- and county-specific estimate of the percentage of the exposed consequence type (building value, population, or agriculture value) expected to be lost due to a hazard occurrence, for strong wind events within Brazoria County is listed as very low.[42]

Figure 6.10.7: Risk Index by Census Tract, Strong Wind

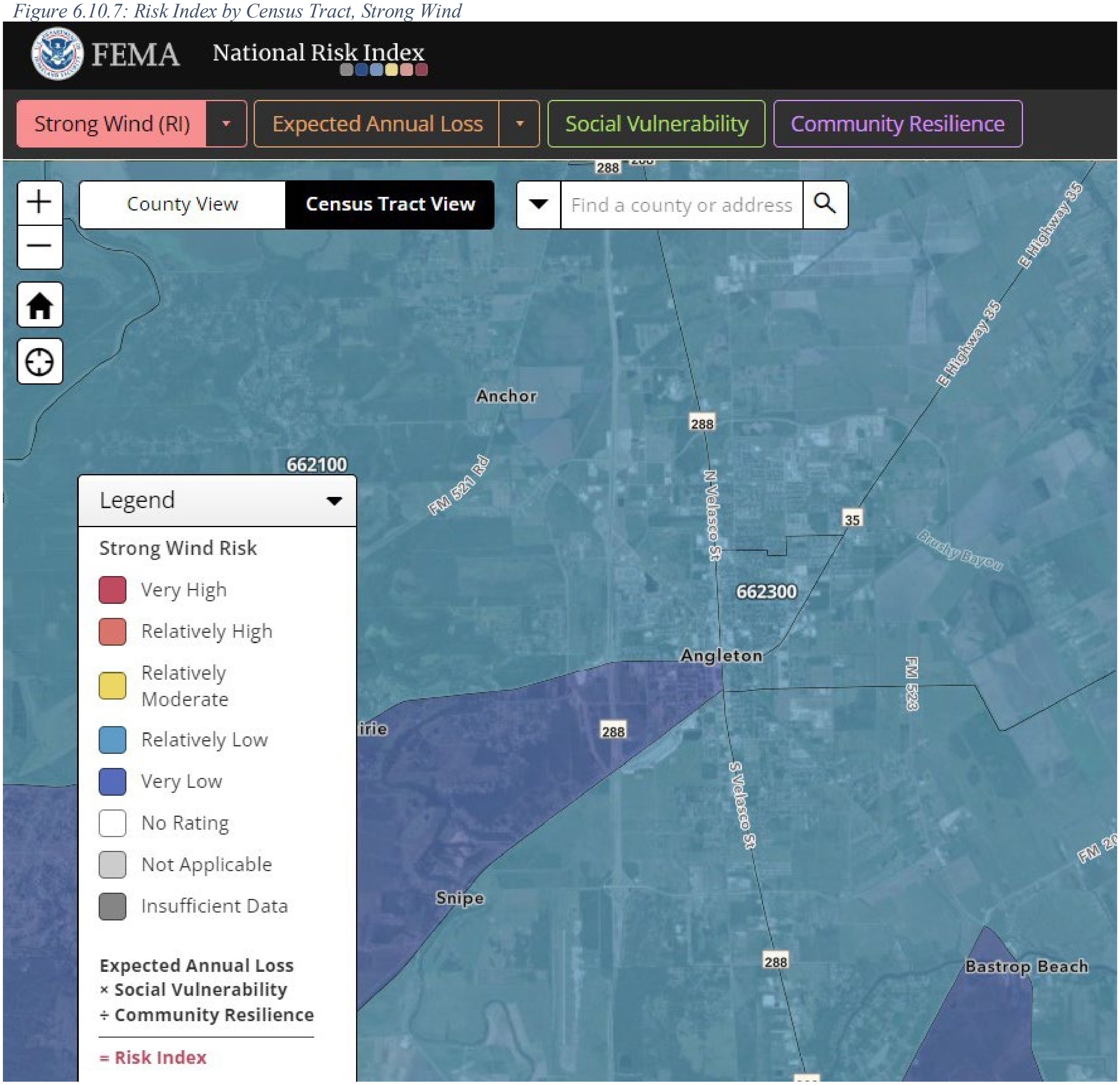


Figure 6.10.8: Social Vulnerability by Census Tract, City of Angleton

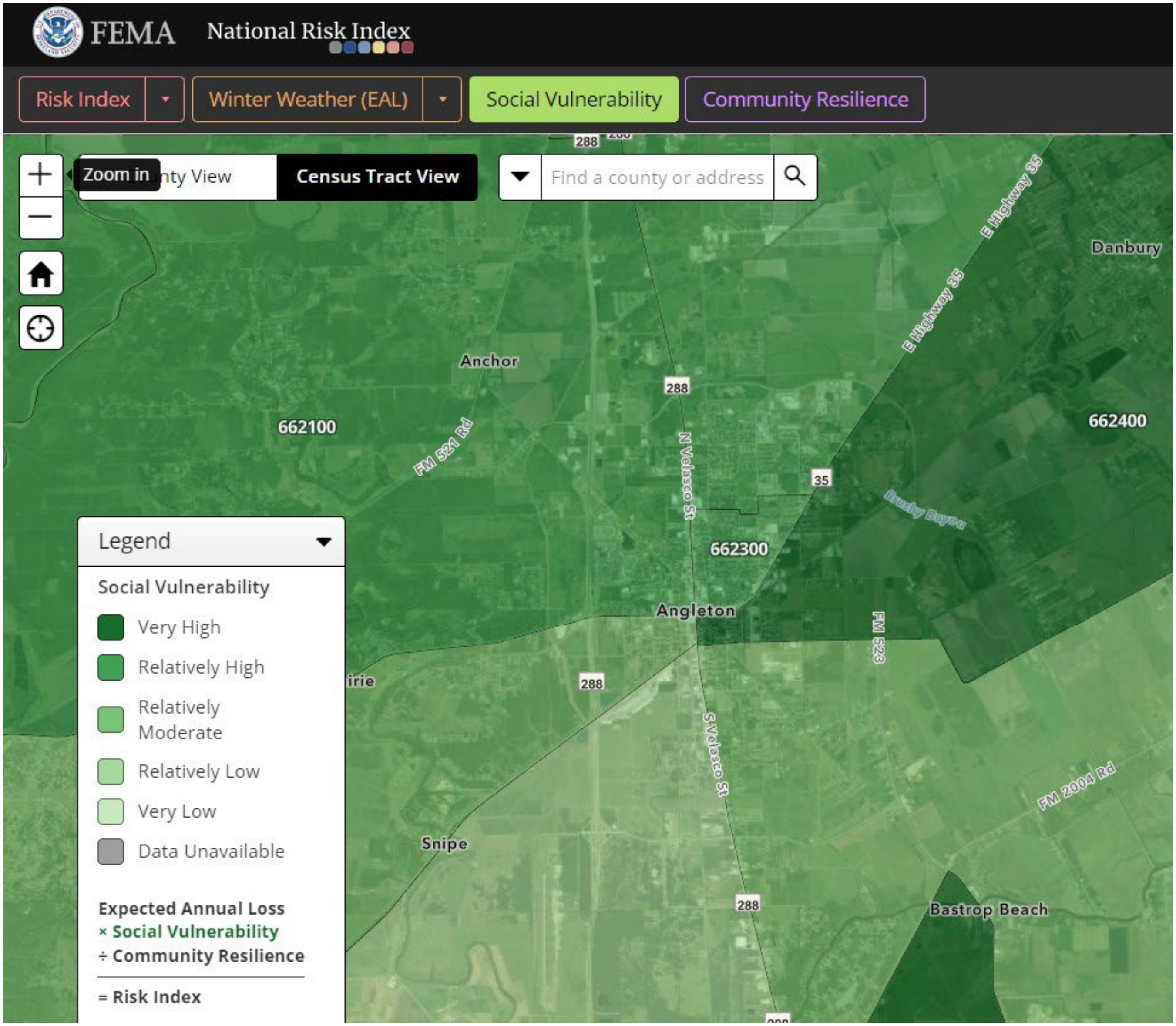


Figure 6.10.9: Community Resilience by Census Tract, City of Angleton

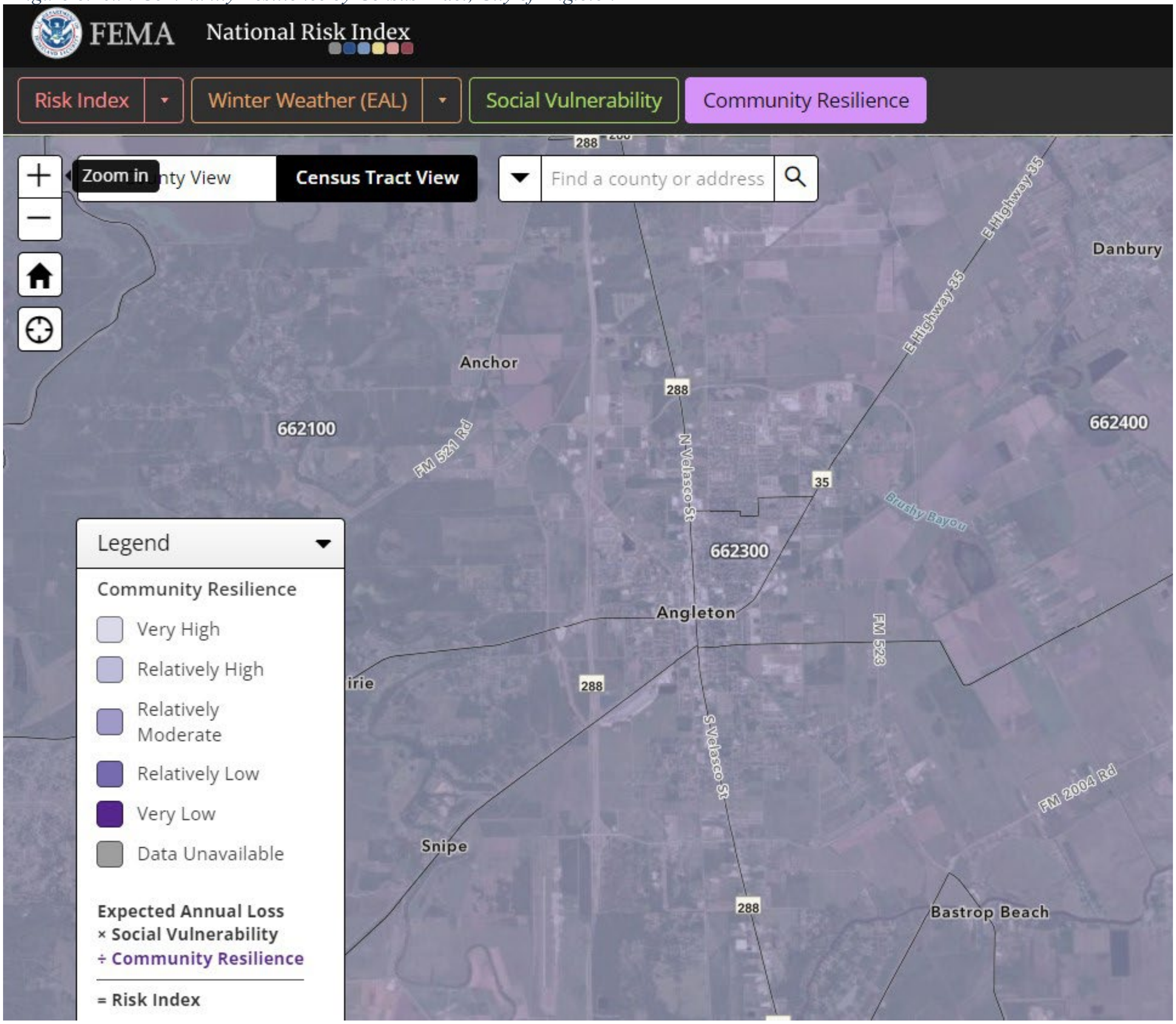


Figure 6.10.10: FEMA NRI Summary, Strong Wind

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Census tract 48039662400	TX	Relatively Low	33.37	0 100
2	Census tract 48039662200	TX	Relatively Low	33.2	0 100
3	Census tract 48039662100	TX	Relatively Low	32.02	0 100
4	Census tract 48039663100	TX	Relatively Low	31.69	0 100
5	Census tract 48039664100	TX	Relatively Low	28.89	0 100
6	Census tract 48039662300	TX	Relatively Low	27.75	0 100
7	Census tract 48039662500	TX	Very Low	23.5	0 100

Rank	Community	State	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
1	Census tract 48039662400	TX	$2,831	Very High	Relatively Moderate	1.43	$4,062	33.37
2	Census tract 48039662200	TX	$3,010	Relatively High	Relatively Moderate	1.34	$4,026	33.2
3	Census tract 48039662100	TX	$3,026	Relatively High	Relatively Moderate	1.22	$3,702	32.02
4	Census tract 48039663100	TX	$3,629	Relatively Low	Relatively Moderate	1	$3,632	31.69
5	Census tract 48039664100	TX	$2,796	Relatively Moderate	Relatively Moderate	1.05	$2,930	28.89
6	Census tract 48039662300	TX	$1,942	Relatively High	Relatively Moderate	1.38	$2,676	27.75
7	Census tract 48039662500	TX	$1,601	Relatively Moderate	Relatively Moderate	1.12	$1,788	23.5

Climate Change Impacts

Since windstorms and strong winds are heavily related to severe thunderstorm development, this section will mirror that of Section 6.8 seen previously. According to the Office of the Texas State Climatologist, the climate data record for severe thunderstorms is poor and severe thunderstorms are too small to be simulated directly by present-day climate models. Over the past few decades, the severe storm environment over Texas has changed in complex and opposing ways. The amount of energy available for convection has decreased, and the amount of energy needed to initiate convection has increased at the same time. This suggests that environmental conditions have become less favorable for the occurrence of thunderstorms. However, the amount of low-level shear has increased, which would be expected to make thunderstorms more likely to become severe once they develop.

Changes in severe storm environments have not been uniform throughout the year, with environments becoming more favorable for severe thunderstorms and significant hail in Texas early in the spring and less favorable later in the spring. Strong winds associated with severe storms occur most often during the months of May and June. Climate model simulations imply different prospects in the future. As temperatures increase, the amount of energy available to fuel these storms is simulated to increase as temperature and low-level moisture increase. This results in an overall increase in the number of days capable of producing severe thunderstorms. With these complex trends and partially contradictory information between models and observations, there is low confidence in any ongoing trend in the overall frequency and severity of severe thunderstorms.[58]

Table 6.10.16: Climate Change Impacts Summary, Windstorm

Location	The location of windstorms is not expected to change.
Extent/Intensity	The extent and intensity of windstorms within the county may change (increase) due to increased temperatures and energy available to fuel severe thunderstorms.
Frequency	There are no clear trends in windstorm frequency just as there are no clear trends in severe thunderstorm frequency. This is due to considerable variability in conditions that lead to them occurring. However, these hazards occur most frequently in warmer months, around May and June.
Duration	The duration of windstorms is not likely to change, however, the intensity of them is expected to increase due to rising temperatures and the proximity of the county to the Gulf of Mexico aiding to fuel thunderstorms.

Section 6.11: Erosion

6.11 Erosion

Soil erosion consists of a series of natural processes that move earth and rock material. The land surface is worn away through the detachment and transport of soil and rock by moving water, wind, and other geologic agents.[109] Erosion removes topsoil (areas with the highest levels of organic matter and nutrients), reduces levels of organic matter within the soil, and creates a less favorable environment for plants due to breakdown within the soil structure. The different types of erosion are described in table 6.11.1 below.

FEMA defines erosion as "The process of the gradual wearing away of land masses. Erosion can occur along coasts and rivers and streams." Although flood-related erosion is covered by flood insurance, this hazard is not covered under the NFIP. The mapping and regulatory standards of the NFIP do not currently address erosion, however, CRS credit is given to communities that include this hazard in their regulations, planning, public information, hazard disclosure, and flood warning programs. For example: communities that have established setbacks and other requirements in areas subject to erosion.

Table 6.11.1: Types of Erosion[110]

Type of Erosion	Description
Wind Erosion	Wind erosion is a natural process that moves loose soil from one location to another. Wind erosion can harm the fields where it picks up soil, as well as the areas where the dirt—and whatever minerals and contaminants it includes—are deposited. It can also have health impacts: worsening air quality, obscuring visibility, and causing people to experience breathing difficulties.
Water Erosion, Rainfall	Occurs when the rainfall intensity that hits the ground exceeds the absorbing capacities or the infiltration rate of soil affected. This leads to soil in water runoff and sediment transport to waterways resulting in deterioration in soil and water quality.
Water Erosion, Sheet	Sheet erosion is the removal of soil in thin, uniform layers (sheets) by raindrop impact and shallow surface water flow. Sheet erosion can sometimes be difficult to detect unless the soil is deposited nearby or if the damage is already severe. This erosion process removes the fine soil particles that contain most of the important nutrients and organic matter.
Water Erosion, Rill	Occurs when runoff becomes concentrated enough to cut small rivulets in the soil that carry sediment down hillsides.
Water Erosion, Gully	Gully Erosion is the washing away of soil through deep grooves or channels across unprotected land. Gully erosion can refer to soil being washed away through human-made drainage lines or describe the process of soil traveling through grooves created by hard rains. Farmers will typically fill these grooves back in with fresh soil as a temporary solution. Gully erosion can hinder the ability to plow fields and grow crops.
Water Erosion, Bank	The progressive undercutting, scouring, and slumping of natural rivers and streams as well as man-made drainage channels by the intense movement of water. When land managers remove vegetation or ranchers allow their livestock to overgraze the land near streams and riverbanks, it can exacerbate the problem.

Location

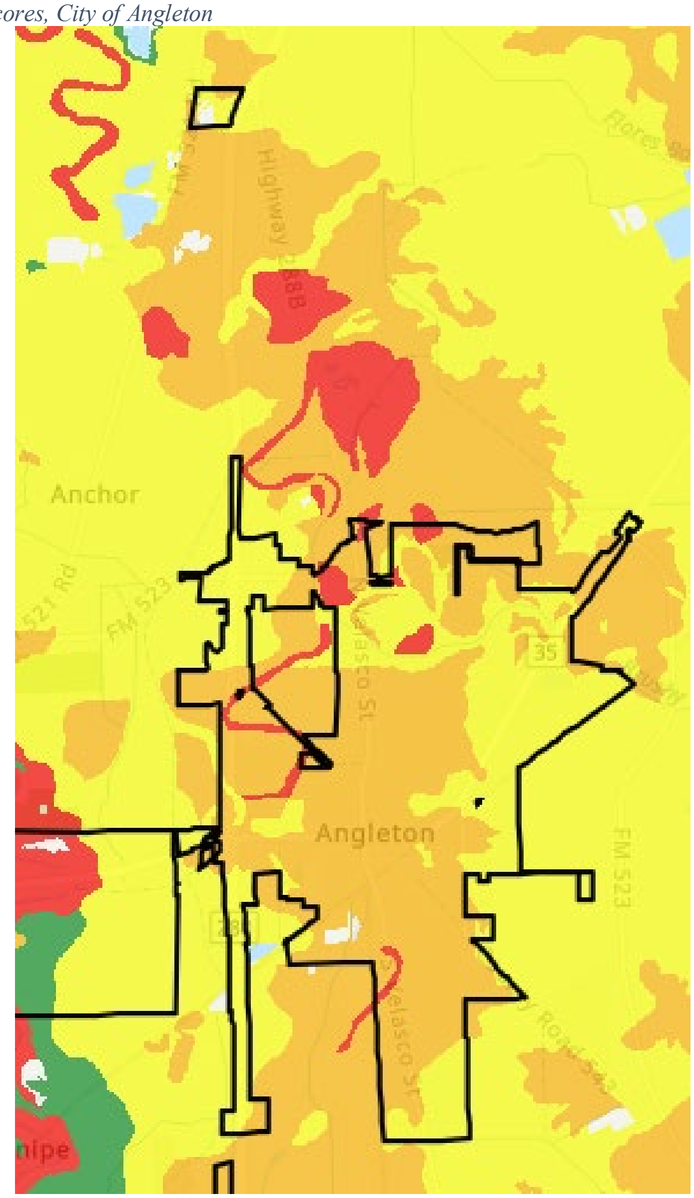
Soil erosion is typically measured in a variety of ways, both qualitative and quantitative. Within the county, inland erosion due to water is the main hazard of concern. One method is the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE). Potential erodibility for sheet and rill erosion is estimated by multiplying the following factors of the Universal Soil Loss Equation USLE: Rainfall and runoff factor (R), Susceptibility of the soil to water erosion (K), and Combined effects of slope length and steepness (LS). The K factor represents the susceptibility of soil to water erosion.[111]

Past management or misuse of a soil by intensive cropping can increase a soil's erodibility. The K factor may need to be increased if the subsoil is exposed or where the organic matter has been depleted, the soil's structure destroyed, or soil compaction has reduced permeability.[112] Table 6.11.2 below shows K factor scores, soil descriptions, and their associated soil erodibility. Figure 6.11.1 depicts these k-factors within the City of Angleton. K-factors with high erodibility of 0.4 or greater are depicted in red. The legend breaks down the soil erodibility factor and how they were colored on the map. There are very few areas within the city that have a high erodibility score.

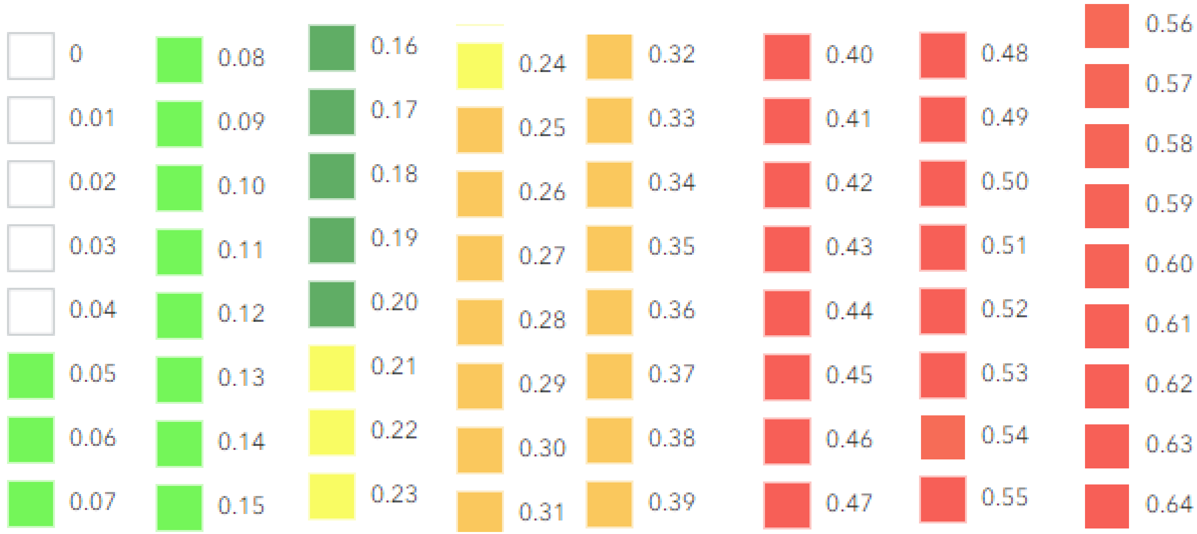
Table 6.11.2: K Factor, Soil Erodibility Scores

K-Factor	Soil Description	Erodibility
0.05 to 0.15	High in clay	Resistant to detachment
0.05 to 0.2	Coarse textured soils, such as sandy soils	Low runoff, easily detached
0.25 to 0.4	Medium textured soils, such as the silt loam soils	Moderately susceptible to detachment and they produce moderate runoff
>0.4	Soils with a high silt content	Most erodible of all soils, easily detached; tend to crust and produce high rates of runoff

Figure 6.11.1: Soil Erodibility Scores, City of Angleton



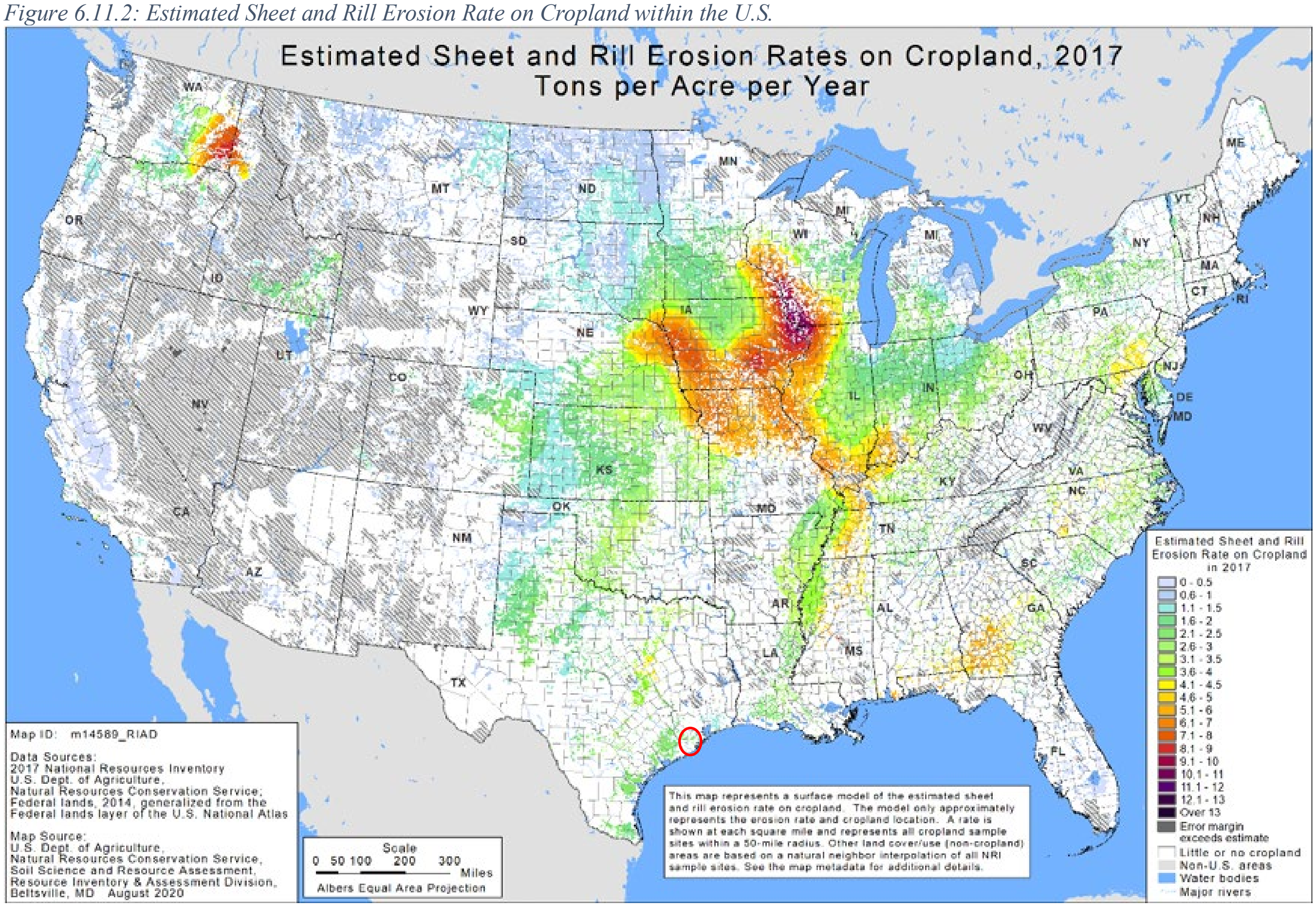
Legend- Soil Erodibility, K Factors



Extent

Soil erosion and its risk of occurring is difficult to measure without proper documentation techniques in place. Measuring certain properties in specific locations in the field, such as the surface and aggregate stability of the soil, infiltration rates, organic matter content, and sediment delivery ratios are all necessary components to quantify the rate of erosion in a given area Furthermore, using these quantitative measurements with photographs or visual observations of the soil or landmarks at specific locations would help to paint a clearer picture if erosion is occurring or likely to occur. Soil erosion rates on cropland within the U.S. decreased 35 percent between 1982 and 2017. The water (sheet and rill) erosion rate declined from 3.89 tons per acre per year to 2.67 tons per acre per year, and the erosion rate due to wind decreased from 3.24 tons per acre per year to 1.96 tons per acre per year.[113] Figure 6.11.2 shows the estimated sheet and rill erosion rates on cropland in tons per acre per year within the U.S. The rate of erosion due to sheet and rill within areas of Brazoria County ranged from 2.1 to 2.5 tons per acre per year. Within the City of Angleton has very few areas of erodible soils within the city limits (as seen above). This map is derived from the 2017 summary resource report developed by the U.S. Department of Agriculture Natural Resources Conservation Service. It is the most recent report available and was published in 2020.

Figure 6.11.2: Estimated Sheet and Rill Erosion Rate on Cropland within the U.S.



Historic Occurrences

Presidential Disaster Declarations

There have been no disaster declarations for erosion within Brazoria County, in which the City of Angleton is located, since 1950.[1]

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader or by an FSA SED. The Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for Brazoria County since 2018 are listed in the table below.[39]

Table 6.11.3: USDA Declared Disasters (2018-2023), Erosion

Crop Disaster Year	Disaster Description	Designation Number
	None	

Probability of Future Occurrences

As mentioned above, the rate of erosion on croplands has been decreasing across the U.S. over time. It is hard to estimate the probability of future occurrence for this hazard due to a lack of data regarding previous erosion events through any formal system.

Populations at Risk

Populations at risk from erosion include those who work in agricultural fields. Erosion can greatly affect agriculture production through lost revenue and agricultural production. Those who own private property particularly along areas near creek and rivers may be more susceptible to this hazard as river cresting can exacerbate erosion damage that could require costly repairs and infrastructure reinforcement. The FEMA NRI does not account for erosion within its various analysis of natural hazards.

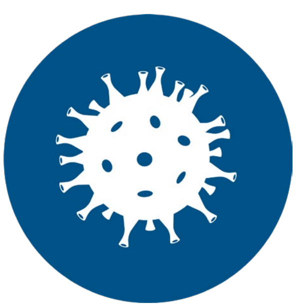
Climate Change Impacts

Climate change can increase the impacts felt from water erosion from more frequent and intense rainfall, longer periods of extreme heat and drought can lead to an increase in wind erosion, and as wildfires destroy areas- the loss of vegetation and groundcover are more prone to erosion by both wind and water. In addition, soil erosion can drive climate change. Soil is a vast storage center for carbon dioxide, organic matter, and microbes. When soil becomes degraded it can release carbon back into the atmosphere.[58]

Table 6.11.4: Climate Change Impacts, Erosion

Location	The location of erosion is not expected to change.
Extent/Intensity	The extent of erosion is not expected to change.
Frequency	The frequency of erosion is not expected to change. The rate of erosion on croplands have been decreasing across the U.S. over time. Frequency of this hazard is difficult to estimate.
Duration	The duration of erosion is not expected to change.

Section 6.12: Emerging Infectious Diseases



6.12 Emerging Infectious Diseases

Emerging Infectious Diseases (EID) are defined by the National Institute of Allergy and Infectious Diseases as "infectious diseases that have newly appeared in a population or have existed but are rapidly increasing in incidence or geographic range."[114] Similarly, a pandemic is a disease outbreak that spans several countries and affects many people. Pandemics are most often caused by viruses which can easily spread from person to person.[115] This hazard profile will refer to EID and use the 2019 coronavirus, SARS-CoV-2, pandemic to give a clearer picture of the risk and vulnerability of this new hazard of concern for the county.

Location

The risk of EID applies the same to the entire county as this hazard has no geographic boundaries. However, areas that are more densely populated can contribute to the rapid spread of EID.

Extent

The extent of an infected population depends on how the illness is spread and methods of transmissibility and detection. In areas that are more densely populated, contact between infected and uninfected individuals may be greater than in rural areas leading to more chances for infection.

Historic Occurrences

Pandemics can emerge anywhere and quickly spread. It is difficult to predict when or where the next pandemic will occur.[116] According to the CDC, five pandemics have occurred within the US since 1918. The table below outlines these pandemics, when they occurred, and the underlying cause.[117]

Table 6.12.1: Historic Pandemic Occurrences in the US

Pandemic Name	Estimated Deaths (US only)	Cause
1918 Pandemic	675,000	Influenza virus, H1N1
1957- 1958 Pandemic	116,000	Influenza virus, H2N2
1968 Pandemic	100,000	Influenza virus, H3N2
2009 H1N1 Pandemic	12,469	Influenza virus, H1N1 pdm09 virus
2020 Covid-19 Pandemic	1,181,607	SARS-CoV-2 virus

Presidential Disaster Declarations

There have been 2 federally declared emerging infectious disease related disaster declarations in Brazoria County, in which the City of Angleton is located, for EID listed under biological incidents.

Table 6.12.2: Federal Disaster Declarations for Emerging Infectious Diseases

Date	Disaster Number	Declaration Types	Incident Type	Declaration Title
3/13/2020	3458	Major Disaster Declaration	Biological	Covid-19
3/25/2020	4485	Emergency Declaration	Biological	Covid-19 Pandemic

USDA Disaster Declarations

The Secretary of Agriculture is authorized to designate counties as disaster areas to make EM loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county. In addition to EM loan eligibility, other emergency assistance programs, such as FSA disaster assistance programs, have historically used disaster designations as an eligibility trigger. USDA Secretarial disaster designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, by an Indian Tribal Council leader, or by an FSA SED. The

Secretarial disaster designation is the most widely used. When there is a presidential disaster declaration, FEMA immediately notifies FSA of the primary counties named in a Presidential declaration. USDA Disaster Declarations for Brazoria County since 2018 are listed in the table below.[39]

Table 6.12.3: USDA Declared Disasters (2018-2023), Emerging Infectious Diseases

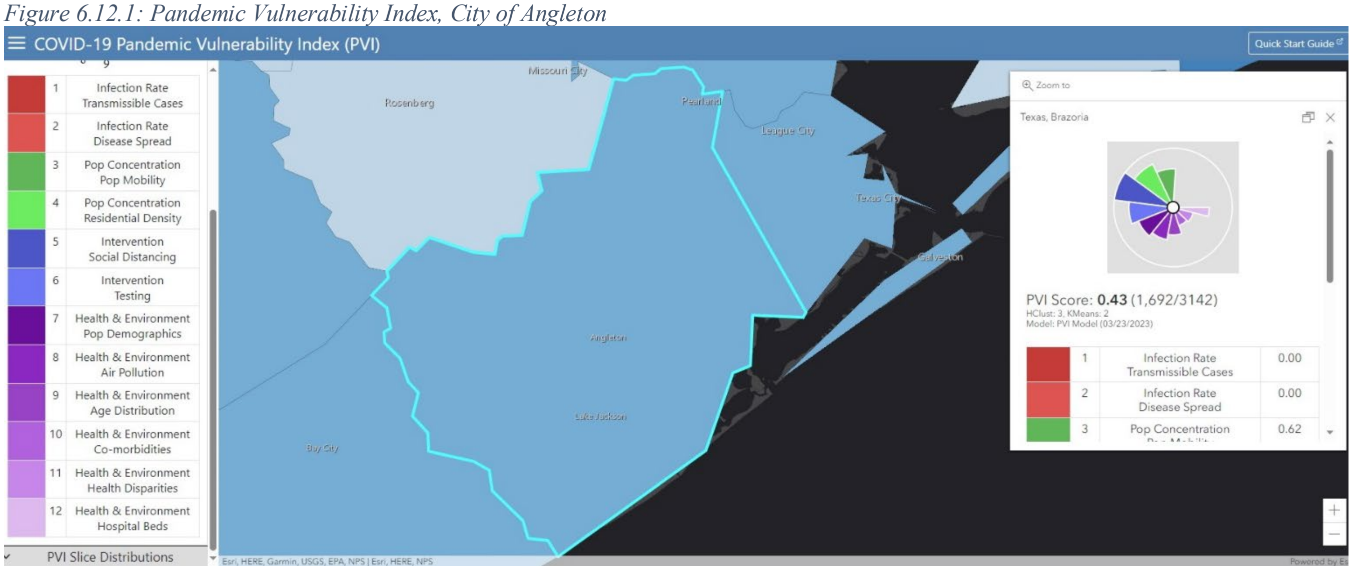
Crop Disaster Year	Disaster Description	Designation Number
	None	

Probability of Future Occurrences

EID and pandemics can emerge anywhere and quickly spread. It is difficult to predict when or where the next pandemic will occur. As seen in The National Center for Biotechnology Information review titled “The consequences of human actions on risks for infectious diseases”, The number of events of emerging infections has been increasing over the last 100 years. EIDs have been reviewed extensively during the last two decades, and it is now generally accepted that most drivers of emerging diseases are ecological, and the majority of these caused by anthropogenic influences such as increased travelling and transport of animals and goods; changes in ecosystems; deforestation and reforestation; altered land use; increased irrigation and creation of water dams and reservoirs; and urbanization.[118]

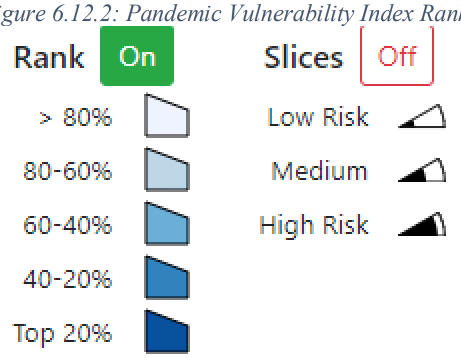
The National Institute of Environmental Health Sciences developed the COVID-19 Pandemic Vulnerability Index (PVI) Dashboard. This Dashboard creates risk profiles, called PVI Scorecards, for each county in the United States. The PVI summarizes and visualizes overall risk in a radar chart, which is a type of pie chart with various data sources comprising each slice of the pie. City of Angleton saw 114,526 Covid-19 cases and 1,025 deaths during the most recent pandemic. As seen in the figure below, Brazoria County’s PVI score is 0.43.[119]

Figure 6.12.1: Pandemic Vulnerability Index, City of Angleton



The slices shown in the chart to the right indicate a different data source (as described on the left of the figure). The information from each slice is combined to generate a PVI score for each county. A 0.43 PVI score puts Brazoria in the > 80% vulnerability ranking. Additionally, the bigger the “slice” shown for each item in the pie chart indicates the county has a higher risk for that area.

Figure 6.12.2: Pandemic Vulnerability Index Ranking Legend



Populations at Risk

EID can vary on severity for different populations based on age, underlying conditions, and how the disease is spread. The last 5 pandemics experienced in the US were respiratory illnesses. Populations that were/are most at risk include people who are older, those with heart or lung conditions, people with compromised immune systems, and people who are obese or diabetic.[120]

Climate Change Impacts

According to the CDC, milder winters, warmer summers, and fewer days of frost make it easier for these and other infectious diseases to expand into new geographic areas and infect more people. As climate changes, new infections may emerge that threaten human health or livelihood.[121]

Table 6.12.4: Climate Change Impacts Summary, Emerging Infectious Diseases

Location	The location of EID is expected to increase in urban areas of the county.
Extent/Intensity	The extent and intensity of EID is expected to increase.
Frequency	Frequency of EID is expected to increase.
Duration	There is no clear trend in duration of EID.

Section 6.13: Cybersecurity

6.13 Cybersecurity

The Internet has improved communication, innovation, and access to information, however due to its largely open and unregulated nature municipal governments are more vulnerable to the hazards associated with cybersecurity threats and incidents. FEMA defines cyberattacks as "malicious attempts to access or damage a computer or network system." Cyberattacks can lead to the loss of money or the theft of personal, financial, and medical information." Cybersecurity involves preventing, detecting, and responding to those cyberattacks that can have wide-ranging effects on individuals, organizations, the community, and the nation.[122] Cyber terrorism refers to an attack on information technology itself in a way that would radically disrupt networked services. For example, cyber terrorists could disable networked emergency systems or hack into networks housing critical financial information. Cyber-attacks can take many forms. They can use computers, mobile phones, gaming systems and other devices, they can include fraud or identity theft, block access or delete personal documents and pictures, may target children, and may cause problems with business services, transportation, and power.[123] The table below outlines some key terms and definitions for this hazard of concern.

Table 6.13.1: Key terms and definitions for Cybersecurity

Key terms	Definition
Threat actor	Who is behind the event? This could be the external "bad guy" that launches a phishing campaign or an employee who leaves sensitive documents in their seat back pocket.
Threat action	What tactics (actions) were used to affect an asset? The seven primary categories of threat actions include: Malware, Hacking, Social, Misuse, Physical, Error and Environmental.
Incident	A security event that compromises the integrity, confidentiality or availability of an information asset.
Breach	An incident that results in the confirmed disclosure—not just potential exposure—of data to an unauthorized party. A Distributed Denial of Service (DDoS) attack, for instance, is most often an incident rather than a breach, since no data is exfiltrated. That doesn't make it any less serious.

Location

These attacks have no set geographic boundary and can occur anywhere, facilitated by the internet. Cybersecurity is an evolving, borderless challenge especially if there are vulnerabilities in software, unsecure or weak passwords, social engineering attacks, and unsecure internet connections.

Extent

The effect of a cyber-attack event can vary depending on the type of attack and the magnitude of the event or events. According to the Verizon Data Breach Investigations Report (DBIR), "There are four key paths leading cyber-attacks: Credentials, Phishing, Exploiting vulnerabilities, and Botnets. All four are pervasive in all areas of the DBIR, and no organization is safe without a plan to handle each of them."[124]

Historic Occurrences

There have been no historic occurrences or documented cyber-attacks within the City of Angleton. According to the Verizon DBIR, the North American Region (comprised of the US and Canada) has experienced 9,036 cybersecurity incidents, 1,924 of those with confirmed data disclosure between November 1, 2021, through October 31, 2022. 85% of breaches were due to system intrusion, basic web application attacks and social engineering. Threat actors for these breaches included external (94%), internal (12%), multiple (9%), and partner (2%). Motives for these cyber-attacks were financial (99%), espionage (1%), and grudge (1%). Data comprised included credentials (67%), internal (50%), personal (38%), and other (24%).

Presidential Disaster Declarations

There have been no federally declared cyber-attack or cyber terrorism-related disaster declarations in Brazoria County, in which the City of Angleton is located, since 1950.

USDA Disaster Declarations

Cyber-attacks and cyber terrorism are a human-caused hazard, there are no USDA Disaster Declarations associated with the hazard.

Probability of Future Occurrences

As cybercriminals become more sophisticated in the future, the county's vulnerability to cyber-attacks may change significantly. It is difficult to predict the probability of future occurrences due to the unpredictable nature of this hazard. Opportunistic criminals might also leverage natural disasters to target already vulnerable systems.

To decrease the number of future cybersecurity related attacks, FEMA suggests a variety of prevention methods that can be incorporated now, such as: keeping anti-virus software updated, using strong passwords. Changing passwords monthly, watching for suspicious activity, checking account statements and credit reports regularly, using secure internet communications, using a Virtual Private Network that creates a secure connection, using antivirus solutions (malware, and firewalls) to block threats., regularly back up files in an encrypted file or encrypted file storage device, limiting any personal information shared online, changing privacy settings, and protecting home networks.[125]

Populations at Risk

Everyone is equally at risk for this hazard within Brazoria County and the City of Angleton. As the US becomes increasingly reliant on technology, the vulnerability to cyber threats will increases. A significant number of people fear data breaches as the outcomes result in disruptions to sectors like transportation and healthcare and include societal impacts like mistrust.

Climate Change Impacts

Because terrorism is a human-caused hazard, no climate change impacts are associated with the hazard.

Section 7: Mitigation Strategy

This section covers the mitigation strategy summary, which provides the mitigation goals, objectives, and action items included in the Hazard Mitigation Action Plan in response to identified hazards.

Section 7: MITIGATION STRATEGY

The planning process, hazard analysis, and vulnerability assessment are foundations for a meaningful hazard mitigation strategy. The mitigation strategy provides an outline for how the county and the local jurisdictions aim to address and reduce the risks associated with the natural hazards identified in the HMP and reduce the potential impact on residents and structures. The mitigation strategy is divided into three sections the mission statement, goals and objectives, and the mitigation action plan (HMAP). The mission statement provides the overall purpose of the mitigation strategy and the HMP. The goals and objectives provide milestones for how the county aims to meet this purpose. The mitigation action plan details specific mitigation actions, or projects, programs, and policies the county aims to meet these goals and objectives.

Mission Statement

The HMP aims to implement new policies, programs, and projects to reduce the risks and impacts associated with natural hazards, including public education and partnerships between local officials and residents.

Goals

1) Educate citizens regarding emergency situations related to hazards.
2) Develop publications and educational information on all hazards and make them easily accessible to all within the City of Angleton.
3) Promote the use of emergency notification systems and weather alerts for all hazards.
4) Decrease the risk to life and property from hazards through planning, preparation, and mitigation.
5) Develop policies and strategies to effectively manage and reduce risk.
6) Increase the resiliency of the City of Angleton through projects and strategies that reduce the impacts of hazards.
7) Enhance coordination between local jurisdictions, county, state, and federal agencies.
8) Support the continuity of operations before, during, and after hazard events.
9) Incorporate hazard mitigation into community planning such as codes/ordinances, day-to-day operations, and projects.
10) Identify, protect, and assist socially vulnerable populations in recovery from hazard impacts.

Objectives

- Protect the lives and property of residents and business owners.
- Eliminate the number of vulnerable structures in areas susceptible to repetitive flooding.
- Increase public education and awareness of hazards that affect the city.
- Provide alternative power sources for critical facilities and infrastructure.
- Upgrade deteriorating infrastructure.

Mitigation Action Plan

The mitigation action plan explains the specific programs, policies, and projects that the county and the local jurisdictions aim to implement for the county to reach its HMAP objectives and goals. The mitigation action plan provides the details of each mitigation action including which local department will oversee implementing the actions, how the city intends to fund these actions, and the estimated time for implementing these actions.

The city submitted its mitigation actions based on the greatest vulnerabilities, goals, and needs. Each action was evaluated for feasibility using FEMA's Benefit Cost Analysis (BCA) Toolkit. The actions are separated by jurisdiction and include the BCA score for each. Mitigation actions below were given a priority rating of high, medium, or low based on feasibility, potential funding, BCA score, and implementation timelines.

Mitigation Actions, City of Angleton

Jurisdiction:	City of Angleton	Action Number:	A1
Hazard(s) Addressed:	Flooding Hurricanes, Tropical Storms & Tropical Depressions Windstorm Tornado Severe Thunderstorms & Lightning Winter Weather Extreme Heat		
Project Title:	Generator for Lift Station # 8		
Project Description:	Purchase and install Generator for Lift Station # 8 which is the second largest lift station within the City of Angleton.		
Responsible Entity:	City of Angleton Public Works & Emergency Management Departments		
Losses Avoided:	Loss of wastewater utilities to a majority of city residents due to power outage.		
Priority Rating:	High- 1		
Partners:	N/A		
Cost Estimate:	161,173.20	Timeframe:	12 -24 months
Potential Funding Sources:	HMPG	**Benefit-Cost Analysis:**	42.53
Is this action related to a critical facility or lifeline?			Yes
Does this action reduce the effects of hazards on existing buildings?			No
Does this action reduce the effects of hazards for new buildings, infrastructure, or future development?			Yes
Does the action identify, analyze, and prioritize actions related to continued compliance with the NFIP?			Yes

Jurisdiction:	City of Angleton	Action Number:	A2
Hazard(s) Addressed:	Flooding Hurricanes, Tropical Storms & Tropical Depressions Windstorm Tornado Severe Thunderstorms & Lightning Winter Weather Extreme Heat		
Project Title:	Generator for Storm Water Pump		
Project Description:	Install a generator on Storm Water pump		
Responsible Entity:	City of Angleton Public Works & Emergency Management Departments		
Losses Avoided:	Life safety and prevention of homes lost due to rising water flooding as a backup in the event of power loss.		
Priority Rating:	High- 1		
Partners:	N/A		
Cost Estimate:	$134,528	Timeframe:	12-24 months
Potential Funding Sources:	HMGP	**Benefit-Cost Analysis:**	1.10
Is this action related to a critical facility or lifeline?			Yes
Does this action reduce the effects of hazards on existing buildings?			No
Does this action reduce the effects of hazards for new buildings, infrastructure, or future development?			Yes
Does the action identify, analyze, and prioritize actions related to continued compliance with the NFIP?			Yes

Jurisdiction:	City of Angleton	Action Number:	A3
Hazard(s) Addressed:	Flooding Hurricanes, Tropical Storms & Tropical Depressions Windstorm Tornado Severe Thunderstorms & Lightning Winter Weather Extreme Heat		
Project Title:	Install a Permanent 350KW 277/480v, 3PH, 60hz Generator to the City Recreation Center		
Project Description:	Install a permanent generator that will power the City's Recreation Center so it can be used during and after a disaster event to shelter and stage city staff and provide a recovery center immediately after a disaster.		
Responsible Entity:	City of Angleton Parks and Recreation & Emergency Management Departments		
Losses Avoided:	Damage to a key piece of city infrastructure		
Priority Rating:	High- 1		
Partners:	N/A		
Cost Estimate:	$250,000	Timeframe:	12 months
Potential Funding Sources:	HMPG, CDBG-MIT	**Benefit-Cost Analysis:**	0.43
Is this action related to a critical facility or lifeline?			Yes
Does this action reduce the effects of hazards on existing buildings?			Yes
Does this action reduce the effects of hazards for new buildings, infrastructure, or future development?			Yes
Does the action identify, analyze, and prioritize actions related to continued compliance with the NFIP?			No

Jurisdiction:	City of Angleton	Action Number:	A4
Hazard(s) Addressed:	Hurricanes, Tropical Storms, & Depressions Flooding Winter Weather Tornado Extreme Heat Wildfire Drought & Expansive Soils Severe Thunderstorms & Lightning Hail Cybersecurity Windstorm Erosion Emerging Infectious Diseases		
Project Title:	Public Education Materials		
Project Description:	Implement an outreach and education campaign to educate the public on all hazards that affect the City of Angleton		
Responsible Entity:	City of Angleton Parks Emergency Management Department		
Losses Avoided:	Increase in citizen education regarding hazards- preservation of property, decreased financial losses due to natural hazards, and mitigating the loss of human life and injuries		
Priority Rating:	Medium- 2		
Partners:	N/A		
Cost Estimate:	$5,000	Timeframe:	12 months
Potential Funding Sources:	HMPG, Local funds, staff time/wages	**Benefit-Cost Analysis:**	N/A
Is this action related to a critical facility or lifeline?			No
Does this action reduce the effects of hazards on existing buildings?			No
Does this action reduce the effects of hazards for new buildings, infrastructure, or future development?			No
Does the action identify, analyze, and prioritize actions related to continued compliance with the NFIP?			No

Section 8: Plan Maintenance

This section provides an overview of plan maintenance procedures which includes information on monitoring, evaluating, and updating the plan, and a description of how this plan will be incorporated into existing programs.

Section 8: PLAN MAINTENANCE

To remain an effective tool, the HMP will undergo continuous review and updates. This practice is known as plan maintenance and requires monitoring, evaluating, updating, and implementing the entirety of the written plan and planning process. To accomplish this, a Plan Maintenance Team (PMT) has been determined and is comprised of representatives from various departments within the City of Angleton. The Plan Maintenance Team Leader shall be the City of Angleton Emergency Management Coordinator.

Public Involvement

Continued stakeholder and public involvement will remain a vital component of the HMP. The HMP will be hosted on the City of Angleton and H-GAC websites, and public input can be submitted at any time to the listed contacts. The PMT Leader is responsible for documenting public feedback and presenting the comments for discussion at each annual Plan Maintenance meeting.

The PMT Leader will also conduct outreach and invite the public to annual Plan Maintenance meetings. The PMT Leader will notify the public of all annual meetings by posting meeting flyers and agendas online via the city website and social media and providing printed copies of the meeting agenda flyers at city buildings 30 days prior to the meetings. In addition, the city will seek input from the public on the status of existing hazards, emerging vulnerabilities, and evaluate the HMP's strategy with the public. During each meeting, the PMT will provide an open comment forum for interactive discussion with the public. The development of new goals and strategies will be a joint effort between the PMT Leader, PMT, and public participants.

Procedures & Schedule

Procedures ensure that the goals, objectives, and mitigation strategy are regularly examined for feasibility and that the HMP remains a relevant and adaptive tool. The PMT will meet annually and hold its first meeting within one year after the plan’s approval date. An additional mid-year meeting will be held 18 months prior to the plan’s expiration to develop a timeline and strategy to update the HMP.

Any new mitigation actions, strategies, required studies, suggestions for improvements, or changes to the entire written plan or planning process will be submitted to the PMT Leader. The representative will evaluate the items for compliance with TDEM and FEMA regulations before leading the process to adopt or approve the new items or suggestions. Recommended changes, updates, and revisions will be implemented based on available funding to support revisions and updates and will be assigned to appropriate officials with pre-determined timelines for completion. Updates to the HMP will then be adopted by the appropriate governing body.

Table 8.1.1: Plan Maintenance: Evaluation & Monitoring Procedures

Method and Procedures	Schedule	Responsible Entity
The PMT Leader will advertise all annual meetings via city websites, social media pages, and post flyers at the City Hall and city buildings 30 days prior to the meetings.	30 days prior to annual meetings	PMT Leader
The PMT Leader is responsible for evaluating the entire plan prior to the meeting. Each PMT member will be asked to identify and discuss any deficiencies in the plan as it relates to their jurisdiction. Each PMT member will discuss their findings followed by public input and comments.	Annually	PMT Leader, PMT member for each participating department, and Public

Emerging hazards, risks, and vulnerabilities will be identified and discussed. 1) PMT members are responsible for monitoring each natural hazard and providing a written and/or verbal update on any new occurrences and emerging risks. 2) The PMT Leader will seek input from participants and the public at the annual meetings by opening the meeting for public comment. 3) Newly identified hazards, risks, and vulnerabilities will be assigned to a PMT member to research and monitor.	Annually	Public and all PMT members
The PMT will evaluate the mitigation goals and objectives to ensure the HMP remains relevant, and the strategy continues to be effective. 1) PMT members will identify new projects and/or re-prioritize existing strategies, emerging hazards, and shifting priorities. 2) Mitigation strategies for the newly identified hazards, risks, and vulnerabilities will be proposed and discussed. 3) Funding sources and cooperation for new initiatives will be determined.	Annually	PMT member for each participating department
The city will evaluate its progress in implementing the HMP and suggest improvements to the entire current written plan, public participation, and planning process. 1) Representatives will publicly discuss progress and submit written progress reports to the PMT Leader. 2) Completed and ongoing mitigation actions will be discussed by the responsible entity. 3) Unaddressed mitigation actions will be evaluated for relevancy and/or amended to increase feasibility. 4) The feasibility of the mitigation strategy will be evaluated, and any necessary revisions will be proposed. 5) The PMT Leader will report on all suggestions received throughout the past year on the planning process and the entire written plan and discuss how to incorporate these suggestions into current and future planning efforts.	Annually	PMT, the responsible department identified in the mitigation action up for discussion, and the public.
The PMT will develop a timeline and strategy to update the plan 12-18 months before it expires. The update strategy will include: 1) Identify entities responsible for drafting and submitting the update to TDEM. 2) Send appropriate representatives to G-318 training. 3) Determine funding needs and funding sources for plan update. 4) Review the entirety of the plan; discuss hazards, vulnerabilities and impacts identified in the plan and what to include/ revise in the update	12-18 months prior to HMP expiration	PMT Leader and PMT

Plan Integration

Integrating the HMP into local planning mechanisms is key to its success. Effective integration allows communities to benefit from existing plans and procedures to further reduce their vulnerability and risk. Upon approval of the plan and approval of updates or revisions, as proposed by the PMT, each participating department will follow the pre-determined actions:

To update and revise existing planning mechanisms to further integrate the HMP the PMT will follow a basic process(es) described in this section.

1.) Propose a policy, strategy, or regulatory amendment to City Council.

2.) Advertise the amendment 15 days prior to the meeting where it will be discussed. Advertising procedures for the public meeting(s) are outlined in the public involvement measures described in Section 8 of this plan.
3.) Provide the public, elected officials, and governing bodies the opportunity to discuss and comment upon proposed change(s).
4.) If the proposal is accepted, the change is implemented by the City Council.

Several existing plans and programs that require integration of the HMP have been identified by the PT. The PMT will initiate the process described above. As each participating jurisdiction develops or approves new planning mechanisms, the mechanism's name and the integration method will be added to the HMP.

Table 8.1.2: Adoption and Integration Procedures

Participating Jurisdiction	Adoption and Integration Procedures
City of Angleton	HMP and plan amendments will be presented to the City Council by the City of Angleton Emergency Management Office. An agenda for the meeting will be posted 30 days in advance, and a 30-day period of public comment will be provided. Upon approval, the approved HMP will be integrated into existing planning mechanisms described in Table 8.1.2.

Table 8.1.3: Integration of HMP and Planning Mechanisms

Plan Name	Integration Methods
Disaster Recovery Plan	Both plans should be updated and maintained in accordance with the other plan's goals and strategies. The HMP will be consulted before any revisions or updates to the disaster recovery plans are made.
Floodplain Management Plan	The City of Angleton's floodplain regulations and floodplain management, as provided by the Angleton Drainage District, will provide preventative measures to prevent future development in the floodplains, and it also provides corrective guidance on development in the floodplain. When the regulations are updated, it will be reflected in the mitigation action strategy for flooding in Section 6.2 of this plan.
Emergency Operations Plan	Both plans will be continuously evaluated and monitored. Any Emergency Operations Plan updates will refer to, incorporate, and/or complement the HMP.
Subdivision/Zoning Ordinance	The city will review its codes and propose the adoption of codes that support mitigation activities defined in the HMP when appropriate.
Planning & Development Regulations	Each department has reviewed the vulnerabilities defined in the HMP and will adopt codes that support mitigation strategy and mitigation activities. PMT members will propose code amendments to the appropriate governing body, following to process to amend codes in the city, and document any regulation amendments to be included in the HMP.
Annual Budget	The City of Angleton and each participating jurisdiction will review their annual budget each year for opportunities to fund their highest-priority mitigation actions.
Flood Damage Prevention Ordinance	When the plan is updated or revised, the PMT will propose the adoption of codes that support mitigation strategy and mitigation activities.
Comprehensive Plan	Both plans will be continuously evaluated and monitored. Any Comprehensive Plan updates will refer to, incorporate, and/or complement the HMP.
Capital Improvements Plan	The city will review its capital improvement plan for projects that can also serve as natural hazard mitigation infrastructure. The CIP will be updated with project schedules and policies that support the implementation of each jurisdiction's highest-priority projects.

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THE HEART OF BRAZORIA COUNTY ANGLETON

AGENDA ITEM SUMMARY FORM

MEETING DATE: 4/22/2025

PREPARED BY: Martha Eighme

AGENDA CONTENT: Update, Discussion, and Possible Action on King Municipal Operations Center Project – Brent Boles iAD Architects

AGENDA ITEM SECTION: Regular Agenda

BUDGETED AMOUNT:

FUNDS REQUESTED:

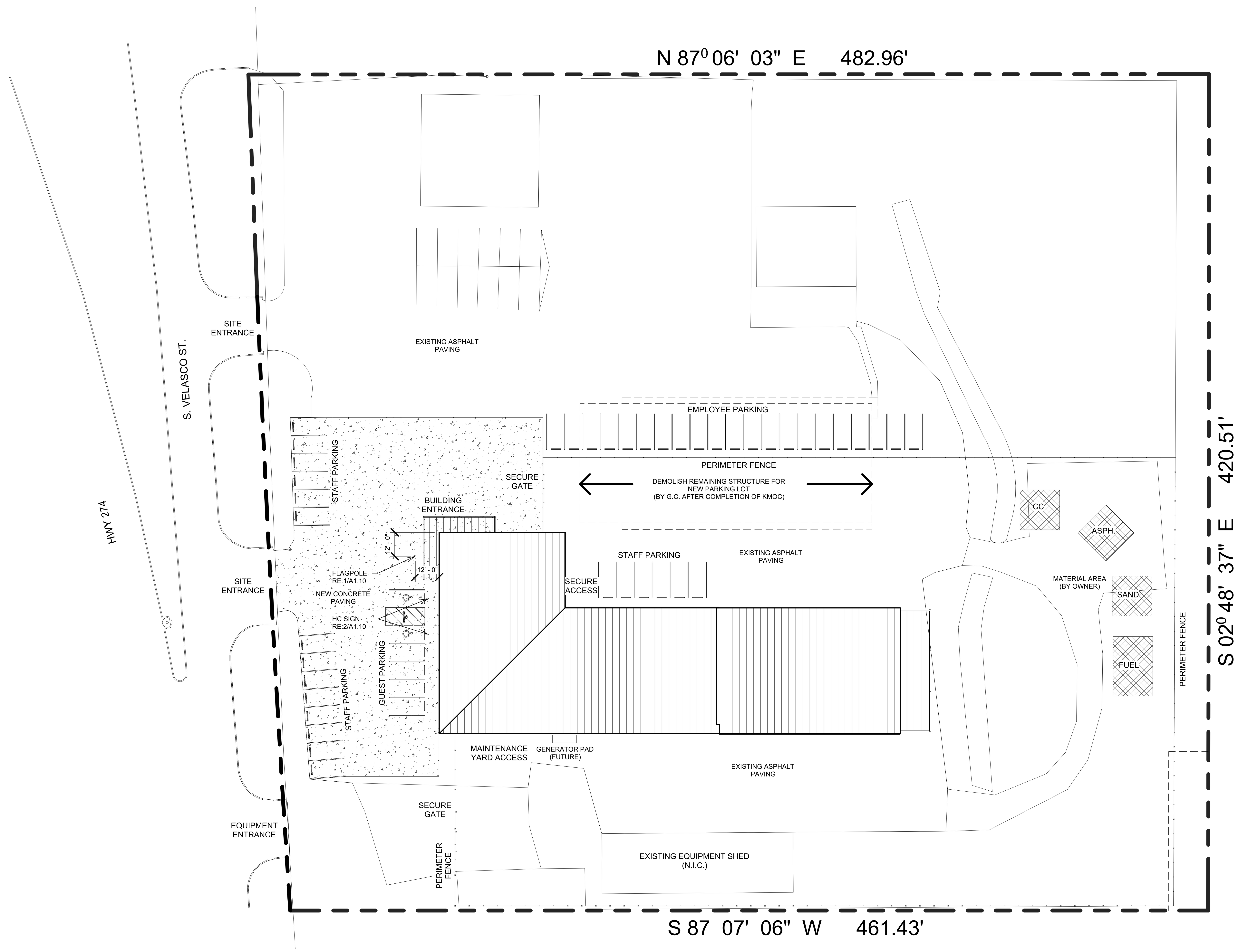
FUND: Bond

EXECUTIVE SUMMARY:

Project Update from Architect Brent Boles

RECOMMENDATION:

Item 5.



1 SITE PLAN

1" = 30'-0"

PLAN NORTH

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Integrated Architecture & Design, LLC
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Lake Jackson, Texas 77566
979.297.1411 p. 979.297.1418 f.
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PROJECT CONSULTANTS

Civil
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SITE PLAN

A1.00

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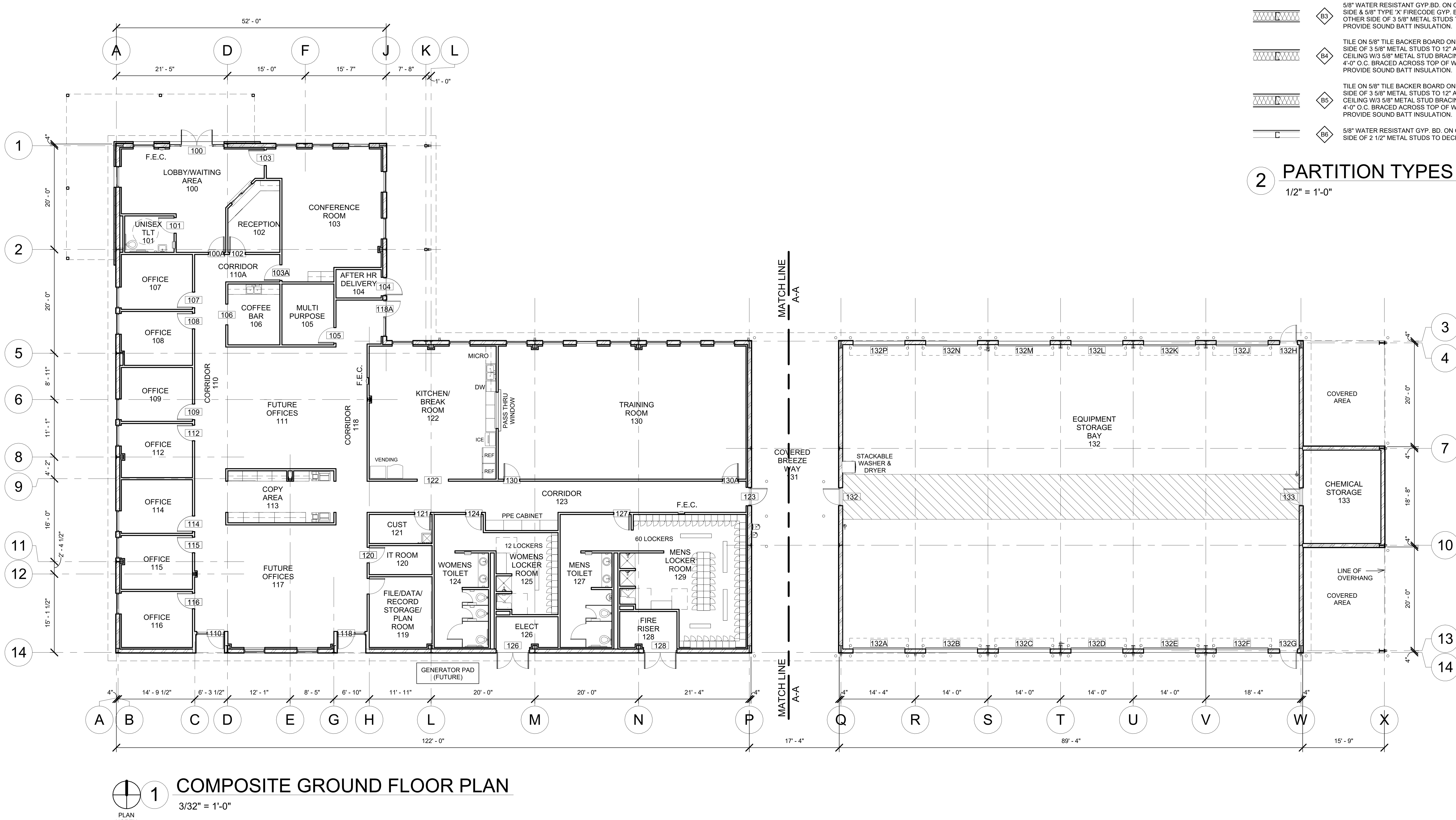

1 COMPOSITE GROUND FLOOR PLAN
3/32" = 1'-0"

Type	Description
A	5/8" TYPE 'X' FIRECODE GYP.BD. ON EACH SIDE OF 3 5/8" METAL STUDS TO 12" ABOVE CEILING W/3 5/8" METAL STUD BRACING @ 4'-0" O.C. BRACED ACROSS TOP OF WALLS. PROVIDE SOUND BATT INSULATION.
A1	5/8" TYPE 'X' FIRECODE GYP.BD. ON EACH SIDE OF 3 5/8" METAL STUDS TO DECK. PROVIDE SOUND BATT INSULATION.
A2	5/8" TYPE 'X' FIRECODE GYP.BD. ON EACH SIDE OF 3 5/8" METAL STUDS TO DECK. PROVIDE SOUND BATT INSULATION. 1 HOUR RATED UL419
A3	5/8" TYPE 'X' FIRECODE GYP.BD. ON ONE SIDE OF 2 1/2" METAL STUDS TO 12" ABOVE CEILING W/3 5/8" METAL STUD BRACING @ 4'-0" O.C. BRACED ACROSS TOP OF WALLS.
A4	5/8" TYPE 'X' FIRECODE GYP.BD. ON ONE SIDE OF 3 5/8" METAL STUDS TO 12" ABOVE CEILING W/3 5/8" METAL STUD BRACING @ 4'-0" O.C. BRACED ACROSS TOP OF WALLS.
A5	5/8" TYPE 'X' FIRECODE GYP.BD. ON ONE SIDE OF 2 1/2" METAL STUDS TO DECK.
B	5/8" WATER RESISTANT GYP.BD. ON EACH SIDE OF 3 5/8" METAL STUDS TO 12" ABOVE CEILING W/3 5/8" METAL STUD BRACING @ 4'-0" O.C. BRACED ACROSS TOP OF WALLS. PROVIDE SOUND BATT INSULATION.
B1	5/8" WATER RESISTANT GYP.BD. ON ONE SIDE & 5/8" TYPE 'X' FIRECODE GYP. BD. ON OTHER SIDE OF 3 5/8" METAL STUDS TO 12" ABOVE CEILING W/3 5/8" METAL STUD BRACING @ 4'-0" O.C. BRACED ACROSS TOP OF WALLS. PROVIDE SOUND BATT INSULATION.
B2	5/8" WATER RESISTANT GYP.BD. ON ONE SIDE & 5/8" TYPE 'X' FIRECODE GYP. BD. ON OTHER SIDE OF 3 5/8" METAL STUDS TO DECK. PROVIDE SOUND BATT INSULATION. 1 HOUR RATED UL419
B3	5/8" WATER RESISTANT GYP.BD. ON ONE SIDE & 5/8" TYPE 'X' FIRECODE GYP. BD. ON OTHER SIDE OF 3 5/8" METAL STUDS TO DECK. PROVIDE SOUND BATT INSULATION.
B4	TILE ON 5/8" TILE BACKER BOARD ON ONE SIDE OF 3 5/8" METAL STUDS TO 12" ABOVE CEILING W/3 5/8" METAL STUD BRACING @ 4'-0" O.C. BRACED ACROSS TOP OF WALLS. PROVIDE SOUND BATT INSULATION.
B5	TILE ON 5/8" TILE BACKER BOARD ON EACH SIDE OF 3 5/8" METAL STUDS TO 12" ABOVE CEILING W/3 5/8" METAL STUD BRACING @ 4'-0" O.C. BRACED ACROSS TOP OF WALLS. PROVIDE SOUND BATT INSULATION.
B6	5/8" WATER RESISTANT GYP. BD. ON ONE SIDE OF 2 1/2" METAL STUDS TO DECK.

2 PARTITION TYPES
1/2" = 1'-0"

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REVISION LOG

COMPOSITE GROUND FLOOR PLAN

A2.00

SCALE: AS NOTED

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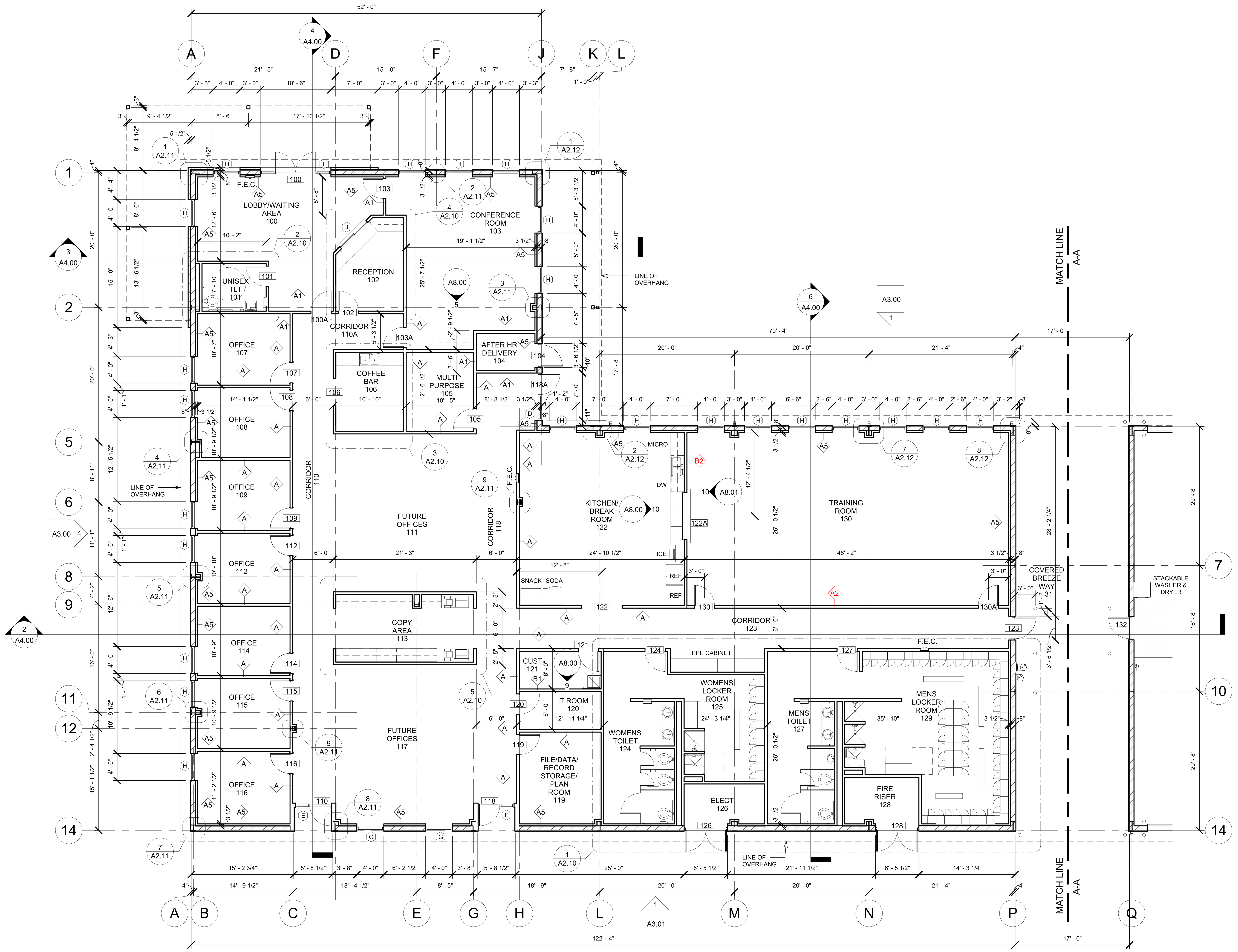
Item 5.



1 GROUND FLOOR PLAN - WEST

1/8" = 1'-0"

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GROUND FLOOR PLAN - WEST

A2.01

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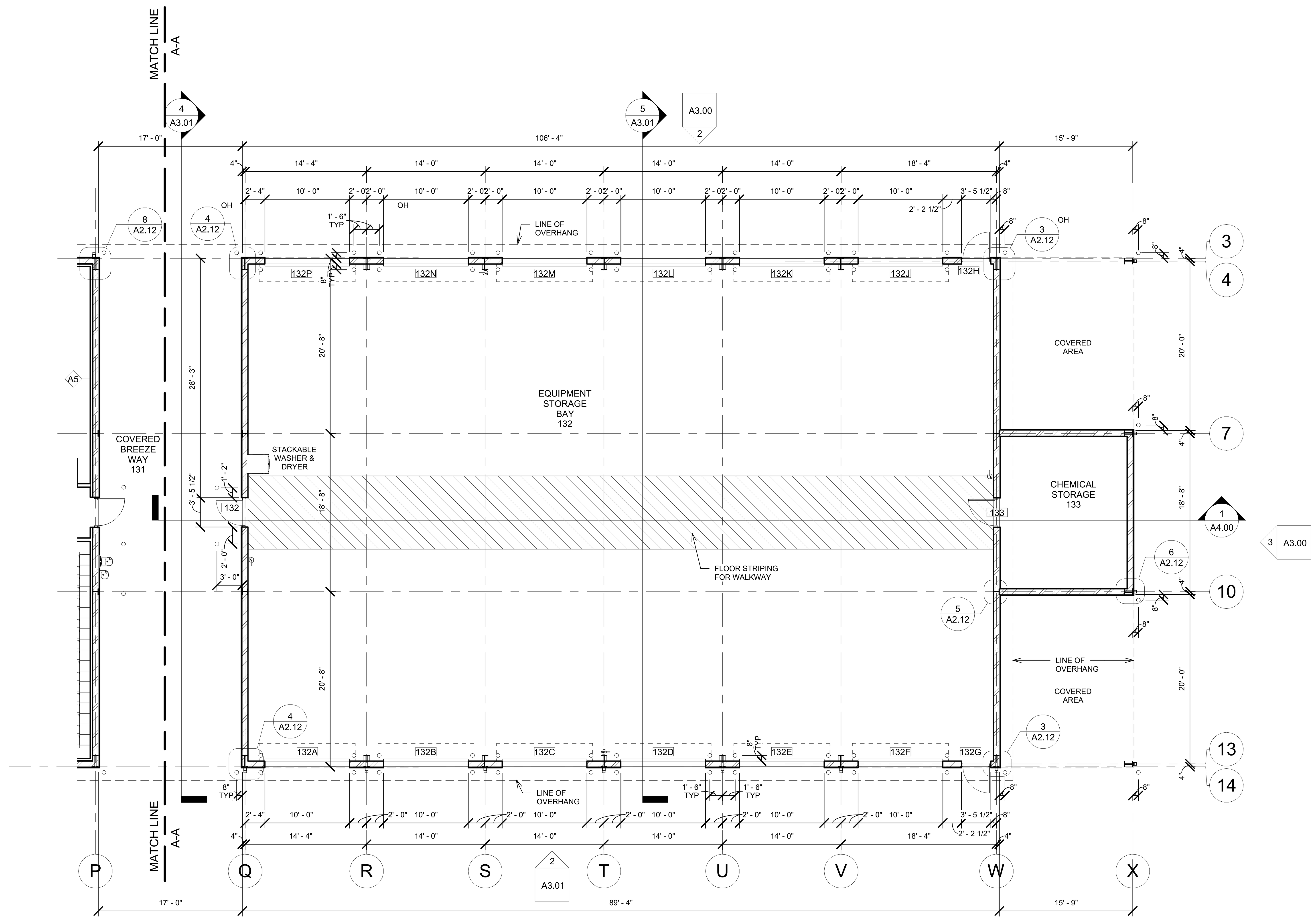

GROUND FLOOR PLAN - EAST

1/8" = 1'-0"

PLAN NORTH

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REVISION LOG

GROUND FLOOR PLAN - EAST

A2.02

SCALE: AS NOTED

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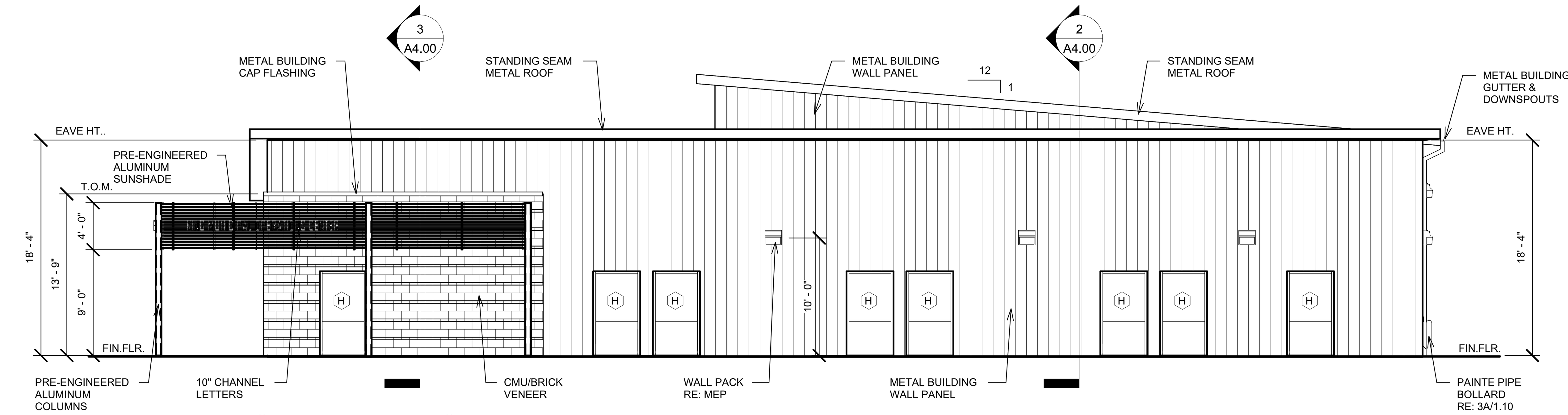
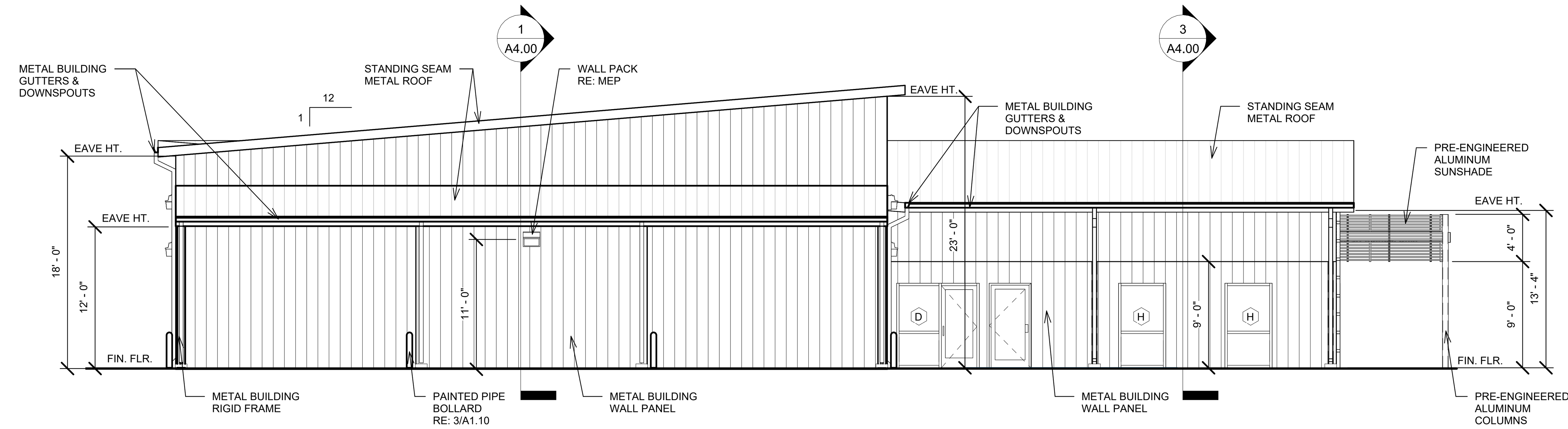


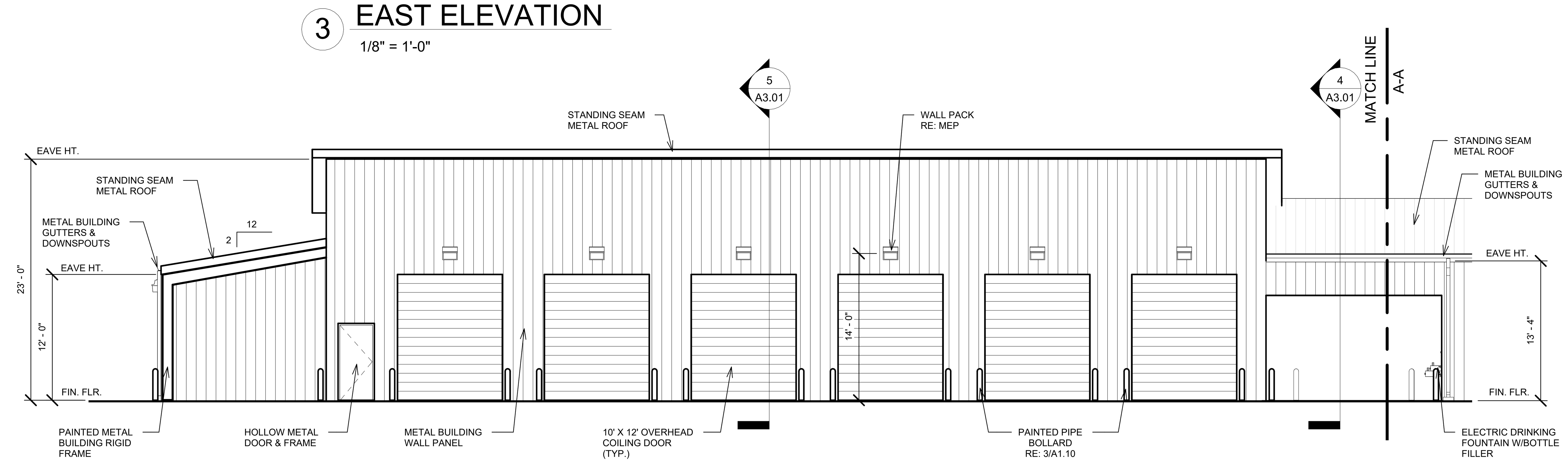
4 WEST ELEVATION

1/8" = 1'-0"



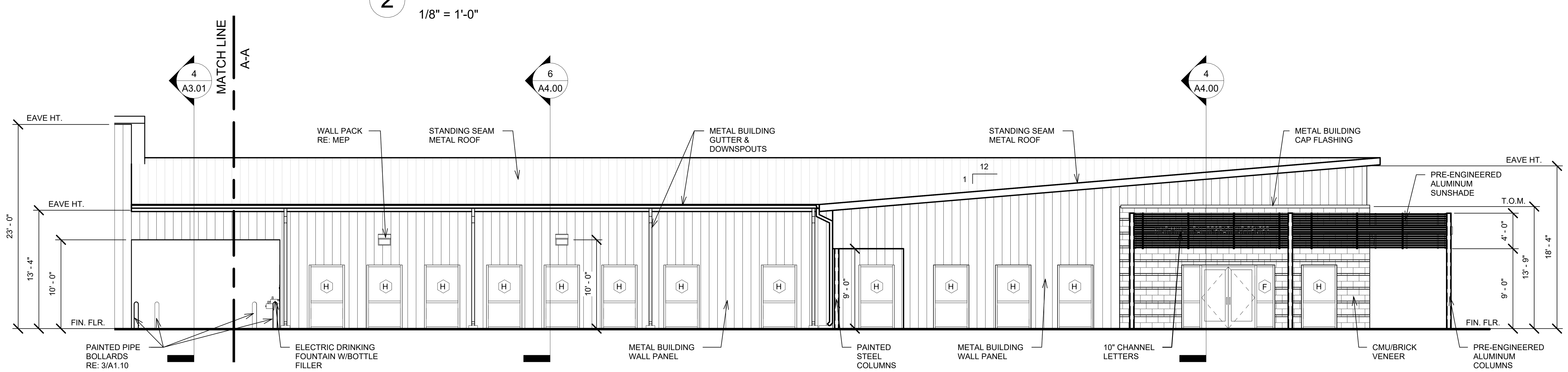
3 EAST ELEVATION

1/8" = 1'-0"



2 NORTH ELEVATION - EAST

1/8" = 1'-0"



1 NORTH ELEVATION - WEST

1/8" = 1'-0"

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ELEVATIONS

A3.00

SCALE: AS NOTED

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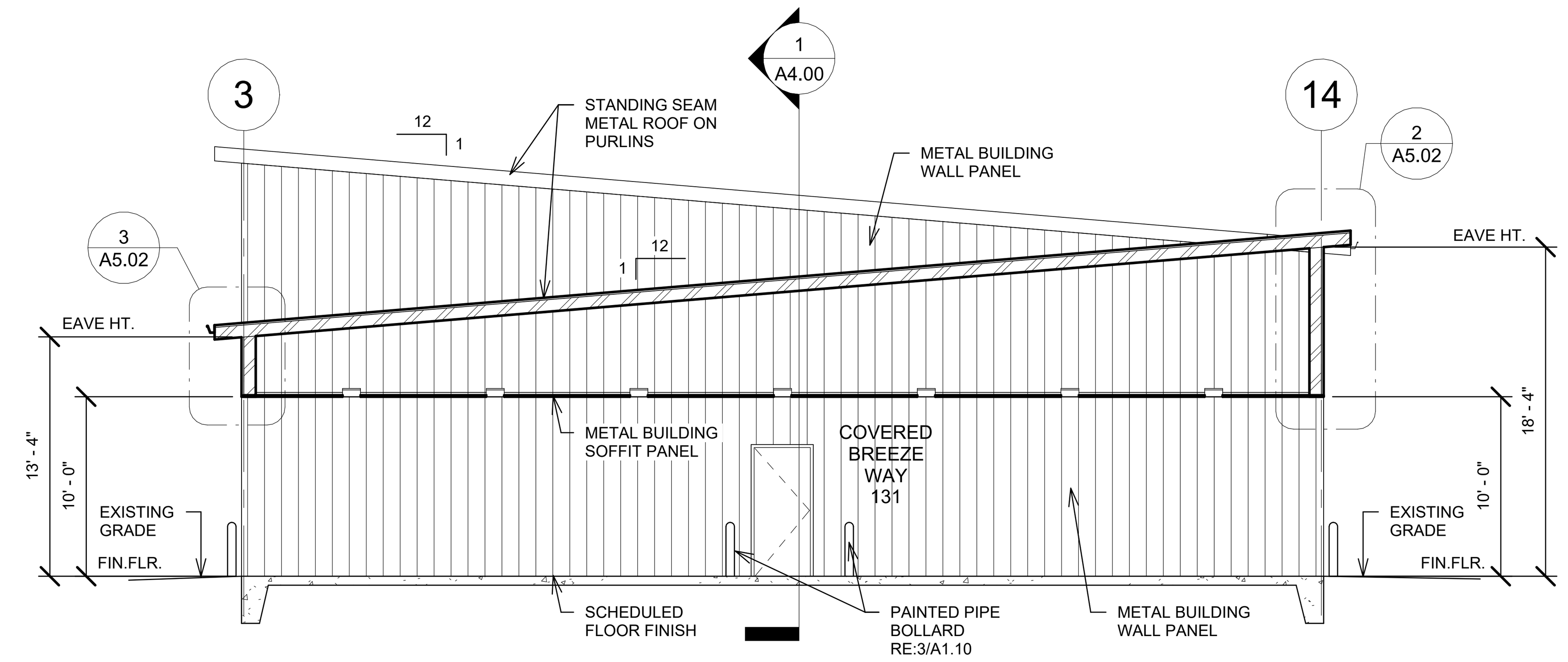
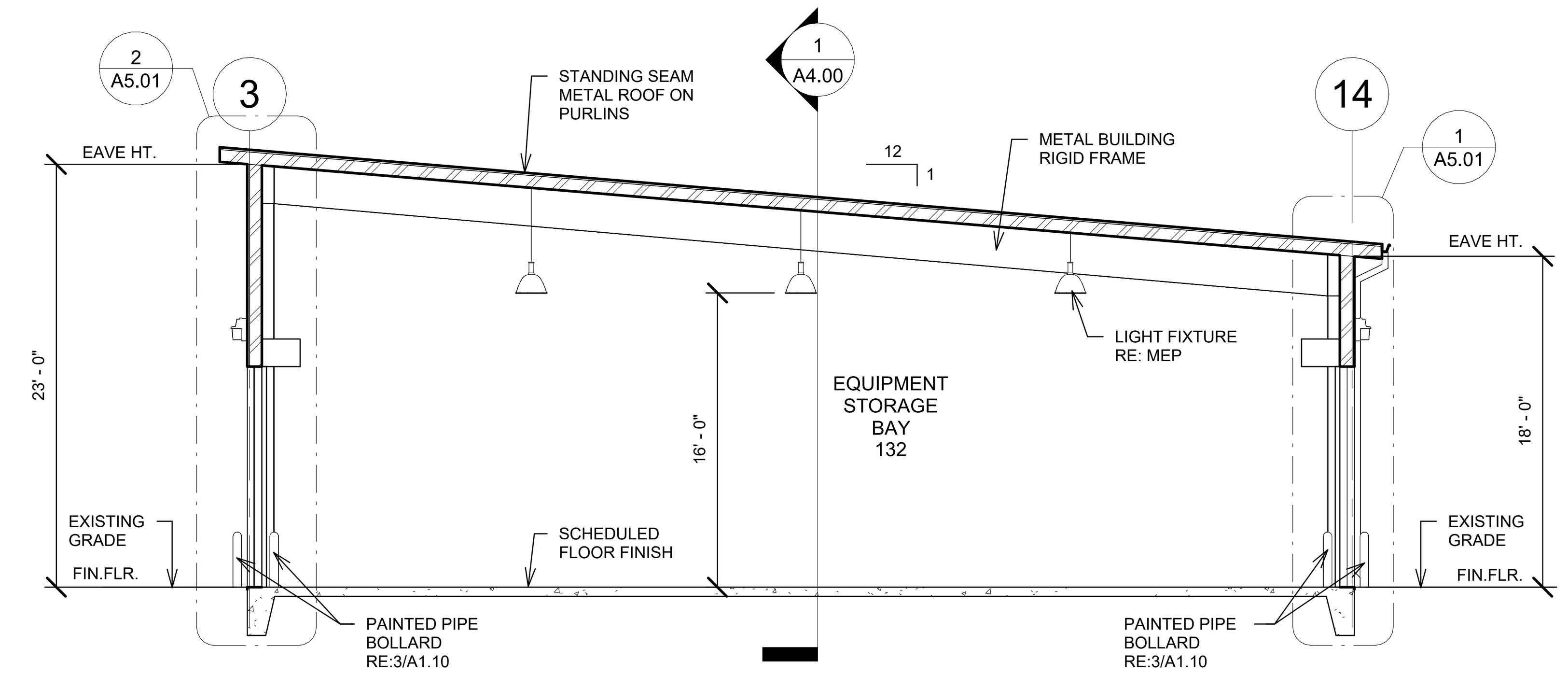


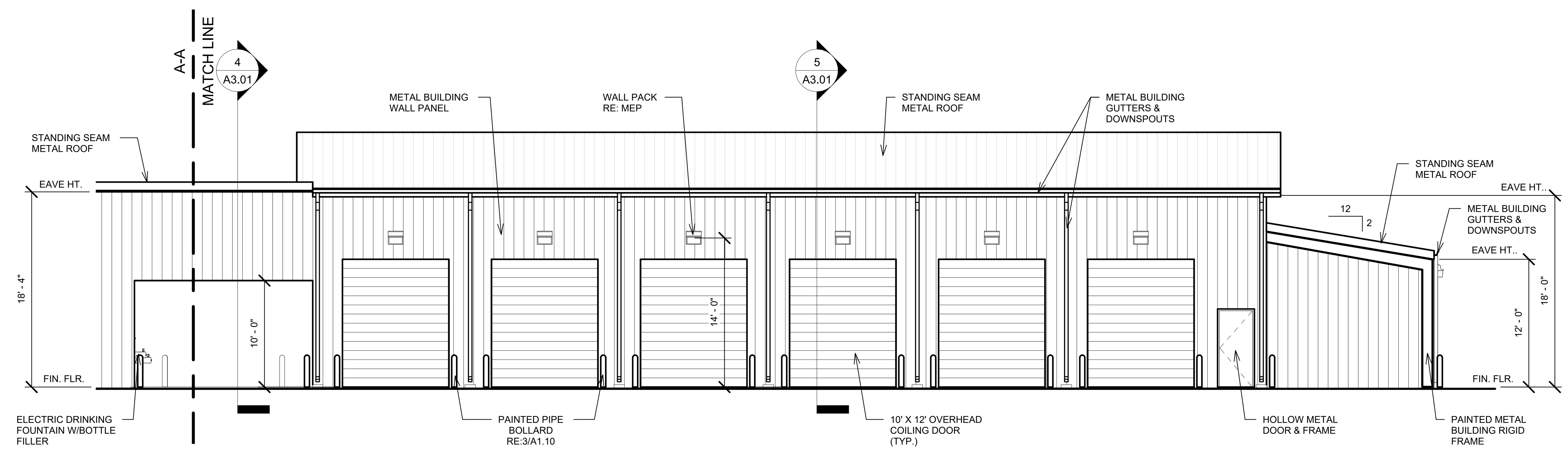
4 CROSS SECTION 3

1/8" = 1'-0"



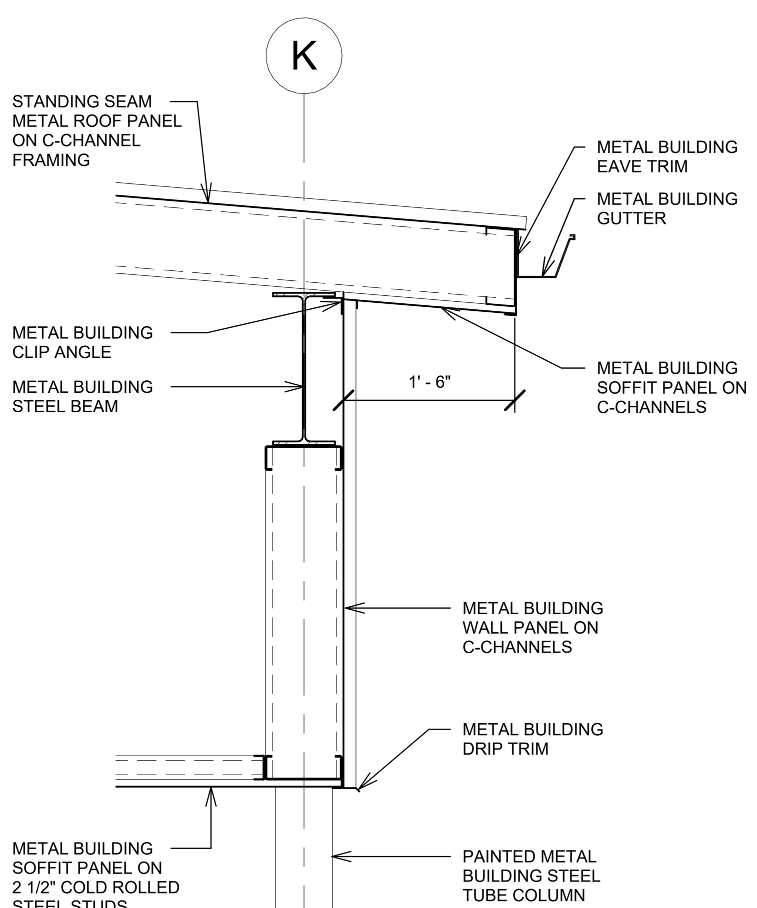
5 CROSS SECTION 4

1/8" = 1'-0"



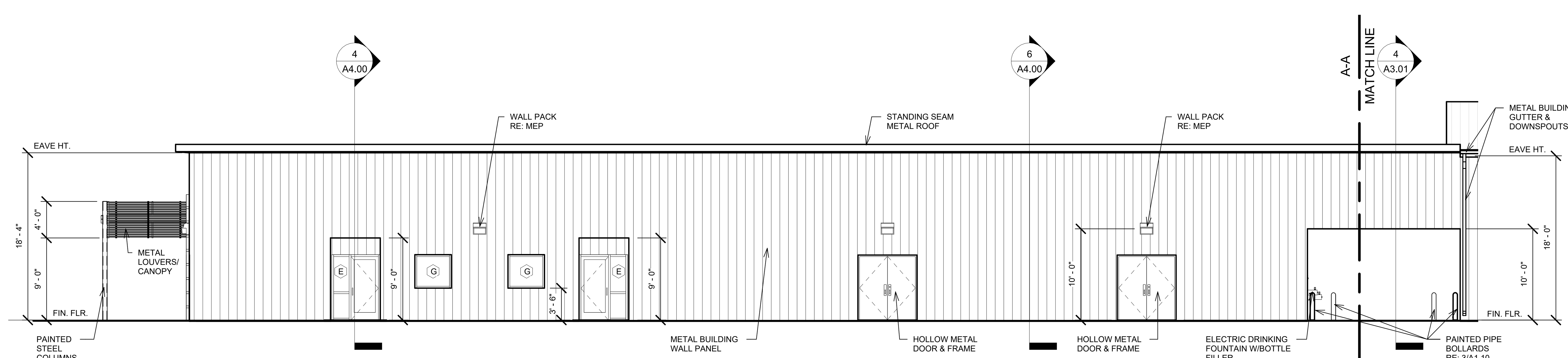
2 SOUTH ELEVATION - EAST

1/8" = 1'-0"



3 WALL SECTION 9

3/4" = 1'-0"



1 SOUTH ELEVATION - WEST

1/8" = 1'-0"

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ELEVATIONS

A3.01

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KING MUNICIPAL OPERATIONS CENTER


KING MUNICIPAL OPERATIONS CENTER

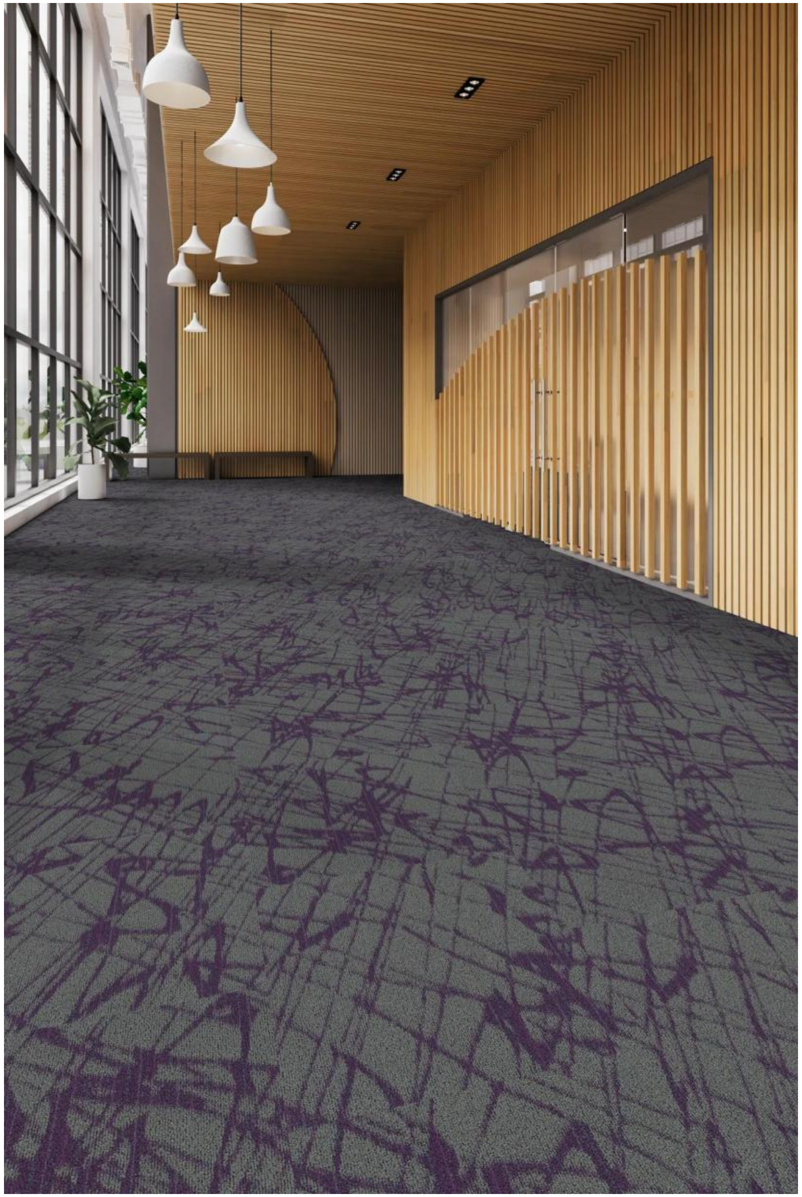
THE HEART OF BRAZORIA COUNTY

ANGLETON

Finish Presentation

King Municipal Operations Center

HANKS
DESIGNGROUP

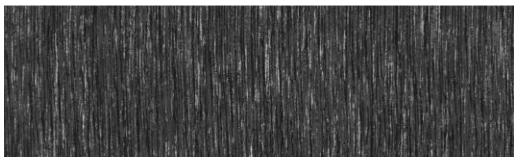


Wonder Rhythm
All carpet OR mix of Wonder & Amuse

Carpet: Hopeful Energy

King Municipal Operations Center

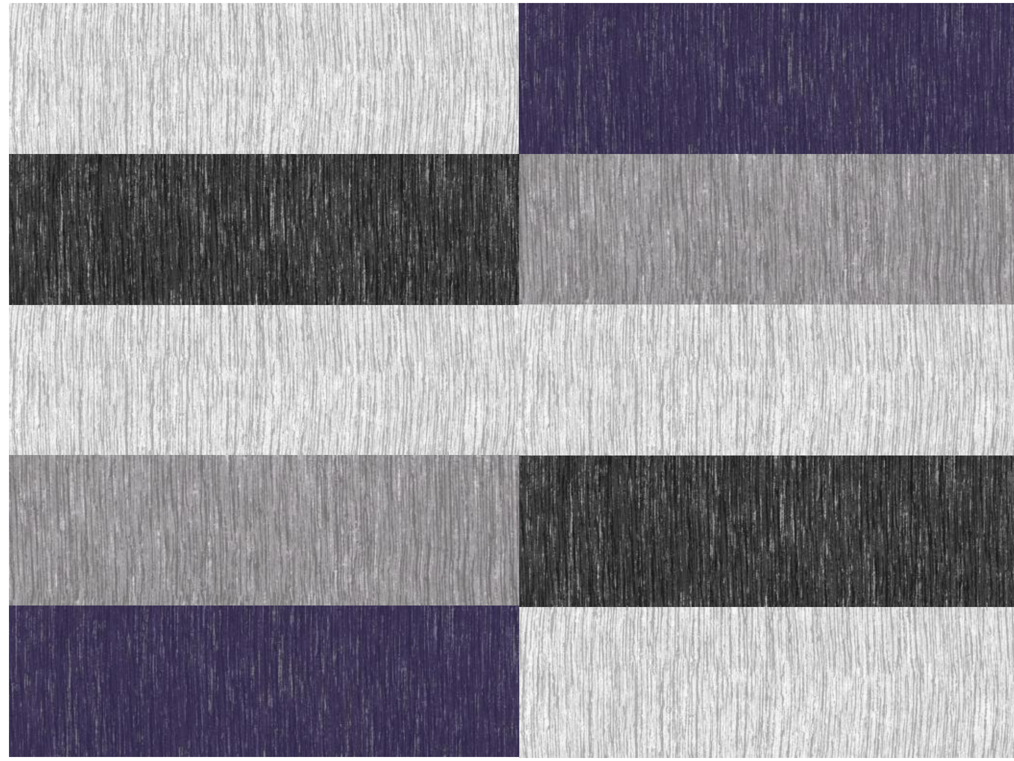
Moonlight



Eclipse

Flannel

Urchin

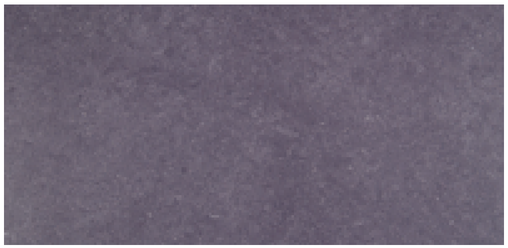


Contour Abstract – Color Beam
6”x36” plank; random mix of 40/20/20/20

LVT: Color Play

King Municipal Operations Center

Retro Active 2.0 – Mercurial
Floor – Unpolished.

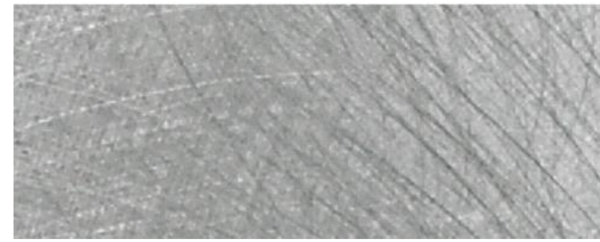


Argent 2.5 – Grapes of Wrath
Wall – Unpolished accent.

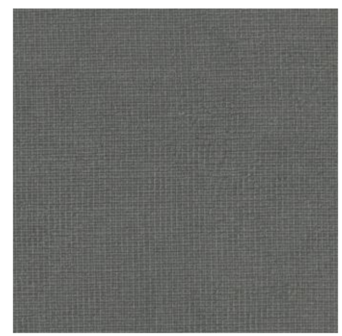
Retro Active 2.0 – Mercurial
Wall – Polished.

Access Point – Concrete Dove
Shower – 2”x2”

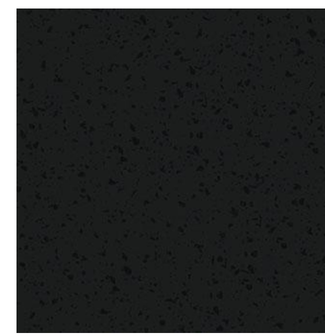
Lockers - Black



Toilet Partitions – Stainless (Rotary Brushed)



Wilsonart –Steel Mesh
Locker Room Sink Front

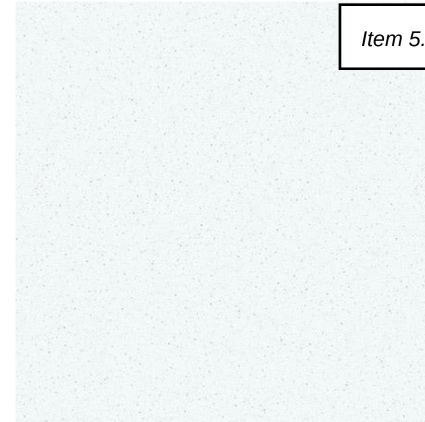


Hi-Macs – Black Granite
Locker Room Countertop

Wilsonart – Mangalore Mango
Interior Doors

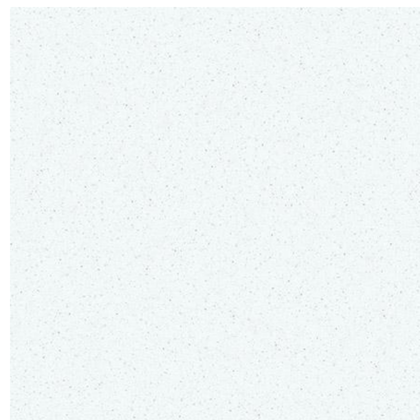
Wilsonart – Carbon Mesh
Reception, Conference, Coffee Bar Cabinets

Wilsonart – Pearl Soapstone
Reception, Conference Countertop



Hi-Macs – Ice Queen
Coffee Bar Countertop

Formica – Cassis
Kitchen/Breakroom, Copy Area Cabinets



Hi-Macs – Ice Queen
Kitchen/Breakroom Countertop & Training pass-thru

Formica – Black
Copy Area Countertop, PPE Cabinet

Interior Doors & Cabinetry

King Municipal Operations Center

HANKS DESIGNGROUP

Armstrong Cortega

THE HEART OF BRAZORIA COUNTY ANGLETON

AGENDA ITEM SUMMARY FORM

MEETING DATE: April 22nd, 2025

PREPARED BY: Hector Renteria

AGENDA CONTENT: Hydrant Updates

AGENDA ITEM SECTION: Regular Agenda

BUDGETED AMOUNT:

FUNDS REQUESTED:

FUND:

EXECUTIVE SUMMARY:

Hydrants are an integral part of the water distribution system and play an important role in firefighting. There are currently 784 hydrants in our entire water system. Of these there are currently a total of 24 out of service. There are also various other minor issues that affect hydrants as well. These minor issues do not make them inoperable but can make operation difficult and cause severe issues if left untreated. It is extremely important to have a hydrant maintenance program in place. This program should test hydrants annually, identify issues, and repair/replace hydrants. Prior to the 22-23 budget year there was no hydrant maintenance program in place. The first year there was a budget to utilize was in the 20-21 budget year at $7,500 which was utilized for painting hydrants only. In the 21-22 budget year this increased to $25,000. In this year a hydrant survey was performed, but there were minimal hydrants replaced. Also, data from this survey didn't include flow testing so the results were not in depth. In the 22-23 budget we were able to increase the budget to $30,000. This allowed a hydrant survey to be performed on half of the hydrants in the city, and the replacement of 5-7 hydrants depending on exact issue. This was repeated in the 23-24 budget year. A $15,000 dollar increase was requested in the 23-24 budget year but was not allocated. The same request was rolled over to the 24-25 fiscal year budget requests. We attempted to increase the budget to allow for more repairs/replacements due to the amount we discovered out of service after our first survey. Since the program's inception we have been able to replace 37 hydrants across the city. We have also made various repairs to 30 hydrants. We still have hydrants that need replacement, or repairs, but we are constantly working to determine the most efficient manners to get as many back in operation as possible. Once all hydrants are in service, we can then focus resources on the minor repairs, preventative maintenance, and aesthetics.

RECOMMENDATION:

HYDRANT.COM

Fire Hydrant Inspection Report

Fire Hydrant Inspections
5380 West 34th Street # 214
Houston, Texas 77092
Phone: 281-407-6161

Prepared for:

Hector Renteria
Director of Public Works

City of Angleton

Fire Hydrant Pressure Testing, Inspections, and Flushing

January, 2025

CITY OF ANGLETON
JANUARY 2025 HYDRANT SAFETY PROJECT SUMMARY
INSPECTIONS, PRESSURE TESTING, AND FLUSHING

The City Angleton has approximately 784 hydrants as of January 2025. The following report reflects 412 hydrant locations. All public hydrants are fire flow tested every 2 years. Fire flow tests were conducted on 396 hydrants gathering static, flow, and residual pressures per NFPA 291 4.5.1. Fire flow tests for determining the available water supply for the design of a water-based protection system per NFPA 291 4.4 were conducted at 26 locations. Test locations and results can be integrated into GIS and used for flow modeling purposes.

Recording static and flow pressures for each hydrant provides a representation of the pressures in the community's water system.

To achieve the maximum points available for the "Frequency of Inspection" per ISO, all fire hydrants must be inspected annually, flushed annually, and subjected to full system pressure during inspection. Each hydrant is assigned an individual ISO Condition Classification* rating per ISO guidelines. NFPA and AWWA also state that all public hydrants should be inspected, operated, pressure tested, and flushed at least annually.

Hydrants were fully exercised, fully pressurized, and fully flowed to verify the hydrant is safe and currently working. Hydrant testing involved fully opening each hydrant without flowing to notate static pressure and check for leaks. Hydrant was then fully flowed through a 2.5in nozzle and flushed.

All hydrants were flushed at a minimum for 1 minute. Any additional dirty flows were recorded for the duration of the time each hydrant was flushed.

16 **Out of Service** hydrants were identified and immediately reported to the city.

16 **Out of Service** hydrants remain as of January 27th, 2025.

Static pressures varied throughout the system from 50-69 PSI, and single 2.5in nozzle flow pressures ranged from 4-52 PSI (336-1210 GPM).

The following reports provided allow the City of Angleton to prioritize repairs and remedy issues uncovered during the hydrant project.

412 Hydrants out of the total 784 hydrants are reflected within the following reports.

Sections 1-25

1. **Out of Service Hydrants**

   16 **OUT OF SERVICE** hydrants located during project were immediately reported to the city.

   - 9 hydrants were tagged **OUT OF SERVICE** prior to inspection and were not tested.
   - 7 hydrants were tagged **OUT OF SERVICE** during inspection/testing

     16 hydrants remain **OUT OF SERVICE** as of January 27th, 2025.

2. **Low Pressure Hydrants**
   (under 20 PSI flow or significantly lower flow than nearby hydrants)
   - 8 hydrants

3. **Hydrant Valves Which Increase the Possibility of a Water Hammer**
   - 9 Hydrant valves have issues.

4. **Extremely Difficult to Operate**
   - 22 Hydrants in extreme need of oil or grease to operate properly
     - 9 hydrants were unable to fully open

5. **General Lubrication**
   - 72 Hydrants are in general need of lubrication

6. **Dirty Flow Locations**
   - 21 Hydrants flowed dirty over 1 minute.
     6 Hydrants flowed dirty over 5 minutes and were reported to the city.

7. **Flange Repairs**
   - 74 Hydrants

8. **Inspect/Replace Main Valve**
   - 2 Hydrant main valve does not seal properly and is leaking a small amount of water.

9. **Seized Pumper and/or Hose Caps**
   - 23 hydrants have seized pumper and/or hose caps.

10. **Pumper and Hose Caps/Nozzles**
    - 10 Hydrants need pumper and hose caps/nozzle repairs.

CITY OF ANGLETON
JANUARY 2025 HYDRANT SAFETY PROJECT SUMMARY
INSPECTIONS, PRESSURE TESTING, AND FLUSHING

11. **Bonnet Repairs**
    - 51 Hydrants

12. **Hydrant Accessibility**
    - 8 Hydrants have impediments to their operation and/or accessibility.

13. **Extensions Required**
    - 12 Hydrants need to be raised.

14. **Missing Blue Markers**
    - 387 blue markers.

15. **Chains and S-Hooks**
    - 220 Hydrants need chains and/or S-hooks.

16. **Hydrants Needing Paint**
    - 40 Hydrants.

17. **Missing/Replace Isolation Valve Cover**
    - 9 hydrants need an isolation valve cover.

18. **ISO Condition* Classifications**

    412 Hydrants are assigned Conditions per ISO guidelines.

    *(Hydrant.com assessed condition of hydrants. Conditions are not assigned by Insurance Services Office).
    - 16 Hydrants rated as Not Usable (Hydrants Out of Service).
    - 108 Hydrants rated as Usable (hydrants which have some defects, and/or impediments to use).
    - 288 Hydrants rated as Standard (no leaks, open easily, are conspicuous and well located for use by pumper).

19. **Fire Flow Test Data**
    - 396 hydrants fire flow tested

20. **Testing Available Water Supply In Water-Mains**
    - 26 tests.
    - Reports are provided both numerically and graphically.

21. **Make/Model/Year**

CITY OF ANGLETON
JANUARY 2025 HYDRANT SAFETY PROJECT SUMMARY
INSPECTIONS, PRESSURE TESTING, AND FLUSHING

22. **Estimated Gallons Used to Flow Test Hydrants and Flush Dirty Lines**

An estimated 406,691 gallons were used to flow test hydrants and 80,242 additional gallons were used to flush dirty lines. An estimated total of 486,933 gallons were used during the hydrant project.

23. **New Hydrant Locations Added During 2025 Project**

- 13 new hydrant locations added to the system during 2025 hydrant project

24. **Hydrants with GIS/Map Anomalies as of Jan. 2025 Project**

- 26 Hydrants
  **Update GIS

25. **Notes Not Associated With Other Reports**

Files included on USB:
- Access file with 2025 hydrants inspected, flow tested, & flushed
- 2025 Excel file with all hydrant data
- 2025 Hydrant Summary
- 2025 Soft Copy Report

***** Data Hydrant Inc. dba Hydrant.com assessed the condition of hydrants. Conditions are not assigned by ISO (Insurance Services Office).

** Reports require updating maps to reflect current field conditions.
Operational conditions of hydrants and test results reflect conditions of the hydrants and system at the time of the inspections/tests.

Data Hydrant Inc. dba Hydrant.com does not guarantee, certify, or imply future pressures or operability of the hydrants at any time before, during, or after tests are conducted.

Data Hydrant Inc. dba Hydrant.com does not guarantee or imply comprehensive inclusion of all hydrant data within the system. While Data Hydrant Inc. strives to provide accurate and reliable data, discrepancies or errors may occur in the data collection, entry, or interpretation stages.

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JANUARY 2025

CITY OF ANGLETON

INSPECTIONS, TESTING, AND FLUSHING

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Fire Hydrant Inspections
5380 West #34th Street #214 Houston, Texas 77092

All fire hydrants should be inspected, operated, and flushed at least annually.

1. OUT OF SERVICE HYDRANTS

Fire Hydrants Out of Service

View Associated Work Orders

30-Jan-25

HYDRANT	MAKE	MODEL	YEAR	NOTES/LOCATION
43	MUELLER	CENTURION	2024	**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** ACROSS FROM 103 W MUNSON ST
547	MUELLER	IMPROVED	1953	**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** NORTHWEST CORNER OF E MAGNOLIA ST AND N ANDERSON ST
53	MUELLER	IMPROVED	1976	**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** NORTHEAST CORNER OF W PLUM ST AND S ERSKINE ST
156	MUELLER	CENTURION	1981	**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** 2609 S VELASCO ST
513	MUELLER	IMPROVED	1972	**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** NORTHWEST CORNER OF N VALDERAS ST AND MILLER ST
407	MUELLER	IMPROVED	1974	**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** 1524 E MULBERRY ST - NORTH SIDE OF BUILDING
480	MUELLER	IMPROVED	1975	**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** NORTHWEST CORNER OF N DOWNING AN E MILLER
305	MUELLER	CENTURION		**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** 237 BASTROP ST
582	MUELLER	CENTURION	2005	**CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED** NORTHEAST CORNER OF E ORANGE ST AND S ANDERSON ST
264	MUELLER	CENTURION	1970	**HYDRANT IS PRESSURIZED - OP NUT SPINS FREELY** NORTHEAST CORNER OF S FRONT AND CEMETERY RD
176	MUELLER	CENTURION	1987	**HYDRANT IS PRESSURIZED & WILL NOT SHUT DOWN - UNABLE TO SAFELY REMOVE HOSE CAPS** ACROSS FROM 725 CAHILL RD

Operational conditions of hydrants and test results reflect conditions of the hydrants and system at the time of the inspections/tests. Data Hydrant Inc. dba Hydrant.com does not guarantee, certify, or imply future pressures or operability of the hydrants at any time before, during, or after tests are conducted.

Fire Hydrants Out of Service

View Associated Work Orders

30-Jan-25

HYDRANT	MAKE	MODEL	YEAR	NOTES/LOCATION
929	MUELLER	CENTURION	2023	**NO WATER AVAILABLE WHEN HYDRANT IS FULLY OPEN** 1320 E KIBER ST
140	MUELLER	IMPROVED	1946	**NO WATER AVAILABLE WHEN HYDRANT IS FULLY OPEN** NORTHWEST CORNER OF SIMS AND E KIBER ST
580	WATEROUS	PACER	1927	**OP NUT SEIZED** NORTHEAST CORNER OF S ARCOLA ST AND E ORANGE ST
194	MUELLER	CENTURION	1978	**OP NUT SEIZED** 1000 KADERA RD
570	WATEROUS	PACER	1927	**OP NUT SEIZED AND HYDRANT IS PRESSURIZED** SOUTHWEST CORNER OF S CHENANGO ST AND MURRAY ST

Total: 16

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

Operational conditions of hydrants and test results reflect conditions of the hydrants and system at the time of the inspections/tests. Data Hydrant Inc. dba Hydrant.com does not guarantee, certify, or imply future pressures or operability of the hydrants at any time before, during, or after tests are conducted.

2. LOW FLOW PRESSURES

View Associated Work Orders

Low Flow Pressures

FLOW PRESSURE FROM 2.5IN HOSE NOZZLE IS UNDER 20 PSI (750 GPM)
OR SIGNIFICANTLY LOWER THAN NEARBY HYDRANTS

29-Jan-25

HYDRANT	MAIN SIZE	STATIC PSI	FLOW PSI	HOSE GPM	LOCATION NOTES
555	8 INCH	58	4	336	ACROSS FROM 500 N CHENANGO
556		60	5	375	111 E LOCUS ST - NEXT TO NO PARKING SIGN
2	6 INCH	56	6	411	913 WESTERN AVE ONLY ABLE TO OPEN HYDRANT 1 ROUND
153		60	15	650	2816 S VELASCO ST ONLY ABLE TO OPEN HYDRANT 2 ROUNDS
578		55	15	650	234 S ARCOLA ST
579		56	15	650	504 E PEACH ST
157		58	16	671	2521 S VELASCO ONLY ABLE TO OPEN HYDRANT 2 ROUNDS
284	12 INCH	60	20	750	2760 BRAZOS PKWY - SOUTH EAST SIDE OF PROPERTY

Total: 8

3. HYDRANT VALVES WHICH INCREASE THE POSSIBILITY OF A WATER HAMMER

Hydrant Valves Which Increase The Possibility of a Water Hammer

29-Jan-25

****These hydrant main valves issues prevent proper operation of hydrant and may increase the possibility of a water hammer****

View Associated Work Orders

HYDRANT	MAKE	MODEL	YEAR	LOCATION	HYDRANT VALVE SLAMS SHUT	REDUCED FLOW PRESSURE TO SHUT DOWN HYDRANT	4+ REVOLUTIONS OF OP NUT TO PRESSURIZE HYD
75	MUELLER	CENTURION	1981	629 W LOCUS ST	X		
38	MUELLER	CENTURION	1981	504 BRYAN ST	X		
269	MUELLER	CENTURION	1981	1203 S FRONT ST	X		
201	MUELLER	CENTURION	1976	1200 GIFFORD RD	X		
908	MUELLER	CENTURION	2021	201 LAURA LEIGH LN	X		
905	MUELLER	CENTURION	1983	820 S ANDERSON ST	X		
305	MUELLER	CENTURION		237 BASTROP ST	X		
640	MUELLER	CENTURION	2014	901 ROBINHOOD LN	X		
560	WATEROUS		1927	126 N VELASCO ST		X	

	VALVES THAT SLAM SHUT:	REDUCED FLOW PRESSURE TO CLOSE VALVE:	HYDRANTS NEEDING 4+ REVOLUTIONS TO PRESSURIZE:
Total Hydrants: 9	**8**	**1**	**0**

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

4. EXTREMELY DIFFICULT TO OPERATE

30-Jan-25

Extremely Difficult to Operate

View Associated Work Orders

HYDRANT	MAKE	MODEL	YEAR	LOCATION NOTES	LUBE OP NUT
570	WATEROUS	PACER	1927	SOUTHWEST CORNER OF S CHENANGO ST AND MURRAY ST **OP NUT SEIZED AND HYDRANT IS PRESSURIZED**	X
194	MUELLER	CENTURION	1978	1000 KADERA RD **OP NUT SEIZED**	X
580	WATEROUS	PACER	1927	NORTHEAST CORNER OF S ARCOLA ST AND E ORANGE ST **OP NUT SEIZED**	X
28	MUELLER	CENTURION	2007	2400 W MULBERRY ST **ONLY ABLE TO OPEN HYDRANT 6 ROUNDS**	X
544	MUELLER	CENTURION	2002	445 E MULBERRY ST **ONLY ABLE TO OPEN HYDRANT 6 ROUNDS**	X
203	MUELLER	CENTURION	1980	16 GRACE ST **ONLY ABLE TO OPEN HYDRANT 5 ROUNDS**	X
149	MUELLER	CENTURION	1981	SOUTH INTERSECTION OF BEECHNUT ST AND CHESTNUT ST **ONLY ABLE TO OPEN HYDRANT 4 ROUNDS**	X
231	MUELLER	CENTURION	1983	SOUTHWEST CORNER OF DWYER ST AND S ANDERSON ST **ONLY ABLE TO OPEN HYDRANT 4 ROUNDS**	X
110	MUELLER	CENTURION	1982	109 E KIBER ST **ONLY ABLE TO OPEN HYDRANT 2 ROUNDS**	X
153	MUELLER	CENTURION	1981	2816 S VELASCO ST **ONLY ABLE TO OPEN HYDRANT 2 ROUNDS**	X

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

30-Jan-25

Extremely Difficult to Operate

View Associated Work Orders

HYDRANT	MAKE	MODEL	YEAR	LOCATION NOTES	LUBE OP NUT
157	MUELLER	CENTURION	1981	2521 S VELASCO **ONLY ABLE TO OPEN HYDRANT 2 ROUNDS**	X
2	MUELLER	IMPROVED	1957	913 WESTERN AVE **ONLY ABLE TO OPEN HYDRANT 1 ROUND**	X
1	MUELLER	IMPROVED	1962	1105 WESTERN AVE	X
13	MUELLER	CENTURION	2003	1 OAK PARK DR	X
201	MUELLER	CENTURION	1976	1200 GIFFORD RD	X
269	MUELLER	CENTURION	1981	1203 S FRONT ST	X
276	MUELLER	CENTURION	1981	173 WEST PHILLIPS	X
553	MUELLER	CENTURION	2012	SOUTHEAST CORNER OF E CEDAR ST AND N VALDERAS ST	X
66	MUELLER	CENTURION	1981	18 T J WRIGHT ST	X
67	MUELLER	CENTURION	1981	612 T J WRIGHT ST	X

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

30-Jan-25

Extremely Difficult to Operate

View Associated Work Orders

HYDRANT	MAKE	MODEL	YEAR	LOCATION NOTES	LUBE OP NUT
71	MUELLER	IMPROVED	1946	SOUTHEAST CORNER OF N COLUMBUS ST AND W LIVE OAK ST	X
78	MUELLER	STANDARD	1957	700 W LIVE OAK ST	X

Total: 22

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

5. GENERAL LUBRICATION

View Associated Work Orders

General Lubrication Report

29-Jan-25

HYDRANT	MAKE	HYDRANT LOCATION	ADD OIL	ADD GREASE	LUBE NOZZLES
118	MUELLER	712 S ANDERSON ST			X
119	MUELLER	SW CORNER OF S ANDERSON ST AND RICE ST	X		
127	MUELLER	620 E PLUM ST			X
128	MUELLER	621E MURRAY ST		X	X
129	MUELLER	600 EARLS CT		X	
16	MUELLER	1116 W MULBERRY ST			X
161	MUELLER	2123 S VELASCO ST			X
167	MUELLER	1725 S VELASCO ST			X
169	MUELLER	1423 S VELASCO ST			X
172	MUELLER	ACROSS FROM 105 CEMETERY RD		X	
183	MUELLER	1712 SHANKS RD			X
188	MUELLER	2600 SHANKS RD	X		
189	MUELLER	ACROSS FROM 2615 SHANKS RD			X
190	MUELLER	2412 SHANKS RD			X
201	MUELLER	1200 GIFFORD RD	X		X

View Associated Work Orders

General Lubrication Report

29-Jan-25

HYDRANT	MAKE	HYDRANT LOCATION	ADD OIL	ADD GREASE	LUBE NOZZLES
204	MUELLER	238 E PHILLIPS RD			X
21	MUELLER	305 W PEACH ST	X		X
211	CLOW	1301 GIFFORD LN			X
212	CLOW	1325 GIFFORD LN			X
218	MUELLER	137 BALD PRAIRIE DR			X
222	MUELLER	137 PRAIRIE LEA DR			X
227	MUELLER	NORTHWEST CORNER OF CEMETERY RD AND PARK LN	X		
230	MUELLER	328 CEMETERY RD - ACROSS FROM FLAG DISPOSAL BOX	X		
235	MUELLER	SOUTHWEST CORNER OF E KIBER ST AND S VELASCO	X		X
266	MUELLER	SOUTHWEST CORNER OF S FRONT ST AND WAYNE DR			X
279	MUELLER	217 WALLER LOOP	X		
283	MUELLER	ACROSS FROM 2609 S FRONT ST	X		
284	MUELLER	2760 BRAZOS PKWY - SOUTH EAST SIDE OF PROPERTY			X
285	MUELLER	2760 BRAZOS PKWY - NORTH SIDE OF PROPERTY	X		
287	MUELLER	1034 S VELASCO ST	X		X

View Associated Work Orders

General Lubrication Report

29-Jan-25

HYDRANT	MAKE	HYDRANT LOCATION	ADD OIL	ADD GREASE	LUBE NOZZLES
291	MUELLER	1212 S VELASCO ST	X		X
292	MUELLER	1404 S VELASCO ST			X
293	MUELLER	288 S VELASCO ST - UNIT B			X
296	MUELLER	145 W PHILLIPS ST	X		
297	MUELLER	SOUTHWEST CORNER OF W PHILLIPS AND S VELASCO ST			X
300	MUELLER	20799 COUNTY RD 171 - NEXT TO SIGN	X		
309	MUELLER	172 HOUSTON ST		X	
312	CLOW	SOUTHEAST CORNER OF JAMISON RD AND E MULBERRY ST			X
314	MUELLER	108 KNIGHT DR	X		
321	MUELLER	132 E HOSPITAL DR			X
327	MUELLER	224 E HOSPITAL DR		X	
328	MUELLER	2700 TX-35			X
37	MUELLER	520 BRYAN ST	X		
39	MUELLER	726 S ERSKINE ST			X
4	MUELLER	NORTHWEST CORNER OF HERITAGE OAKS DR AND WESTERN AVE	X		

View Associated Work Orders

General Lubrication Report

29-Jan-25

HYDRANT	MAKE	HYDRANT LOCATION	ADD OIL	ADD GREASE	LUBE NOZZLES
40	MUELLER	624 S HANCOCK ST	X		X
403	MUELLER	SOUTHWEST CORNER OF CEDAR ST AND E MULBERRY ST			X
404	MUELLER	SOUTH INTERSECTION OF E CEDAR ST AND E MIMOSA ST			X
41	MUELLER	222 W MUNSON ST	X		
42	MUELLER	NORTHEAST CORNER OF S FRONT ST AND W MUNSON ST			X
44	MUELLER	600 S HANCOCK ST	X		
45	MUELLER	ACROSS FROM 700 S WALKER ST			X
46	MUELLER	727 S WALKER ST	X		
50	MUELLER	500 CATALPA ST	X		
535	MUELLER	600 E CEDAR ST			X
54	MUELLER	220 W ORANGE ST			X
555	MUELLER	ACROSS FROM 500 N CHENANGO			X
562	MUELLER	100 N VELASCO ST	X		
564	MUELLER	NORTHEAST CORNER OF W MYRTLE ST AND N FRONT ST			X
565	MUELLER	SOUTHEAST CORNER OF W MAGNOLIA ST AND N FRONT ST			X

View Associated Work Orders

General Lubrication Report

29-Jan-25

HYDRANT	MAKE	HYDRANT LOCATION	ADD OIL	ADD GREASE	LUBE NOZZLES
58	MUELLER	SOUTHWEST CORNER OF W MULBERRY AND S COLUMBIA ST		X	
61	MUELLER	SOUTHEAST CORNER OF W MYRTLE ST AND T J WRIGHT ST		X	
63	MUELLER	324 W MAGNOLIA ST			X
634	MUELLER	1317 LAUREL LOOP			X
64	MUELLER	NORTHEAST CORNER OF T J WRIGHT ST AND W LOCUS ST			X
648	MUELLER	1117 ROBINHOOD LN			X
649	MUELLER	608 HERITAGE OAKS DR	X		
7	MUELLER	ACROSS FROM 904 HERITAGE OAKS DR	X		
714	MUELLER	ACROSS FROM 409 N PARISH ST	X		
75	MUELLER	629 W LOCUS ST			X
76	MUELLER	705 N COLUMBIA ST	X		
9	CLOW	ACROSS FROM 1007 SPREADING OAKS DR			X

			Totals:	ADD OIL	ADD GREASE	LUBE NOZZLES
HYDRANTS:	72			27	7	45

6. DIRTY FLOW LOCATIONS

29-Jan-25

Dirty Flow Locations

View Associated Work Orders

HYDRANTS WERE FLUSHED UP TO 5 MINUTES.

RECOMMENDED TO FLUSH REGULARLY AND MONITOR DIRTY WATER

HYDRANT	ADDITIONAL MINUTES FLOWED	LOCATION
308	5	128 HOUSTON ST
559	5	300 N VELASCO ST
560	5	126 N VELASCO ST
562	5	100 N VELASCO ST
569	5	NORTHEAST CORNER OF W PEACH ST AND S FRONT ST
576	5	NORTHEAST CORNER OF HWY 288 BUSINESS AND E ORANGE ST
210	4	NORTHEAST CORNER OF SUNNY MEADOWS AND GIFFORD RD
214	4	1516 GIFFORD LN
22	4	ACROSS FROM 300 S WALKER ST
223	4	205 PRAIRIE LEA DR
321	4	132 E HOSPITAL DR
573	4	103 E PEACH ST
579	4	504 E PEACH ST
133	3	408 EVANS ST
221	3	101 PRAIRIE LEA DR
27	3	2304 W MULBERRY ST
35	3	1020 HERITAGE OAKS DR
56	3	600 W PEACH ST
151	2	2288 S VELASCO ST
571	2	421 S VELASCO ST
920	2	1013 CHEVY CHASE DR

Total: 21

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

7. FLANGE REPAIRS

Flange Repairs

View Associated Work Orders

29-Jan-25

HYDRANTS REQUIRING A FLANGE GASKET AND/OR MULTIPLE FLANGE BOLTS ARE MORE LIKELY TO FAIL IN THE FUTURE

HYDRANT	MAKE	MODEL	YEAR	LOCATION	FLANGE	BOLTS	GASKET
135	MUELLER	CENTURION	1986	1380 E KIBER ST		3	1
276	MUELLER	CENTURION	1981	173 WEST PHILLIPS			1
553	MUELLER	CENTURION	2012	SOUTHEAST CORNER OF E CEDAR ST AND N VALDERAS ST			1
309	MUELLER	IMPROVED	1966	172 HOUSTON ST		8	
579	MUELLER	IMPROVED	1960	504 E PEACH ST		8	
21	MUELLER	CENTURION	1983	305 W PEACH ST		8	
132	MUELLER	IMPROVED	1951	NORTHEAST INTERSECTION OF E KIBER ST AND FARRER ST		8	
279	MUELLER	CENTURION	1992	217 WALLER LOOP		8	
80	MUELLER	CENTURION	1976	828 W LIVE OAK ST		8	
79	MUELLER	CENTURION	1980	819 MARSHALL RD		8	
221	MUELLER	CENTURION	1983	101 PRAIRIE LEA DR		8	
76	MUELLER	CENTURION	2006	705 N COLUMBIA ST		8	

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Flange Repairs

29-Jan-25

HYDRANTS REQUIRING A FLANGE GASKET AND/OR MULTIPLE FLANGE BOLTS ARE MORE LIKELY TO FAIL IN THE FUTURE

HYDRANT	MAKE	MODEL	YEAR	LOCATION	FLANGE	BOLTS	GASKET
222	MUELLER	CENTURION	1983	137 PRAIRIE LEA DR		8	
65	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF N HANCOCK ST AND W LIVE OAK ST		8	
78	MUELLER	STANDARD	1957	700 W LIVE OAK ST		8	
318	MUELLER	CENTURION	1984	108 DEBORAH DR		8	
219	MUELLER	CENTURION	1983	205 BALD PRAIRIE DR		8	
119	MUELLER	CENTURION	1983	SW CORNER OF S ANDERSON ST AND RICE ST		8	
905	MUELLER	CENTURION	1983	820 S ANDERSON ST		8	
223	MUELLER	CENTURION	1983	205 PRAIRIE LEA DR		8	
554	MUELLER	IMPROVED	1946	131 E LIVE OAK ST		7	
220	MUELLER	CENTURION	1983	245 BALD PRARIE DR		7	
34	MUELLER	CENTURION	2003	1009 ENCHANTED OAKS DR		7	
11	CLOW	MEDALLION	2000	800 ENCHANTED OAKS DR		6	
3	MUELLER	IMPROVED	1957	801 WESTERN AVE		6	

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Flange Repairs

29-Jan-25

HYDRANTS REQUIRING A FLANGE GASKET AND/OR MULTIPLE FLANGE BOLTS ARE MORE LIKELY TO FAIL IN THE FUTURE

HYDRANT	MAKE	MODEL	YEAR	LOCATION	FLANGE	BOLTS	GASKET
532	MUELLER	IMPROVED	1957	501 N PECAN ST		6	
573	MUELLER	IMPROVED	1956	103 E PEACH ST		6	
278	MUELLER	CENTURION	1992	111 WALLER LOOP		5	
196	MUELLER	CENTURION	1980	824 KADERA		5	
23	MUELLER	IMPROVED	1953	629 HOLLY ST		5	
72	MUELLER	IMPROVED	1946	300 N COLUMBIA ST		5	
303	MUELLER	CENTURION	1976	276 AUSTIN ST		5	
564	MUELLER	CENTURION	1998	NORTHEAST CORNER OF W MYRTLE ST AND N FRONT ST		5	
534	MUELLER	CENTURION	1994	804 CINCINNATI		5	
20	MUELLER	CENTURION	1983	202 S WALKER ST		5	
203	MUELLER	CENTURION	1980	16 GRACE ST		4	
120	MUELLER	CENTURION	1990	1011 S ANDERSON ST		4	
150	MUELLER	CENTURION	1981	97 LOSTROCCO ST		4	

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Flange Repairs

29-Jan-25

HYDRANTS REQUIRING A FLANGE GASKET AND/OR MULTIPLE FLANGE BOLTS ARE MORE LIKELY TO FAIL IN THE FUTURE

HYDRANT	MAKE	MODEL	YEAR	LOCATION	FLANGE	BOLTS	GASKET
327	MUELLER	IMPROVED	1966	224 E HOSPITAL DR		4	
204	MUELLER	CENTURION	1981	238 E PHILLIPS RD		4	
547	MUELLER	IMPROVED	1953	NORTHWEST CORNER OF E MAGNOLIA ST AND N ANDERSON ST		4	
112	MUELLER	IMPROVED	1964	321 SANDS ST		4	
474	MUELLER	IMPROVED	1975	1200 CHEVY CHASE DR		3	
134	MUELLER	IMPROVED	1962	901 S DOWNING RD		3	
139	MUELLER	IMPROVED	1953	NORTHEAST INTERSECTION OF S DOWNING ST AND E ORANGE ST		3	
24	MUELLER	CENTURION	1980	713 BETTY ST		3	
307	MUELLER	CENTURION	1976	109 BASTROP ST		3	
1	MUELLER	IMPROVED	1962	1105 WESTERN AVE		3	
555	MUELLER	IMPROVED	1978	ACROSS FROM 500 N CHENANGO		3	
50	MUELLER	STANDARD	1955	500 CATALPA ST		3	
292	MUELLER	CENTURION	1981	1404 S VELASCO ST		2	

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

29-Jan-25

Flange Repairs

HYDRANTS REQUIRING A FLANGE GASKET AND/OR MULTIPLE FLANGE BOLTS ARE MORE LIKELY TO FAIL IN THE FUTURE

HYDRANT	MAKE	MODEL	YEAR	LOCATION	FLANGE	BOLTS	GASKET
479	MUELLER	CENTURION	1997	NORTHWEST CORNER OF MORNINGSIDE ST AND DANBURY ST		2	
538	MUELLER	CENTURION	1946	624 E MAGNOLIA ST		2	
633	MUELLER	CENTURION	2014	1233 LAUREL LOOP		2	
170	MUELLER	CENTURION	1981	1401 S VELASCO ST		2	
288	MUELLER	CENTURION	1973	NORTHWEST CORNER OF S VELASCO AND CEMETERY RD		2	
13	MUELLER	CENTURION	2003	1 OAK PARK DR		2	
290	MUELLER	CENTURION	1981	1128 S VELASCO		2	
83	MUELLER	IMPROVED	1967	700 W ASH ST		2	
51	MUELLER	STANDARD		608 CATALPA ST		2	
53	MUELLER	IMPROVED	1976	NORTHEAST CORNER OF W PLUM ST AND S ERSKINE ST		1	
328	MUELLER	CENTURION	1994	2700 TX-35		1	
311	MUELLER	IMPROVED	1969	133 DALLAS ST		1	
28	MUELLER	CENTURION	2007	2400 W MULBERRY ST		1	

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Flange Repairs

29-Jan-25

HYDRANTS REQUIRING A FLANGE GASKET AND/OR MULTIPLE FLANGE BOLTS ARE MORE LIKELY TO FAIL IN THE FUTURE

HYDRANT	MAKE	MODEL	YEAR	LOCATION	FLANGE	BOLTS	GASKET
289	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD		1	
37	MUELLER	CENTURION	1980	520 BRYAN ST		1	
218	MUELLER	CENTURION	1983	137 BALD PRAIRIE DR		1	
146	MUELLER	CENTURION	1982	134 WALNUT ST		1	
147	MUELLER	CENTURION	1981	217 BEECHNUT ST		1	
110	MUELLER	CENTURION	1982	109 E KIBER ST		1	
153	MUELLER	CENTURION	1981	2816 S VELASCO ST		1	
197	MUELLER	CENTURION	1987	SOUTHEAST CORNER OF KADERA RD AND WILBERT ST		1	
227	MUELLER	CENTURION	1989	NORTHWEST CORNER OF CEMETERY RD AND PARK LN		1	
52	MUELLER	IMPROVED	1955	641 W MIMOSA ST		1	

		FLANGES	BOLTS	GASKETS
Hydrants: 74	**Totals:**	**0**	**310**	**3**

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

8. INSPECT/REPLACE MAIN VALVE

Inspect/Replace Main Valve

29-Jan-25

View Associated Work Orders

HYDRANT	MAKE	MODEL	YEAR	LOCATION / NOTES	LEAKING SMALL AMOUNT OF WATER
513	MUELLER	IMPROVED	1972	NORTHWEST CORNER OF N VALDERAS ST AND MILLER ST CITY TAGGED HYDRANT OUT OF SERVICE - NOT TESTED	X
579	MUELLER	IMPROVED	1960	504 E PEACH ST	X

Total: 2

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

9. SEIZED PUMPER, AND/OR HOSE CAPS

Seized Pumper and/or Hose Caps

29-Jan-25

View Associated Work Orders

HYDRANT	MAKE	MODEL	YEAR	LOCATION	SEIZED PUMER CAP	SEIZED HOSE CAPS
165	MUELLER	CENTURION	1981	2021 S VELASCO ST	X	
319	MUELLER	CENTURION	1984	112 DEBORAH DR	X	
313	MUELLER	CENTURION	2004	1980 E MULBERRY ST	X	
116	MUELLER	CENTURION	1995	501 S MORGAN ST	X	
905	MUELLER	CENTURION	1983	820 S ANDERSON ST	X	
203	MUELLER	CENTURION	1980	16 GRACE ST	X	
205	MUELLER	CENTURION	1981	282 E PHILLIPS RD	X	
160	MUELLER	CENTURION	1981	2213 S VELASCO ST	X	
161	MUELLER	CENTURION	1981	2123 S VELASCO ST	X	
289	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD	X	
283	MUELLER	CENTURION	1981	ACROSS FROM 2609 S FRONT ST	X	
64	MUELLER	CENTURION	1981	NORTHEAST CORNER OF T J WRIGHT ST AND W LOCUS ST	X	
72	MUELLER	IMPROVED	1946	300 N COLUMBIA ST	X	
75	MUELLER	CENTURION	1981	629 W LOCUS ST	X	
70	MUELLER	CENTURION	2003	SOUTHEAST CORNER OF W MILLER ST AND N PARISH ST	X	
291	MUELLER	CENTURION	1981	1212 S VELASCO ST		R
20	MUELLER	CENTURION	1983	202 S WALKER ST		R
61	MUELLER	IMPROVED	1971	SOUTHEAST CORNER OF W MYRTLE ST AND T J WRIGHT ST		R
573	MUELLER	IMPROVED	1956	103 E PEACH ST		R

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

Seized Pumper and/or Hose Caps

29-Jan-25

View Associated Work Orders

HYDRANT	MAKE	MODEL	YEAR	LOCATION	SEIZED PUMER CAP	SEIZED HOSE CAPS
560	WATEROUS		1927	126 N VELASCO ST		L
461	MUELLER	IMPROVED	1966	SOUTHWEST CORNER OF E MULBERRY AND WILDCAT DR		L
306	MUELLER	CENTURION	1976	157 HOUSTON ST		L
168	MUELLER	CENTURION	1981	1417 S VELASCO ST		L

		PUMPER CAPS	HOSE CAPS
HYDRANTS: 23	**TOTALS:**	**15**	**8**

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

10. PUMPER AND HOSE CAPS/NOZZLE REPAIRS

View Associated Work Orders

Pumper and Hose Caps/Nozzle Repairs

29-Jan-25

HYDRANT	LOCATION	RECAULK HOSE NZL	RECAULK PUMPER NZL	PUMPER NOZZLE	PUMPER CAP	HOSE NOZZLE	HOSE CAP
124	SOUTHEAST CORNER OF S DOWNING RD AND FAIRGROUND LN					1	
147	217 BEECHNUT ST					1	
168	1417 S VELASCO ST					1	
277	344 W PHILLIPS RD	1	X				
289	SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD					1	
305	237 BASTROP ST					1	
534	804 CINCINNATI					1	
630	ACROSS FROM 1260 LAUREL LOOP					1	1
68	NORTHWEST CORNER OF N PARISH ST AND W LIVE OAK				1		
73	220 N WALKER ST				1		

		RECAULK HOSE NOZZLE	RECAULK PUMPER NOZZLE	PUMPER NOZZLE	PUMPER CAP	HOSE NOZZLE	HOSE CAPS
HYDRANTS: 10	**TOTALS:**	**1**	**1**	**0**	**2**	**7**	**1**

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

11. BONNET REPAIRS

View Associated Work Orders

Bonnet Repairs

29-Jan-25

HYD	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET	NOTES
277	MUELLER	1992	344 W PHILLIPS RD	1				1			1	SEVERE LEAK AT BONNET GASKET - RIGHT HOSE NOZZLE IS NOT SECURED TO HYDRANT
58	MUELLER	1953	SOUTHWEST CORNER OF W MULBERRY AND S COLUMBIA ST	1							1	
535	MUELLER	1960	600 E CEDAR ST								1	
571	MUELLER	1953	421 S VELASCO ST								1	
199	MUELLER	1983	1100 CEMETERY RD - HYDRANT ON GIFFORD RD								1	3 INCH ROCKS FLUSHED OUT OF PUMPER
61	MUELLER	1971	SOUTHEAST CORNER OF W MYRTLE ST AND T J WRIGHT ST				1					

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

29-Jan-25

Bonnet Repairs

View Associated Work Orders

HYD NOTES	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET
125	MUELLER	1972	338 MUNSON CT				1				
37	MUELLER	1980	520 BRYAN ST				1				
327	MUELLER	1966	224 E HOSPITAL DR	7							
150	MUELLER	1981	97 LOSTROCCO ST	7							
168	MUELLER	1981	1417 S VELASCO ST	6							
635	MUELLER	2014	1333 LAUREL LOOP	6							

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Bonnet Repairs

29-Jan-25

HYD NOTES	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET
123	MUELLER	1983	NORTHEAST CORNER OF E KIBER ST AND S ANDERSON ST	6							
228	MUELLER		1060 VINE DR	5							
300	MUELLER	1989	20799 COUNTY RD 171 - NEXT TO SIGN	4							
112	MUELLER	1964	321 SANDS ST	4							
289	MUELLER	1981	SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD	4							
LEFT HOSE NOZZLE IS CROSS THREADED											
153	MUELLER	1981	2816 S VELASCO ST	4							
ONLY ABLE TO OPEN HYDRANT 2 ROUNDS											

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Bonnet Repairs

29-Jan-25

HYD NOTES	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET
634	MUELLER	2014	1317 LAUREL LOOP	4							
72	MUELLER	1946	300 N COLUMBIA ST	3							
905	MUELLER	1983	820 S ANDERSON ST	3							
151	MUELLER	1981	2288 S VELASCO ST	3							
303	MUELLER	1976	276 AUSTIN ST	3							
160	MUELLER	1981	2213 S VELASCO ST	2							

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Bonnet Repairs

29-Jan-25

HYD	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET	NOTES
163	MUELLER	1981	2113 S VELASCO ST	2								
534	MUELLER	1994	804 CINCINNATI	2								LEFT HOSE NOZZLE IS CROSS THREADED
569	MUELLER	1960	NORTHEAST CORNER OF W PEACH ST AND S FRONT ST	2								
130	MUELLER	1950	201 FARRER ST	2								
279	MUELLER	1992	217 WALLER LOOP	2								
646	MUELLER	2015	721 RUSTIC OAKS DR	2								

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Bonnet Repairs

29-Jan-25

HYD NOTES	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET
636	MUELLER	2014	1349 LAUREL LOOP	2							
5	MUELLER	1998	400 HERITAGE OAKS DR	2							
554	MUELLER	1946	131 E LIVE OAK ST	2							
128	MUELLER	1960	621E MURRAY ST	1							
404	MUELLER	1974	SOUTH INTERSECTION OF E CEDAR ST AND E MIMOSA ST	1							
311	MUELLER	1969	133 DALLAS ST	1							

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Bonnet Repairs

29-Jan-25

HYD NOTES	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET
317	MUELLER	1981	108 DEBORAH DR	1							
574	MUELLER	1946	NORTHWEST CORNER OF S CHENANGO AND E PEACH ST	1							
124	MUELLER	1979	SOUTHEAST CORNER OF S DOWNING RD AND FAIRGROUND LN	1							
155	MUELLER	1981	2713 S VELASCO	1							
170	MUELLER	1981	1401 S VELASCO ST	1							
294	MUELLER	1981	1500 S VELASCO ST	1							

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

View Associated Work Orders

Bonnet Repairs

29-Jan-25

HYD NOTES	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET
290	MUELLER	1981	1128 S VELASCO	1							
293	MUELLER	1981	288 S VELASCO ST - UNIT B	1							
267	MUELLER	1981	1116 WAYNE ST	1							
146	MUELLER	1982	134 WALNUT ST	1							
296	MUELLER	1981	145 W PHILLIPS ST	1							
40	MUELLER	1981	624 S HANCOCK ST	1							

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

29-Jan-25

Bonnet Repairs

View Associated Work Orders

HYD / NOTES	MAKE	YEAR	LOCATION	BOLTS	WEATHER CAP	OIL PLUG	BONNET O-RING	BONNET	BONNET HOLD DOWN NUT	OP NUT	GASKET
633	MUELLER	2014	1233 LAUREL LOOP	1							
542	MUELLER	1946	911 E MULBERRY ST	1							
165	MUELLER	1981	2021 S VELASCO ST	1							

	HYDRANTS	OP NUTS	WEATHER CAPS	OIL PLUGS	BONNET O-RINGS	BONNETS	BONNET HOLD DOWN NUTS	BOLTS	GASKETS
Totals:	**51**	**0**	**0**	**0**	**3**	**1**	**0**	**45**	**5**

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

12. HYDRANT ACCESSIBILITY

View Associated Work Orders

29-Jan-25

Hydrant Accessibility

HYDRANT	LOCATION	FULL REVOLUTION OF HYD WRENCH ON OPERATING NUT IS IMPEDED	FULL REVOLUTION OF HYD WRENCH ON HOSE/PUMPER CAP IS IMPEDED	CUT BRUSH
533	918 E CEDAR ST		X	
567	SOUTHEAST CORNER OF N FRONT ST AND W LOCUS ST		X	
58	SOUTHWEST CORNER OF W MULBERRY AND S COLUMBIA ST		X	
152	2404 S VELASCO ST	X		
705	110 YARDS WEST FROM THE NORTHWEST CORNER OF 288 BUSINESS AND CO RD 220			X
266	SOUTHWEST CORNER OF S FRONT ST AND WAYNE DR			X
183	1712 SHANKS RD			X
235	SOUTHWEST CORNER OF E KIBER ST AND S VELASCO			X

		OP NUT IMPEDIMENTS	HOSE/PUMPER CAP IMPEDIMENTS	CUT BRUSH
HYDRANTS: 8	Totals:	1	3	4

13. EXTENSIONS REQUIRED

29-Jan-25

Extensions Required

View Associated Work Orders

HYDRANT	MAKE	MODEL	YEAR	LOCATION	6"	12"	18"
567	MUELLER	CENTURION		SOUTHEAST CORNER OF N FRONT ST AND W LOCUS ST			X
533	MUELLER	IMPROVED		918 E CEDAR ST		X	
58	MUELLER	IMPROVED	1953	SOUTHWEST CORNER OF W MULBERRY AND S COLUMBIA ST		X	
543	WATERMASTE	5CD250	2008	105 N ROCK ISLAND ST	X		
541	MUELLER	IMPROVED	1953	901 E MULBERRY ST	X		
200	MUELLER	CENTURION	1980	1361 GIFFORD RD	X		
111	MUELLER	IMPROVED	1963	321 E KIBER ST	X		
128	MUELLER	IMPROVED	1960	621E MURRAY ST	X		
574	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF S CHENANGO AND E PEACH ST	X		
308	MUELLER	IMPROVED	1966	128 HOUSTON ST	X		
928	MUELLER	CENTURION	2022	212 HOUSTON ST	X		
927	MUELLER	CENTURION	2023	240 HOUSTON ST	X		

		6"	12"	18"
Total Hydrants:	**12**	**9**	**2**	**1**

CITY OF ANGLETON

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

14. MISSING BLUE MARKERS

29-Jan-25

Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
935	304 E LIVE OAK
934	303 E LOCUST ST
933	SOUTHWEST CORNER OF N ARCOLA ST AND E LOCUST ST
932	301 E MAGNOLIA ST
931	1393 S VELASCO ST
930	1040 S ANDERSON ST
929	1320 E KIBER ST
927	240 HOUSTON ST
926	1925 ALAMO DR
925	1901 ALAMO DR
924	241 DALLAS ST
923	213 DALLAS ST
914	ACROSS FROM 1302 LAUREL LOOP
913	1281 LAUREL LOOP
912	709 RUSTIC OAKS DR
911	904 SPREADING OAKS DR
910	2113 C.R. 220
909	COALE RD FEEDER BETWEEN 288 AND S FRONT ST - SOUTHWEST CORNER OF WAREHOUSE DEVELOPMENT PROPERTY
907	237 LAURA LEIGH LN
906	235 LISA MARIE DR
905	820 S ANDERSON ST
904	444 E MULBERRY ST
900	130 AUSTIN RD
9	ACROSS FROM 1007 SPREADING OAKS DR
831	500 WARD RD
830	800 PATTEN RD
83	700 W ASH ST
82	WEST END OF W MILLER ST
81	SOUTHEAST CORNER OF W MILLER ST AND N WALKER ST
80	828 W LIVE OAK ST
8	805 HERITAGE OAKS DR

29-Jan-25

Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
79	819 MARSHALL RD
78	700 W LIVE OAK ST
773	308 BRYAN WAY
77	NORTHEAST CORNER OF CEDAR AND W COLUMBIA
76	705 N COLUMBIA ST
753	838 OAK RIDGE DR
752	854 OAK RIDGE DR
750,751	870 OAK RIDGE DR
75	629 W LOCUS ST
749	883 OAK RIDGE DR
747	ACROSS FROM 825 SOUTHSIDE DR
746	1009 SOUTHSIDE DR
745	1000 SOUTHSIDE DR
74	110 N WALKER ST
73	220 N WALKER ST
714	ACROSS FROM 409 N PARISH ST
713	ACROSS FROM 221 N PARISH ST
712	206 N PARISH ST
71	SOUTHEAST CORNER OF N COLUMBUS ST AND W LIVE OAK ST
706	COALE RD FEEDER BETWEEN 288 AND S FRONT ST - EASTERN ENTRANCE TO WAREHOUSE DEVELOPMENT
705	110 YARDS WEST FROM THE NORTHWEST CORNER OF 288 BUSINESS AND CO RD 220
70	SOUTHEAST CORNER OF W MILLER ST AND N PARISH ST
7	ACROSS FROM 904 HERITAGE OAKS DR
69	523 N PARISH ST
68	NORTHWEST CORNER OF N PARISH ST AND W LIVE OAK
67	612 T J WRIGHT ST
66	18 T J WRIGHT ST
65	NORTHWEST CORNER OF N HANCOCK ST AND W LIVE OAK ST
649	608 HERITAGE OAKS DR
648	1117 ROBINHOOD LN
647	1009 ROBINHOOD LN

View Associated Work Orders

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Missing Blue Markers

HYDRANT NUMBER	LOCATION
646	721 RUSTIC OAKS DR
645	976 ANCHOR RD - SOUTH EAST CORNER OF PROPERTY NEXT TO ENTRANCE - HYD ON ENCHANTED OAKS
644	821 MILLER ST
641	132 E HOSPITAL DR - SOUTHWEST CORNER OF PROPERTY NEXT TO TREE
640	901 ROBINHOOD LN
64	NORTHEAST CORNER OF T J WRIGHT ST AND W LOCUS ST
636	1349 LAUREL LOOP
635	1333 LAUREL LOOP
634	1317 LAUREL LOOP
633	1233 LAUREL LOOP
632	1217 LAUREL LOOP
631	1249 LAUREL LOOP
630	ACROSS FROM 1260 LAUREL LOOP
63	324 W MAGNOLIA ST
626	883 SPREADING OAKS DR
625	ACROSS FROM 899 SPREADING OAKS DR
624	810 OAK RIDGE DR
622	1233 CALDWELL RD
62	NORTHEAST CORNER OF W MULBERRY ST AND T J WRIGHT ST
61	SOUTHEAST CORNER OF W MYRTLE ST AND T J WRIGHT ST
60	NORTHWEST CORNER OF N HANCOCK ST AND W MYRTLE ST
6	305 HERITAGE OAKS DR
59	SOUTHWEST CORNER OF W MULBERRY ST AND S PARISH ST
582	NORTHEAST CORNER OF E ORANGE ST AND S ANDERSON ST
581	445 E ORANGE ST
580	NORTHEAST CORNER OF S ARCOLA ST AND E ORANGE ST
58	SOUTHWEST CORNER OF W MULBERRY AND S COLUMBIA ST
579	504 E PEACH ST
578	234 S ARCOLA ST
577	SOUTHWEST CORNER OF E MULBERRY ST AND S CHENANGO ST
576	NORTHEAST CORNER OF HWY 288 BUSINESS AND E ORANGE ST

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
575	NORTHWEST CORNER OF E ORANGE ST AND S CHENANGO ST
574	NORTHWEST CORNER OF S CHENANGO AND E PEACH ST
573	103 E PEACH ST
572	216 E PLUM ST
571	421 S VELASCO ST
570	SOUTHWEST CORNER OF S CHENANGO ST AND MURRAY ST
57	601 W ORANGE ST
569	NORTHEAST CORNER OF W PEACH ST AND S FRONT ST
568	SOUTHEAST CORNER OF W ORANGE ST AND S FRONT ST
567	SOUTHEAST CORNER OF N FRONT ST AND W LOCUS ST
566	SOUTHWEST CORNER OF W LOCUS ST AND N VELASCO ST
565	SOUTHEAST CORNER OF W MAGNOLIA ST AND N FRONT ST
564	NORTHEAST CORNER OF W MYRTLE ST AND N FRONT ST
563	130 W MULBERRY ST
562	100 N VELASCO ST
561	136 E MYRTLE ST
560	126 N VELASCO ST
56	600 W PEACH ST
559	300 N VELASCO ST
558	NORTHWEST CORNER OF N CHENANGO ST AND E MAGNOLIA ST
557	136 E LOCUS ST
556	111 E LOCUS ST - NEXT TO NO PARKING SIGN
555	ACROSS FROM 500 N CHENANGO
554	131 E LIVE OAK ST
553	SOUTHEAST CORNER OF E CEDAR ST AND N VALDERAS ST
552	301 E MAGNOLIA ST
551	305 E MULBERRY ST
550	1208 N VELASCO ST
55	504 W PEACH ST
549	427 E MAGNOLIA ST
548	SOUTHEAST CORNER OF N MORGAN ST AND E LOCUS ST

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
547	NORTHWEST CORNER OF E MAGNOLIA ST AND N ANDERSON ST
546	503 E MYRTLE ST
545	601 E MYRTLE ST
544	445 E MULBERRY ST
543	105 N ROCK ISLAND ST
542	911 E MULBERRY ST
541	901 E MULBERRY ST
540	909 E MYRTLE ST
54	220 W ORANGE ST
539	937 E MULBERRY ST
538	624 E MAGNOLIA ST
537	603 E LOCUS ST
536	604 E LIVE OAK
535	600 E CEDAR ST
534	804 CINCINNATI
533	918 E CEDAR ST
532	501 N PECAN ST
53	NORTHEAST CORNER OF W PLUM ST AND S ERSKINE ST
52	641 W MIMOSA ST
513	NORTHWEST CORNER OF N VALDERAS ST AND MILLER ST
511	723 N ROCK ISLAND
510	603 N TINSLEY
51	608 CATALPA ST
50	500 CATALPA ST
5	400 HERITAGE OAKS DR
49	937 S WALKER ST
481	615 DANBURY ST
480	NORTHWEST CORNER OF N DOWNING AN E MILLER
48	41885 HWY 288 - STEPHEN F AUSTIN MEMORIAL PARK
477	SOUTHWEST CORNER OF E PECAN ST AND E MULBERRY ST
476	SOUTHWEST CORNER OF WALCIK LN AND E MULBERRY ST

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
474	1200 CHEVY CHASE DR
473	SOUTHWEST CORNER OF E MULBERRY ST AND SAN FELIPE ST
47	716 MUNSON PL
465	901 NOTTINGHAM DR
464	1117 NOTTINGHAM DR
461	SOUTHWEST CORNER OF E MULBERRY AND WILDCAT DR
46	727 S WALKER ST
45	ACROSS FROM 700 S WALKER ST
44	600 S HANCOCK ST
43	ACROSS FROM 103 W MUNSON ST
42	NORTHEAST CORNER OF S FRONT ST AND W MUNSON ST
41	222 W MUNSON ST
409	1739 E MULBERRY ST
407	1524 E MULBERRY ST - NORTH SIDE OF BUILDING
406	1524 E MULBERRY ST - ACROSS FROM SOUTHEAST CORNER OF BUILDING
403	SOUTHWEST CORNER OF CEDAR ST AND E MULBERRY ST
40	624 S HANCOCK ST
4	NORTHWEST CORNER OF HERITAGE OAKS DR AND WESTERN AVE
39	726 S ERSKINE ST
38	504 BRYAN ST
37	520 BRYAN ST
36	ACROSS FROM 1005 HERITAGE OAKS DR
35	1020 HERITAGE OAKS DR
34	1009 ENCHANTED OAKS DR
33	1100 SOUTHERN OAKS DR
328	2700 TX-35
327	224 E HOSPITAL DR
326	220 E HOSPITAL DR
324	ACROSS FROM 170 E HOSPITAL DR
323	140 E HOSPITAL DR
322	132 E HOSPITAL DR -

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
321	132 E HOSPITAL DR
32	1112 SHADY OAK DR
319	112 DEBORAH DR
318	108 DEBORAH DR
317	108 DEBORAH DR
316	124 KNIGHT ST
315	116 KNIGHT ST
314	108 KNIGHT DR
313	1980 E MULBERRY ST
312	SOUTHEAST CORNER OF JAMISON RD AND E MULBERRY ST
311	133 DALLAS ST
310	6 DALLAS CT
31	1016 SHADY OAK DR
309	172 HOUSTON ST
308	128 HOUSTON ST
307	109 BASTROP ST
306	157 HOUSTON ST
303	276 AUSTIN ST
302	240 AUSTIN ST
301	SOUTHEAST CORNER OF ANGLETON BLVD AND AUSTIN ST
300	20799 COUNTY RD 171 - NEXT TO SIGN
30	1000 SHADY OAK DR
3	801 WESTERN AVE
299	21039 COUNTY RD 171
298	SOUTH CORNER OF FM 210 AND ANGLETON DANBURY RD
296	145 W PHILLIPS ST
295	1600 S VELASCO ST
294	1500 S VELASCO ST
293	288 S VELASCO ST - UNIT B
292	1404 S VELASCO ST
291	1212 S VELASCO ST

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
290	1128 S VELASCO
289	SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD
288	NORTHWEST CORNER OF S VELASCO AND CEMETERY RD
287	1034 S VELASCO ST
286	NORTH END OF BRAZOS PKWY
285	2760 BRAZOS PKWY - NORTH SIDE OF PROPERTY
284	2760 BRAZOS PKWY - SOUTH EAST SIDE OF PROPERTY
283	ACROSS FROM 2609 S FRONT ST
282	ACROSS FROM 2329 S FRONT ST
281	ACROSS FROM 2221 S FRONT ST
280	NORTHEAST CORNER OF LOSTRACCO ST AND S FRONT ST
28	2400 W MULBERRY ST
279	217 WALLER LOOP
278	111 WALLER LOOP
277	344 W PHILLIPS RD
276	173 WEST PHILLIPS
275	SOUTHWEST INTERSECTION OF S FRONT ST AND JOHN DR
274	NORTHWEST INTERSECTION OF S FRONT ST AND KETCHUM DR
273	SOUTHWEST CORNER OF S FRONT ST AND YANCY RD
272	ACROSS FROM 1501 S FRONT ST
271	ACROSS FROM 1429 S FRONT ST
270	1421 S FRONT ST - ACROSS FROM NW CORNER OF PROPERTY
27	2304 W MULBERRY ST
269	1203 S FRONT ST
268	1306 WAYNE ST
267	1116 WAYNE ST
266	SOUTHWEST CORNER OF S FRONT ST AND WAYNE DR
265	ACROSS FROM 1099 S FRONT ST
264	NORTHEAST CORNER OF S FRONT AND CEMETERY RD
263	1050 CRYSTAL ST
26	217 SEBESTA RD

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
25	474 COUTY RD 609 - WATER TREATMENT PLANT
24	713 BETTY ST
235	SOUTHWEST CORNER OF E KIBER ST AND S VELASCO
234	901 S VELASCO ST - SOUTH OF PROPERTY
233	1009 S VELASCO ST - NEXT TO DRAINAGE DITCH
232	502 DWYER ST
231	SOUTHWEST CORNER OF DWYER ST AND S ANDERSON ST
230	328 CEMETERY RD - ACROSS FROM FLAG DISPOSAL BOX
23	629 HOLLY ST
229	1060 GROVE DR
228	1060 VINE DR
227	NORTHWEST CORNER OF CEMETERY RD AND PARK LN
226	ACROSS FROM 928 CEMETERY RD
225	NORTHWEST CORNER OF SOUTHSIDE DR AND E CEMETERY RD
224	237 PRAIRIE LEA DR
223	205 PRAIRIE LEA DR
222	137 PRAIRIE LEA DR
221	101 PRAIRIE LEA DR
220	245 BALD PRARIE DR
22	ACROSS FROM 300 S WALKER ST
219	205 BALD PRAIRIE DR
218	137 BALD PRAIRIE DR
217	101 BALD PRAIRIE DR
216	1304 FAIR DR
215	1505 GIFFORD RD
214	1516 GIFFORD LN
213	1408 GIFFORD LN
212	1325 GIFFORD LN
211	1301 GIFFORD LN
210	NORTHEAST CORNER OF SUNNY MEADOWS AND GIFFORD RD
21	305 W PEACH ST

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
209	SOUTHEAST CORNER OF ROBERT ST AND GIFFORD RD
208	1811 GIFFORD RD - SOUTH OF PROPERTY
207	403 MEADOW ACRES DR
206	ACROSS FROM 321 E PHILLIPS RD
205	282 E PHILLIPS RD
204	238 E PHILLIPS RD
202	1024 HOELEWYN DR
201	1200 GIFFORD RD
200	1361 GIFFORD RD
20	202 S WALKER ST
2	913 WESTERN AVE
199	1100 CEMETERY RD - HYDRANT ON GIFFORD RD
198	1621 WILBERT RD
197	SOUTHEAST CORNER OF KADERA RD AND WILBERT ST
196	824 KADERA
195	1629 ALENA RD
194	1000 KADERA RD
193	SOUTHWEST CORNER OF KADERA DR AND GIFFORD RD
192	1503 ALENA RD
191	SOUTH END OF OF SHANKS RD
190	2412 SHANKS RD
19	SOUTHEAST CORNER OF S WALKER ST AND W MULBERRY
189	ACROSS FROM 2615 SHANKS RD
188	2600 SHANKS RD
187	2801 SHANKS RD
186	2218 SHANKS RD - SOUTH OF PROPERTY
185	2328 SHANKS RD
184	2218 SHANKS RD
182	1820 SHANKS RD
181	1916 SHANKS RD
180	NORTHWEST CORNER OF SHANKS RD AND E PHILLIPS RD

29-Jan-25

Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
18	ACROSS FROM 724 W MULBERRY ST
179	SOUTHEAST CORNER OF SHANKS RD AND KADERA RD
178	1500 SHANKS RD
177	328 CEMETERY RD - HYDRANT ON SHANKS RD - NEXT TO SOUTH EAST ENTRANCE TO CEMETERY
176	ACROSS FROM 725 CAHILL RD
175	614 CAHILL RD
174	WEST INTERSECTION OF SHANKS RD AND CAHILL RD
173	328 CEMETERY RD - ENTRANCE TO CEMETERY
172	ACROSS FROM 105 CEMETERY RD
171	SOUTHEAST CORNER OF S VELASCO ST AND CEMETERY RD
170	1401 S VELASCO ST
17	721 W MULBERRY ST
169	1423 S VELASCO ST
168	1417 S VELASCO ST
167	1725 S VELASCO ST
166	2005 S VELASCO ST
165	2021 S VELASCO ST
164	120 E PHILLIPS RD
163	2113 S VELASCO ST
162	SOUTHWEST CORNER OF SHANKS RD AND IDEN RD
161	2123 S VELASCO ST
160	2213 S VELASCO ST
16	1116 W MULBERRY ST
159	2317 S VELASCO ST
158	2425 S VELASCO ST
157	2521 S VELASCO
156	2609 S VELASCO ST
155	2713 S VELASCO
154	2825 S VELASCO
153	2816 S VELASCO ST
152	2404 S VELASCO ST

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
151	2288 S VELASCO ST
150	97 LOSTROCCO ST
15	1008 W MULBERRY
149	SOUTH INTERSECTION OF BEECHNUT ST AND CHESTNUT ST
148	113 LOSTRACCO ST
147	217 BEECHNUT ST
146	134 WALNUT ST
145	100 WALNUT ST
144	NORTHEAST CORNER OF E KIBER ST AND DOWNING RD
143	509 S DOWNING RD
142	1258 PYBURN ST
141	NORTHWEST CORNER OF RAMONA AND SIMS
140	NORTHWEST CORNER OF SIMS AND E KIBER ST
14	820 W MULBERRY ST
139	NORTHEAST INTERSECTION OF S DOWNING ST AND E ORANGE ST
138	901 S DOWNING ST - NORTH SIDE OF LIVESTOCK JUDGE SEATING AREA
137	901 S DOWNING ST - NORTH SIDE OF COUNTY ARENA
136	1716 COUNTY RD 428 - NORTH WEST SIDE OF PROPERTY
135	1380 E KIBER ST
134	901 S DOWNING RD
133	408 EVANS ST
131	409 FARRER ST
130	201 FARRER ST
13	1 OAK PARK DR
129	600 EARLS CT
128	621E MURRAY ST
127	620 E PLUM ST
126	330 S ANDERSON ST
125	338 MUNSON CT
124	SOUTHEAST CORNER OF S DOWNING RD AND FAIRGROUND LN
123	NORTHEAST CORNER OF E KIBER ST AND S ANDERSON ST

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Missing Blue Markers

View Associated Work Orders

HYDRANT NUMBER	LOCATION
121	1020 PARK LN
120	1011 S ANDERSON ST
12	904 ENCHANTED OAKS DR
119	SW CORNER OF S ANDERSON ST AND RICE ST
118	712 S ANDERSON ST
117	853 S VALDERAS ST
116	501 S MORGAN ST
115	301 RICE ST
113	305 BERT ST
112	321 SANDS ST
111	321 E KIBER ST
110	109 E KIBER ST
11	800 ENCHANTED OAKS DR
10	1 SPREADING OAKS CT
1	1105 WESTERN AVE

Total Blue Markers Needed: 387

15. CHAINS & S-HOOKS

View Associated Work Orders

Chains and S-Hooks

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
1	MUELLER	IMPROVED	1962	1105 WESTERN AVE	2	2	X
110	MUELLER	CENTURION	1982	109 E KIBER ST		1	
111	MUELLER	IMPROVED	1963	321 E KIBER ST	3	3	
112	MUELLER	IMPROVED	1964	321 SANDS ST	3	3	
113	MUELLER	IMPROVED	1953	305 BERT ST	1	3	X
114	MUELLER	CENTURION	1992	301 LAURIE LN			X
115	MUELLER	IMPROVED	1962	301 RICE ST	3	3	
118	MUELLER	CENTURION	1983	712 S ANDERSON ST	3		X
119	MUELLER	CENTURION	1983	SW CORNER OF S ANDERSON ST AND RICE ST			X
120	MUELLER	CENTURION	1990	1011 S ANDERSON ST			X
123	MUELLER	CENTURION	1983	NORTHEAST CORNER OF E KIBER ST AND S ANDERSON ST	1	1	X
125	MUELLER	IMPROVED	1972	338 MUNSON CT			X
127	MUELLER	IMPROVED	1960	620 E PLUM ST		2	
128	MUELLER	IMPROVED	1960	621E MURRAY ST	3	2	
130	MUELLER	IMPROVED	1950	201 FARRER ST	3	3	
131	MUELLER	IMPROVED	1950	409 FARRER ST	3	3	X
132	MUELLER	IMPROVED	1951	NORTHEAST INTERSECTION OF E KIBER ST AND FARRER ST	3	3	X
134	MUELLER	IMPROVED	1962	901 S DOWNING RD	3	2	
135	MUELLER	CENTURION	1986	1380 E KIBER ST	3	1	
138	MUELLER	IMPROVED	1950	901 S DOWNING ST - NORTH SIDE OF LIVESTOCK JUDGE SEATING AREA	3	3	
139	MUELLER	IMPROVED	1953	NORTHEAST INTERSECTION OF S DOWNING ST AND E ORANGE ST			X
140	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF SIMS AND E KIBER ST	3	3	
141	MUELLER	IMPROVED	1962	NORTHWEST CORNER OF RAMONA AND SIMS	2	2	X
142	MUELLER	CENTURION	2022	1258 PYBURN ST	3	1	
143	MUELLER	IMPROVED	1953	509 S DOWNING RD	3	3	X
144	MUELLER	IMPROVED	1953	NORTHEAST CORNER OF E KIBER ST AND DOWNING RD	3	3	X
145	MUELLER	CENTURION	1981	100 WALNUT ST			X

View Associated Work Orders

Chains and S-Hooks

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
146	MUELLER	CENTURION	1982	134 WALNUT ST		1	
147	MUELLER	CENTURION	1981	217 BEECHNUT ST		1	
148	MUELLER	CENTURION	1981	113 LOSTRACCO ST		1	
149	MUELLER	CENTURION	1981	SOUTH INTERSECTION OF BEECHNUT ST AND CHESTNUT ST	2		X
150	MUELLER	CENTURION	1981	97 LOSTROCCO ST			X
151	MUELLER	CENTURION	1981	2288 S VELASCO ST			X
152	MUELLER	CENTURION	2022	2404 S VELASCO ST	3	1	
153	MUELLER	CENTURION	1981	2816 S VELASCO ST		1	X
154	MUELLER	CENTURION	1981	2825 S VELASCO	3		X
155	MUELLER	CENTURION	1981	2713 S VELASCO			X
157	MUELLER	CENTURION	1981	2521 S VELASCO			X
16	MUELLER	IMPROVED	1966	1116 W MULBERRY ST		3	X
162	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF SHANKS RD AND IDEN RD	3	1	
164	MUELLER	CENTURION	1981	120 E PHILLIPS RD			X
165	MUELLER	CENTURION	1981	2021 S VELASCO ST		1	
166	MUELLER	CENTURION	1981	2005 S VELASCO ST		1	X
167	MUELLER	CENTURION	1981	1725 S VELASCO ST		1	
168	MUELLER	CENTURION	1981	1417 S VELASCO ST			X
169	MUELLER	CENTURION	1981	1423 S VELASCO ST		1	X
17	MUELLER	CENTURION	1982	721 W MULBERRY ST			X
170	MUELLER	CENTURION	1981	1401 S VELASCO ST			X
171	MUELLER	CENTURION	2022	SOUTHEAST CORNER OF S VELASCO ST AND CEMETERY RD	3		
172	MUELLER	CENTURION	2023	ACROSS FROM 105 CEMETERY RD		2	
173	MUELLER	IMPROVED	1967	328 CEMETERY RD - ENTRANCE TO CEMETERY		3	X
174	MUELLER	CENTURION	1980	WEST INTERSECTION OF SHANKS RD AND CAHILL RD	1		X
175	MUELLER	CENTURION	1981	614 CAHILL RD	3	1	X
177	MUELLER	CENTURION	1980	328 CEMETERY RD - HYDRANT ON SHANKS RD - NEXT TO SOUTH EAST ENTRANCE TO CEMETERY	1		X

View Associated Work Orders

Chains and S-Hooks

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
178	MUELLER	CENTURION	1980	1500 SHANKS RD		1	
18	MUELLER	CENTURION	2010	ACROSS FROM 724 W MULBERRY ST	3	1	
182	MUELLER	CENTURION	1982	1820 SHANKS RD			X
184	MUELLER	CENTURION	1982	2218 SHANKS RD	3	1	
185	MUELLER	CENTURION	1981	2328 SHANKS RD	3		X
186	MUELLER	CENTURION	1981	2218 SHANKS RD - SOUTH OF PROPERTY			X
187	MUELLER	CENTURION	1981	2801 SHANKS RD			X
188	MUELLER	CENTURION	1981	2600 SHANKS RD	3		
19	MUELLER	IMPROVED	1953	SOUTHEAST CORNER OF S WALKER ST AND W MULBERRY		1	X
192	MUELLER	CENTURION	2022	1503 ALENA RD	3	1	
194	MUELLER	CENTURION	1978	1000 KADERA RD			X
195	MUELLER	CENTURION	1981	1629 ALENA RD			X
196	MUELLER	CENTURION	1980	824 KADERA	3	1	X
197	MUELLER	CENTURION	1987	SOUTHEAST CORNER OF KADERA RD AND WILBERT ST			X
198	MUELLER	CENTURION	1981	1621 WILBERT RD	3	1	
199	MUELLER	CENTURION	1983	1100 CEMETERY RD - HYDRANT ON GIFFORD RD			X
2	MUELLER	IMPROVED	1957	913 WESTERN AVE		1	
20	MUELLER	CENTURION	1983	202 S WALKER ST		1	
200	MUELLER	CENTURION	1980	1361 GIFFORD RD			X
201	MUELLER	CENTURION	1976	1200 GIFFORD RD	3		X
203	MUELLER	CENTURION	1980	16 GRACE ST		1	X
204	MUELLER	CENTURION	1981	238 E PHILLIPS RD			X
205	MUELLER	CENTURION	1981	282 E PHILLIPS RD			X
207	MUELLER	CENTURION	1981	403 MEADOW ACRES DR			X
208	MUELLER	CENTURION	1982	1811 GIFFORD RD - SOUTH OF PROPERTY		1	
209	MUELLER	CENTURION	1982	SOUTHEAST CORNER OF ROBERT ST AND GIFFORD RD			X
21	MUELLER	CENTURION	1983	305 W PEACH ST	3	1	

View Associated Work Orders

Chains and S-Hooks

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
210	MUELLER	CENTURION	1981	NORTHEAST CORNER OF SUNNY MEADOWS AND GIFFORD RD		1	X
212	CLOW	MEDALLION	2000	1325 GIFFORD LN	3	1	X
214	CLOW	MEDALLION	2000	1516 GIFFORD LN			X
215	MUELLER	CENTURION	1980	1505 GIFFORD RD	3	1	X
216	MUELLER	CENTURION	1984	1304 FAIR DR			X
217	MUELLER	CENTURION	1983	101 BALD PRAIRIE DR	3	1	X
218	MUELLER	CENTURION	1983	137 BALD PRAIRIE DR		1	
219	MUELLER	CENTURION	1983	205 BALD PRAIRIE DR		1	
221	MUELLER	CENTURION	1983	101 PRAIRIE LEA DR	3	1	X
222	MUELLER	CENTURION	1983	137 PRAIRIE LEA DR	1	1	
223	MUELLER	CENTURION	1983	205 PRAIRIE LEA DR			X
226	MUELLER	CENTURION	1981	ACROSS FROM 928 CEMETERY RD			X
227	MUELLER	CENTURION	1989	NORTHWEST CORNER OF CEMETERY RD AND PARK LN			X
229	MUELLER	CENTURION	1983	1060 GROVE DR			X
23	MUELLER	IMPROVED	1953	629 HOLLY ST	3	2	
230	MUELLER	CENTURION	1983	328 CEMETERY RD - ACROSS FROM FLAG DISPOSAL BOX			X
232	MUELLER	IMPROVED	1966	502 DWYER ST	3	3	X
24	MUELLER	CENTURION	1980	713 BETTY ST	3	1	X
264	MUELLER	CENTURION	1970	NORTHEAST CORNER OF S FRONT AND CEMETERY RD			X
265	MUELLER	CENTURION	1981	ACROSS FROM 1099 S FRONT ST		1	
267	MUELLER	CENTURION	1981	1116 WAYNE ST		1	
268	MUELLER	CENTURION	1981	1306 WAYNE ST		1	X
269	MUELLER	CENTURION	1981	1203 S FRONT ST		1	
271	MUELLER	CENTURION	1981	ACROSS FROM 1429 S FRONT ST			X
274	MUELLER	CENTURION	2022	NORTHWEST INTERSECTION OF S FRONT ST AND KETCHUM DR			X
276	MUELLER	CENTURION	1981	173 WEST PHILLIPS			X
277	MUELLER	CENTURION	1992	344 W PHILLIPS RD			X

View Associated Work Orders

Chains and S-Hooks

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
278	MUELLER	CENTURION	1992	111 WALLER LOOP			X
28	MUELLER	CENTURION	2007	2400 W MULBERRY ST			X
280	MUELLER	CENTURION	1981	NORTHEAST CORNER OF LOSTRACCO ST AND S FRONT ST			X
283	MUELLER	CENTURION	1981	ACROSS FROM 2609 S FRONT ST	1		X
284	MUELLER	CENTURION	2004	2760 BRAZOS PKWY - SOUTH EAST SIDE OF PROPERTY			X
286	MUELLER	CENTURION	2004	NORTH END OF BRAZOS PKWY	3	1	X
288	MUELLER	CENTURION	1973	NORTHWEST CORNER OF S VELASCO AND CEMETERY RD			X
291	MUELLER	CENTURION	1981	1212 S VELASCO ST	3	1	X
292	MUELLER	CENTURION	1981	1404 S VELASCO ST			X
293	MUELLER	CENTURION	1981	288 S VELASCO ST - UNIT B			X
294	MUELLER	CENTURION	1981	1500 S VELASCO ST	3	1	X
295	MUELLER	CENTURION	1981	1600 S VELASCO ST		1	X
296	MUELLER	CENTURION	1981	145 W PHILLIPS ST	1	1	
3	MUELLER	IMPROVED	1957	801 WESTERN AVE		3	X
300	MUELLER	CENTURION	1989	20799 COUNTY RD 171 - NEXT TO SIGN		1	
302	MUELLER	CENTURION	2014	240 AUSTIN ST	3	1	
303	MUELLER	CENTURION	1976	276 AUSTIN ST			X
304	MUELLER	CENTURION	1973	EAST END OF BASTROP ST	3		X
306	MUELLER	CENTURION	1976	157 HOUSTON ST			X
307	MUELLER	CENTURION	1976	109 BASTROP ST			X
308	MUELLER	IMPROVED	1966	128 HOUSTON ST	3		
309	MUELLER	IMPROVED	1966	172 HOUSTON ST	3		X
311	MUELLER	IMPROVED	1969	133 DALLAS ST	3	3	X
312	CLOW	MEDALLION	1999	SOUTHEAST CORNER OF JAMISON RD AND E MULBERRY ST	1		X
314	MUELLER	CENTURION	1985	108 KNIGHT DR	1		X
315	MUELLER	CENTURION	1985	116 KNIGHT ST	1	1	
317	MUELLER	CENTURION	1981	108 DEBORAH DR			X

View Associated Work Orders

Chains and S-Hooks

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
318	MUELLER	CENTURION	1984	108 DEBORAH DR			X
319	MUELLER	CENTURION	1984	112 DEBORAH DR	2		X
320	MUELLER	IMPROVED	1967	120 E HOSPITAL DR (NORTHEAST CORNER OF PROPERTY)		1	X
321	MUELLER	CENTURION	1980	132 E HOSPITAL DR			X
322	MUELLER	CENTURION	1987	132 E HOSPITAL DR -			X
324	MUELLER	IMPROVED	1967	ACROSS FROM 170 E HOSPITAL DR	3	3	X
325	MUELLER	IMPROVED	1966	7 RAYBURN RIDGE	3	3	
326	MUELLER	CENTURION	1984	220 E HOSPITAL DR			X
327	MUELLER	IMPROVED	1966	224 E HOSPITAL DR	2		X
37	MUELLER	CENTURION	1980	520 BRYAN ST			X
38	MUELLER	CENTURION	1981	504 BRYAN ST			X
4	MUELLER	CENTURION	1998	NORTHWEST CORNER OF HERITAGE OAKS DR AND WESTERN AVE			X
404	MUELLER	IMPROVED	1974	SOUTH INTERSECTION OF E CEDAR ST AND E MIMOSA ST	3		
407	MUELLER	IMPROVED	1974	1524 E MULBERRY ST - NORTH SIDE OF BUILDING	3	2	X
409	MUELLER	IMPROVED	1966	1739 E MULBERRY ST	3	3	
41	MUELLER	CENTURION	1976	222 W MUNSON ST			X
42	MUELLER	CENTURION	1980	NORTHEAST CORNER OF S FRONT ST AND W MUNSON ST		1	
44	MUELLER	CENTURION	1980	600 S HANCOCK ST			X
46	MUELLER	CENTURION	1995	727 S WALKER ST	3	1	
461	MUELLER	IMPROVED	1966	SOUTHWEST CORNER OF E MULBERRY AND WILDCAT DR	3	3	
465	CLOW	MEDALLION	2000	901 NOTTINGHAM DR			X
477	MUELLER	IMPROVED	1953	SOUTHWEST CORNER OF E PECAN ST AND E MULBERRY ST			X
479	MUELLER	CENTURION	1997	NORTHWEST CORNER OF MORNINGSIDE ST AND DANBURY ST			X
48	MUELLER	CENTURION	2005	41885 HWY 288 - STEPHEN F AUSTIN MEMORIAL PARK	2		
49	MUELLER	CENTURION	1981	937 S WALKER ST	3	1	X
50	MUELLER	STANDARD	1955	500 CATALPA ST	2	3	X
51	MUELLER	STANDARD		608 CATALPA ST			X

View Associated Work Orders

Chains and S-Hooks

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
511	MUELLER	IMPROVED	1970	723 N ROCK ISLAND		1	
512	MUELLER	IMPROVED	1970	510 MILLER ST			X
52	MUELLER	IMPROVED	1955	641 W MIMOSA ST	3	3	
53	MUELLER	IMPROVED	1976	NORTHEAST CORNER OF W PLUM ST AND S ERSKINE ST			X
532	MUELLER	IMPROVED	1957	501 N PECAN ST			X
533	MUELLER	IMPROVED		918 E CEDAR ST	3	2	
535	MUELLER	IMPROVED	1960	600 E CEDAR ST	1	2	X
538	MUELLER	CENTURION	1946	624 E MAGNOLIA ST	3	3	X
54	MUELLER	IMPROVED	1973	220 W ORANGE ST			X
540	MUELLER	IMPROVED	1953	909 E MYRTLE ST			X
541	MUELLER	IMPROVED	1953	901 E MULBERRY ST			X
542	MUELLER	IMPROVED	1946	911 E MULBERRY ST	3	3	
545	MUELLER	CENTURION	2006	601 E MYRTLE ST	3	1	
547	MUELLER	IMPROVED	1953	NORTHWEST CORNER OF E MAGNOLIA ST AND N ANDERSON ST		3	X
549	MUELLER	IMPROVED	1959	427 E MAGNOLIA ST			X
552	MUELLER	IMPROVED	1953	301 E MAGNOLIA ST			X
554	MUELLER	IMPROVED	1946	131 E LIVE OAK ST	3		
555	MUELLER	IMPROVED	1978	ACROSS FROM 500 N CHENANGO			X
557	MUELLER	IMPROVED	2022	136 E LOCUS ST	3	1	
558	MUELLER	CENTURION	2023	NORTHWEST CORNER OF N CHENANGO ST AND E MAGNOLIA ST	3	1	
559	MUELLER	IMPROVED	1953	300 N VELASCO ST			X
564	MUELLER	CENTURION	1998	NORTHEAST CORNER OF W MYRTLE ST AND N FRONT ST	3		X
568	MUELLER	IMPROVED	1960	SOUTHEAST CORNER OF W ORANGE ST AND S FRONT ST		3	
569	MUELLER	IMPROVED	1960	NORTHEAST CORNER OF W PEACH ST AND S FRONT ST			X
57	MUELLER	CENTURION	1984	601 W ORANGE ST		1	
571	MUELLER	IMPROVED	1953	421 S VELASCO ST		3	
572	MUELLER	CENTURION	1979	216 E PLUM ST		1	X

View Associated Work Orders

Chains and S-Hooks

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
573	MUELLER	IMPROVED	1956	103 E PEACH ST			X
574	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF S CHENANGO AND E PEACH ST	3	3	
578	MUELLER	IMPROVED	1953	234 S ARCOLA ST			X
579	MUELLER	IMPROVED	1960	504 E PEACH ST		3	
581	MUELLER	IMPROVED	1953	445 E ORANGE ST	3	3	X
59	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF W MULBERRY ST AND S PARISH ST			X
61	MUELLER	IMPROVED	1971	SOUTHEAST CORNER OF W MYRTLE ST AND T J WRIGHT ST			X
62	MUELLER	IMPROVED	1953	NORTHEAST CORNER OF W MULBERRY ST AND T J WRIGHT ST			X
624	MUELLER	CENTURION	2014	810 OAK RIDGE DR	3		
63	MUELLER	CENTURION	1981	324 W MAGNOLIA ST			X
630	MUELLER	CENTURION	2014	ACROSS FROM 1260 LAUREL LOOP	3		
636	MUELLER	CENTURION	2014	1349 LAUREL LOOP	3		
64	MUELLER	CENTURION	1981	NORTHEAST CORNER OF T J WRIGHT ST AND W LOCUS ST			X
65	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF N HANCOCK ST AND W LIVE OAK ST	2	2	
66	MUELLER	CENTURION	1981	18 T J WRIGHT ST			X
67	MUELLER	CENTURION	1981	612 T J WRIGHT ST		1	
68	MUELLER	CENTURION	1981	NORTHWEST CORNER OF N PARISH ST AND W LIVE OAK			X
69	MUELLER	CENTURION	1981	523 N PARISH ST			X
72	MUELLER	IMPROVED	1946	300 N COLUMBIA ST		2	X
73	MUELLER	CENTURION	1981	220 N WALKER ST			X
747	MUELLER	CENTURION	2019	ACROSS FROM 825 SOUTHSIDE DR	2		
77	MUELLER	CENTURION	1981	NORTHEAST CORNER OF CEDAR AND W COLUMBIA		1	
774	MUELLER	CENTURION	2021	216 BRYAN WAY	3		
775	MUELLER	CENTURION	2021	3 LAGO CT			X
78	MUELLER	STANDARD	1957	700 W LIVE OAK ST		1	
79	MUELLER	CENTURION	1980	819 MARSHALL RD		1	X
80	MUELLER	CENTURION	1976	828 W LIVE OAK ST			X

Chains and S-Hooks

View Associated Work Orders

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	HYDRANT LOCATION	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
83	MUELLER	IMPROVED	1967	700 W ASH ST			X
830	MUELLER	CENTURION	2017	800 PATTEN RD	3		
900	MUELLER	CENTURION	2019	130 AUSTIN RD			X
902	MUELLER	CENTURION	2021	42 YARDS EAST FROM THE SOUTHEAST CORNER OF GREENBRIAR LP AND BRYAN WAY	2		

	HYDRANTS	CHAINS NEEDED	S-HOOKS NEEDED	CONNECT S-HOOKS
TOTALS:	220	235	176	146

16. HYDRANTS NEEDING PAINT

View Associated Work Orders

Hydrants Needing Paint

29-Jan-25

HYDRANT	MAKE	MODEL	LOCATION
116	MUELLER	CENTURION	501 S MORGAN ST
119	MUELLER	CENTURION	SW CORNER OF S ANDERSON ST AND RICE ST
14	MUELLER	CENTURION	820 W MULBERRY ST
147	MUELLER	CENTURION	217 BEECHNUT ST
156	MUELLER	CENTURION	2609 S VELASCO ST
164	MUELLER	CENTURION	120 E PHILLIPS RD
183	MUELLER	CENTURION	1712 SHANKS RD
191	MUELLER	CENTURION	SOUTH END OF OF SHANKS RD
222	MUELLER	CENTURION	137 PRAIRIE LEA DR
224	MUELLER	CENTURION	237 PRAIRIE LEA DR
25	MUELLER	CENTURION	474 COUTY RD 609 - WATER TREATMENT PLANT
267	MUELLER	CENTURION	1116 WAYNE ST
278	MUELLER	CENTURION	111 WALLER LOOP
28	MUELLER	CENTURION	2400 W MULBERRY ST
284	MUELLER	CENTURION	2760 BRAZOS PKWY - SOUTH EAST SIDE OF PROPERTY
288	MUELLER	CENTURION	NORTHWEST CORNER OF S VELASCO AND CEMETERY RD
289	MUELLER	CENTURION	SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD
290	MUELLER	CENTURION	1128 S VELASCO
295	MUELLER	CENTURION	1600 S VELASCO ST
296	MUELLER	CENTURION	145 W PHILLIPS ST
305	MUELLER	CENTURION	237 BASTROP ST

Hydrants Needing Paint

View Associated Work Orders

29-Jan-25

HYDRANT	MAKE	MODEL	LOCATION
310	MUELLER	CENTURION	6 DALLAS CT
327	MUELLER	IMPROVED	224 E HOSPITAL DR
406	MUELLER	IMPROVED	1524 E MULBERRY ST - ACROSS FROM SOUTHEAST CORNER OF BUILDING
43	MUELLER	CENTURION	ACROSS FROM 103 W MUNSON ST
48	MUELLER	CENTURION	41885 HWY 288 - STEPHEN F AUSTIN MEMORIAL PARK
51	MUELLER	STANDARD	608 CATALPA ST
510	MUELLER	CENTURION	603 N TINSLEY
547	MUELLER	IMPROVED	NORTHWEST CORNER OF E MAGNOLIA ST AND N ANDERSON ST
555	MUELLER	IMPROVED	ACROSS FROM 500 N CHENANGO
571	MUELLER	IMPROVED	421 S VELASCO ST
58	MUELLER	IMPROVED	SOUTHWEST CORNER OF W MULBERRY AND S COLUMBIA ST
59	MUELLER	CENTURION	SOUTHWEST CORNER OF W MULBERRY ST AND S PARISH ST
749	MUELLER	CENTURION	883 OAK RIDGE DR
750,751	MUELLER	CENTURION	870 OAK RIDGE DR
752	MUELLER	CENTURION	854 OAK RIDGE DR
905	MUELLER	CENTURION	820 S ANDERSON ST
913	DARLING	B84B-5	1281 LAUREL LOOP
929	MUELLER	CENTURION	1320 E KIBER ST
931	MUELLER	CENTURION	1393 S VELASCO ST

Total: 40

17. MISSING/REPLACE ISOLATION VALVE COVER

Missing/Replace Isolation Valve Covers

29-Jan-25

HYDRANT	ISO VALVE LOCATION	LOCATION
115	F1	301 RICE ST
622	F1	1233 CALDWELL RD
198	F2	1621 WILBERT RD
169	F1	1423 S VELASCO ST
295	F1	1600 S VELASCO ST
272	F1	ACROSS FROM 1501 S FRONT ST
47	F3	716 MUNSON PL
407	F2	1524 E MULBERRY ST - NORTH SIDE OF BUILDING
406	F2	1524 E MULBERRY ST - ACROSS FROM SOUTHEAST CORNER OF BUILDING

Total: 9

18. ISO CONDITION CLASSIFICATIONS

NOT USABLE

USABLE

STANDARD

NOT USABLE

View Associated Work Orders

Not Usable Report

30-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
140	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF SIMS AND E KIBER ST
156	MUELLER	CENTURION	1981	2609 S VELASCO ST
176	MUELLER	CENTURION	1987	ACROSS FROM 725 CAHILL RD
194	MUELLER	CENTURION	1978	1000 KADERA RD
264	MUELLER	CENTURION	1970	NORTHEAST CORNER OF S FRONT AND CEMETERY RD
305	MUELLER	CENTURION		237 BASTROP ST
407	MUELLER	IMPROVED	1974	1524 E MULBERRY ST - NORTH SIDE OF BUILDING
43	MUELLER	CENTURION	2024	ACROSS FROM 103 W MUNSON ST
480	MUELLER	IMPROVED	1975	NORTHWEST CORNER OF N DOWNING AN E MILLER
513	MUELLER	IMPROVED	1972	NORTHWEST CORNER OF N VALDERAS ST AND MILLER ST
53	MUELLER	IMPROVED	1976	NORTHEAST CORNER OF W PLUM ST AND S ERSKINE ST
547	MUELLER	IMPROVED	1953	NORTHWEST CORNER OF E MAGNOLIA ST AND N ANDERSON ST
570	WATEROUS	PACER	1927	SOUTHWEST CORNER OF S CHENANGO ST AND MURRAY ST
580	WATEROUS	PACER	1927	NORTHEAST CORNER OF S ARCOLA ST AND E ORANGE ST
582	MUELLER	CENTURION	2005	NORTHEAST CORNER OF E ORANGE ST AND S ANDERSON ST
929	MUELLER	CENTURION	2023	1320 E KIBER ST

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS.**
CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE

Total: 16

CITY OF ANGLETON

NOTES FOR EACH NOT USABLE HYDRANT ARE LOCATED IN THE "OUT OF SERVICE REPORT"

USABLE

Usable Report

View Associated Work Orders

HYDRANTS WHICH HAVE SOME DEFECTS AND/OR IMPEDIMENTS TO USE

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
11	CLOW	MEDALLION	2000	800 ENCHANTED OAKS DR
196	MUELLER	CENTURION	1980	824 KADERA
571	MUELLER	IMPROVED	1953	421 S VELASCO ST
228	MUELLER	IMPROVED		1060 VINE DR
124	MUELLER	CENTURION	1979	SOUTHEAST CORNER OF S DOWNING RD AND FAIRGROUND LN
199	MUELLER	CENTURION	1983	1100 CEMETERY RD - HYDRANT ON GIFFORD RD
200	MUELLER	CENTURION	1980	1361 GIFFORD RD
201	MUELLER	CENTURION	1976	1200 GIFFORD RD
221	MUELLER	CENTURION	1983	101 PRAIRIE LEA DR
222	MUELLER	CENTURION	1983	137 PRAIRIE LEA DR
223	MUELLER	CENTURION	1983	205 PRAIRIE LEA DR
220	MUELLER	CENTURION	1983	245 BALD PRARIE DR
461	MUELLER	IMPROVED	1966	SOUTHWEST CORNER OF E MULBERRY AND WILDCAT DR
174	MUELLER	CENTURION	1980	WEST INTERSECTION OF SHANKS RD AND CAHILL RD
905	MUELLER	CENTURION	1983	820 S ANDERSON ST
203	MUELLER	CENTURION	1980	16 GRACE ST
206	MUELLER	CENTURION	1981	ACROSS FROM 321 E PHILLIPS RD
205	MUELLER	CENTURION	1981	282 E PHILLIPS RD
183	MUELLER	CENTURION	2008	1712 SHANKS RD

Usable Report

View Associated Work Orders

HYDRANTS WHICH HAVE SOME DEFECTS AND/OR IMPEDIMENTS TO USE

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
153	MUELLER	CENTURION	1981	2816 S VELASCO ST
157	MUELLER	CENTURION	1981	2521 S VELASCO
152	MUELLER	CENTURION	2022	2404 S VELASCO ST
160	MUELLER	CENTURION	1981	2213 S VELASCO ST
161	MUELLER	CENTURION	1981	2123 S VELASCO ST
150	MUELLER	CENTURION	1981	97 LOSTROCCO ST
165	MUELLER	CENTURION	1981	2021 S VELASCO ST
219	MUELLER	CENTURION	1983	205 BALD PRAIRIE DR
128	MUELLER	IMPROVED	1960	621E MURRAY ST
927	MUELLER	CENTURION	2023	240 HOUSTON ST
928	MUELLER	CENTURION	2022	212 HOUSTON ST
327	MUELLER	IMPROVED	1966	224 E HOSPITAL DR
318	MUELLER	CENTURION	1984	108 DEBORAH DR
319	MUELLER	CENTURION	1984	112 DEBORAH DR
313	MUELLER	CENTURION	2004	1980 E MULBERRY ST
309	MUELLER	IMPROVED	1966	172 HOUSTON ST
308	MUELLER	IMPROVED	1966	128 HOUSTON ST
306	MUELLER	CENTURION	1976	157 HOUSTON ST
303	MUELLER	CENTURION	1976	276 AUSTIN ST

Usable Report

View Associated Work Orders

HYDRANTS WHICH HAVE SOME DEFECTS AND/OR IMPEDIMENTS TO USE

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
579	MUELLER	IMPROVED	1960	504 E PEACH ST
231	MUELLER	CENTURION	1983	SOUTHWEST CORNER OF DWYER ST AND S ANDERSON ST
573	MUELLER	IMPROVED	1956	103 E PEACH ST
119	MUELLER	CENTURION	1983	SW CORNER OF S ANDERSON ST AND RICE ST
123	MUELLER	CENTURION	1983	NORTHEAST CORNER OF E KIBER ST AND S ANDERSON ST
132	MUELLER	IMPROVED	1951	NORTHEAST INTERSECTION OF E KIBER ST AND FARRER ST
133	MUELLER	CENTURION	2021	408 EVANS ST
135	MUELLER	CENTURION	1986	1380 E KIBER ST
125	MUELLER	IMPROVED	1972	338 MUNSON CT
111	MUELLER	IMPROVED	1963	321 E KIBER ST
110	MUELLER	CENTURION	1982	109 E KIBER ST
235	MUELLER	CENTURION	1996	SOUTHWEST CORNER OF E KIBER ST AND S VELASCO
113	MUELLER	IMPROVED	1953	305 BERT ST
116	MUELLER	CENTURION	1995	501 S MORGAN ST
290	MUELLER	CENTURION	1981	1128 S VELASCO
574	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF S CHENANGO AND E PEACH ST
1	MUELLER	IMPROVED	1962	1105 WESTERN AVE
78	MUELLER	STANDARD	1957	700 W LIVE OAK ST
168	MUELLER	CENTURION	1981	1417 S VELASCO ST

DETAILS FOR EACH HYDRANT CAN BE ACCESSED THROUGH THE SPREADSHEET VERSION OF THE REPORT BY SORTING THE "USABLE" COLUMN

Usable Report

View Associated Work Orders

HYDRANTS WHICH HAVE SOME DEFECTS AND/OR IMPEDIMENTS TO USE

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
79	MUELLER	CENTURION	1980	819 MARSHALL RD
76	MUELLER	CENTURION	2006	705 N COLUMBIA ST
70	MUELLER	CENTURION	2003	SOUTHEAST CORNER OF W MILLER ST AND N PARISH ST
65	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF N HANCOCK ST AND W LIVE OAK ST
28	MUELLER	CENTURION	2007	2400 W MULBERRY ST
750,751	MUELLER	CENTURION	2021	870 OAK RIDGE DR
635	MUELLER	CENTURION	2014	1333 LAUREL LOOP
630	MUELLER	CENTURION	2014	ACROSS FROM 1260 LAUREL LOOP
289	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD
13	MUELLER	CENTURION	2003	1 OAK PARK DR
75	MUELLER	CENTURION	1981	629 W LOCUS ST
2	MUELLER	IMPROVED	1957	913 WESTERN AVE
3	MUELLER	IMPROVED	1957	801 WESTERN AVE
564	MUELLER	CENTURION	1998	NORTHEAST CORNER OF W MYRTLE ST AND N FRONT ST
567	MUELLER	CENTURION		SOUTHEAST CORNER OF N FRONT ST AND W LOCUS ST
554	MUELLER	IMPROVED	1946	131 E LIVE OAK ST
553	MUELLER	CENTURION	2012	SOUTHEAST CORNER OF E CEDAR ST AND N VALDERAS ST
541	MUELLER	IMPROVED	1953	901 E MULBERRY ST
544	MUELLER	CENTURION	2002	445 E MULBERRY ST

DETAILS FOR EACH HYDRANT CAN BE ACCESSED THROUGH THE SPREADSHEET VERSION OF THE REPORT BY SORTING THE "USABLE" COLUMN

Usable Report

View Associated Work Orders

HYDRANTS WHICH HAVE SOME DEFECTS AND/OR IMPEDIMENTS TO USE

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29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
535	MUELLER	IMPROVED	1960	600 E CEDAR ST
534	MUELLER	CENTURION	1994	804 CINCINNATI
532	MUELLER	IMPROVED	1957	501 N PECAN ST
34	MUELLER	CENTURION	2003	1009 ENCHANTED OAKS DR
705	MUELLER	CENTURION	2016	110 YARDS WEST FROM THE NORTHWEST CORNER OF 288 BUSINESS AND CO RD 220
533	MUELLER	IMPROVED		918 E CEDAR ST
291	MUELLER	CENTURION	1981	1212 S VELASCO ST
266	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF S FRONT ST AND WAYNE DR
269	MUELLER	CENTURION	1981	1203 S FRONT ST
270	MUELLER	CENTURION	1981	1421 S FRONT ST - ACROSS FROM NW CORNER OF PROPERTY
277	MUELLER	CENTURION	1992	344 W PHILLIPS RD
278	MUELLER	CENTURION	1992	111 WALLER LOOP
279	MUELLER	CENTURION	1992	217 WALLER LOOP
147	MUELLER	CENTURION	1981	217 BEECHNUT ST
80	MUELLER	CENTURION	1976	828 W LIVE OAK ST
283	MUELLER	CENTURION	1981	ACROSS FROM 2609 S FRONT ST
74	MUELLER	CENTURION	1976	110 N WALKER ST
276	MUELLER	CENTURION	1981	173 WEST PHILLIPS
37	MUELLER	CENTURION	1980	520 BRYAN ST

View Associated Work Orders

Usable Report

HYDRANTS WHICH HAVE SOME DEFECTS AND/OR IMPEDIMENTS TO USE

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

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HYDRANT	MAKE	MODEL	YEAR	LOCATION
23	MUELLER	IMPROVED	1953	629 HOLLY ST
21	MUELLER	CENTURION	1983	305 W PEACH ST
20	MUELLER	CENTURION	1983	202 S WALKER ST
58	MUELLER	IMPROVED	1953	SOUTHWEST CORNER OF W MULBERRY AND S COLUMBIA ST
61	MUELLER	IMPROVED	1971	SOUTHEAST CORNER OF W MYRTLE ST AND T J WRIGHT ST
64	MUELLER	CENTURION	1981	NORTHEAST CORNER OF T J WRIGHT ST AND W LOCUS ST
66	MUELLER	CENTURION	1981	18 T J WRIGHT ST
67	MUELLER	CENTURION	1981	612 T J WRIGHT ST
72	MUELLER	IMPROVED	1946	300 N COLUMBIA ST
71	MUELLER	IMPROVED	1946	SOUTHEAST CORNER OF N COLUMBUS ST AND W LIVE OAK ST
149	MUELLER	CENTURION	1981	SOUTH INTERSECTION OF BEECHNUT ST AND CHESTNUT ST
543	WATERMASTER	5CD250	2008	105 N ROCK ISLAND ST
560	WATEROUS		1927	126 N VELASCO ST

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS.
CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

Total: 108

DETAILS FOR EACH HYDRANT CAN BE ACCESSED THROUGH THE SPREADSHEET VERSION OF THE REPORT BY SORTING THE "USABLE" COLUMN

STANDARD

Standard Hydrants

HYDRANTS HAVE NO LEAKS, OPEN EASILY, ARE CONSPICUOUS AND WELL LOCATED FOR USE BY PUMPER

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
12	CLOW	MEDALLION	2000	904 ENCHANTED OAKS DR
645	CLOW	MEDALLION	2013	976 ANCHOR RD - SOUTH EAST CORNER OF PROPERTY NEXT TO ENTRANCE - HYD ON ENCHANTED OAKS
214	CLOW	MEDALLION	2000	1516 GIFFORD LN
312	CLOW	MEDALLION	1999	SOUTHEAST CORNER OF JAMISON RD AND E MULBERRY ST
213	CLOW	MEDALLION	2000	1408 GIFFORD LN
212	CLOW	MEDALLION	2000	1325 GIFFORD LN
211	CLOW	MEDALLION	2000	1301 GIFFORD LN
9	CLOW	MEDALLION	2000	ACROSS FROM 1007 SPREADING OAKS DR
10	CLOW	MEDALLION	2000	1 SPREADING OAKS CT
465	CLOW	MEDALLION	2000	901 NOTTINGHAM DR
914	DARLING	B84B-5	2016	ACROSS FROM 1302 LAUREL LOOP
913	DARLING	B84B-5	2016	1281 LAUREL LOOP
121	MUELLER	CENTURION	2019	1020 PARK LN
173	MUELLER	IMPROVED	1967	328 CEMETERY RD - ENTRANCE TO CEMETERY
230	MUELLER	CENTURION	1983	328 CEMETERY RD - ACROSS FROM FLAG DISPOSAL BOX
171	MUELLER	CENTURION	2022	SOUTHEAST CORNER OF S VELASCO ST AND CEMETERY RD
745	MUELLER	CENTURION	2019	1000 SOUTHSIDE DR
747	MUELLER	CENTURION	2019	ACROSS FROM 825 SOUTHSIDE DR
746	MUELLER	CENTURION	2019	1009 SOUTHSIDE DR
225	MUELLER	CENTURION	2019	NORTHWEST CORNER OF SOUTHSIDE DR AND E CEMETERY RD
172	MUELLER	CENTURION	2023	ACROSS FROM 105 CEMETERY RD
114	MUELLER	CENTURION	1992	301 LAURIE LN
773	MUELLER	CENTURION	2021	308 BRYAN WAY
775	MUELLER	CENTURION	2021	3 LAGO CT
774	MUELLER	CENTURION	2021	216 BRYAN WAY
141	MUELLER	IMPROVED	1962	NORTHWEST CORNER OF RAMONA AND SIMS

Standard Hydrants

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29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
142	MUELLER	CENTURION	2022	1258 PYBURN ST
144	MUELLER	IMPROVED	1953	NORTHEAST CORNER OF E KIBER ST AND DOWNING RD
143	MUELLER	IMPROVED	1953	509 S DOWNING RD
120	MUELLER	CENTURION	1990	1011 S ANDERSON ST
112	MUELLER	IMPROVED	1964	321 SANDS ST
229	MUELLER	CENTURION	1983	1060 GROVE DR
115	MUELLER	IMPROVED	1962	301 RICE ST
117	MUELLER	CENTURION	1976	853 S VALDERAS ST
118	MUELLER	CENTURION	1983	712 S ANDERSON ST
232	MUELLER	IMPROVED	1966	502 DWYER ST
233	MUELLER	CENTURION	2018	1009 S VELASCO ST - NEXT TO DRAINAGE DITCH
234	MUELLER	CENTURION	2016	901 S VELASCO ST - SOUTH OF PROPERTY
42	MUELLER	CENTURION	1980	NORTHEAST CORNER OF S FRONT ST AND W MUNSON ST
771	MUELLER	CENTURION	2021	77 YARDS EAST FROM THE NORTHEAST CORNER OF LISA MARIE DR AND GIFFORD RD
134	MUELLER	IMPROVED	1962	901 S DOWNING RD
204	MUELLER	CENTURION	1981	238 E PHILLIPS RD
227	MUELLER	CENTURION	1989	NORTHWEST CORNER OF CEMETERY RD AND PARK LN
192	MUELLER	CENTURION	2022	1503 ALENA RD
195	MUELLER	CENTURION	1981	1629 ALENA RD
193	MUELLER	CENTURION	1978	SOUTHWEST CORNER OF KADERA DR AND GIFFORD RD
210	MUELLER	CENTURION	1981	NORTHEAST CORNER OF SUNNY MEADOWS AND GIFFORD RD
209	MUELLER	CENTURION	1982	SOUTHEAST CORNER OF ROBERT ST AND GIFFORD RD
197	MUELLER	CENTURION	1987	SOUTHEAST CORNER OF KADERA RD AND WILBERT ST
207	MUELLER	CENTURION	1981	403 MEADOW ACRES DR
179	MUELLER	CENTURION	1980	SOUTHEAST CORNER OF SHANKS RD AND KADERA RD
182	MUELLER	CENTURION	1982	1820 SHANKS RD

Standard Hydrants

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29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
181	MUELLER	CENTURION	1982	1916 SHANKS RD
180	MUELLER	CENTURION	1981	NORTHWEST CORNER OF SHANKS RD AND E PHILLIPS RD
164	MUELLER	CENTURION	1981	120 E PHILLIPS RD
162	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF SHANKS RD AND IDEN RD
184	MUELLER	CENTURION	1982	2218 SHANKS RD
186	MUELLER	CENTURION	1981	2218 SHANKS RD - SOUTH OF PROPERTY
208	MUELLER	CENTURION	1982	1811 GIFFORD RD - SOUTH OF PROPERTY
224	MUELLER	CENTURION	2024	237 PRAIRIE LEA DR
772	MUELLER	CENTURION	2022	NORTHWEST INTERSECTION OF GREENBRIAR LP AND BRYAN WAY
622	MUELLER	CENTURION	2014	1233 CALDWELL RD
126	MUELLER	CENTURION	2023	330 S ANDERSON ST
906	MUELLER	CENTURION	2021	235 LISA MARIE DR
770	MUELLER	CENTURION	2021	ACROSS FROM 272 LAURA LEIGH LN
907	MUELLER	CENTURION	2021	237 LAURA LEIGH LN
198	MUELLER	CENTURION	1981	1621 WILBERT RD
202	MUELLER	CENTURION	2023	1024 HOELEWYN DR
226	MUELLER	CENTURION	1981	ACROSS FROM 928 CEMETERY RD
218	MUELLER	CENTURION	1983	137 BALD PRAIRIE DR
217	MUELLER	CENTURION	1983	101 BALD PRAIRIE DR
215	MUELLER	CENTURION	1980	1505 GIFFORD RD
216	MUELLER	CENTURION	1984	1304 FAIR DR
175	MUELLER	CENTURION	1981	614 CAHILL RD
177	MUELLER	CENTURION	1980	328 CEMETERY RD - HYDRANT ON SHANKS RD - NEXT TO SOUTH EAST ENTRANCE TO CEMETERY
178	MUELLER	CENTURION	1980	1500 SHANKS RD
908	MUELLER	CENTURION	2021	201 LAURA LEIGH LN
909	MUELLER	CENTURION	2015	COALE RD FEEDER BETWEEN 288 AND S FRONT ST - SOUTHWEST CORNER OF WAREHOUSE DEVELOPMENT PROPERTY

Standard Hydrants

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HYDRANT	MAKE	MODEL	YEAR	LOCATION
479	MUELLER	CENTURION	1997	NORTHWEST CORNER OF MORNINGSIDE ST AND DANBURY ST
464	MUELLER	IMPROVED	1974	1117 NOTTINGHAM DR
648	MUELLER	CENTURION	2014	1117 ROBINHOOD LN
647	MUELLER	CENTURION	2014	1009 ROBINHOOD LN
644	MUELLER	CENTURION	2022	821 MILLER ST
511	MUELLER	IMPROVED	1970	723 N ROCK ISLAND
324	MUELLER	IMPROVED	1967	ACROSS FROM 170 E HOSPITAL DR
926	MUELLER	CENTURION	2023	1925 ALAMO DR
476	MUELLER	CENTURION	2012	SOUTHWEST CORNER OF WALCIK LN AND E MULBERRY ST
328	MUELLER	CENTURION	1994	2700 TX-35
320	MUELLER	IMPROVED	1967	120 E HOSPITAL DR (NORTHEAST CORNER OF PROPERTY)
641	MUELLER	CENTURION	1987	132 E HOSPITAL DR - SOUTHWEST CORNER OF PROPERTY NEXT TO TREE
321	MUELLER	CENTURION	1980	132 E HOSPITAL DR
322	MUELLER	CENTURION	1987	132 E HOSPITAL DR -
129	MUELLER	IMPROVED	1976	600 EARLS CT
512	MUELLER	IMPROVED	1970	510 MILLER ST
930	MUELLER	CENTURION	2022	1040 S ANDERSON ST
640	MUELLER	CENTURION	2014	901 ROBINHOOD LN
920	MUELLER	CENTURION	2023	1013 CHEVY CHASE DR
921	MUELLER	CENTURION	2023	1117 CHEVY CHASE DR
474	MUELLER	IMPROVED	1975	1200 CHEVY CHASE DR
931	MUELLER	CENTURION	2018	1393 S VELASCO ST
932	MUELLER	CENTURION	2022	301 E MAGNOLIA ST
481	MUELLER	IMPROVED	1946	615 DANBURY ST
934	MUELLER	CENTURION	2022	303 E LOCUST ST
477	MUELLER	IMPROVED	1953	SOUTHWEST CORNER OF E PECAN ST AND E MULBERRY ST

Standard Hydrants

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29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
935	MUELLER	CENTURION	2022	304 E LIVE OAK
923	MUELLER	CENTURION	2023	213 DALLAS ST
924	MUELLER	CENTURION	2023	241 DALLAS ST
925	MUELLER	CENTURION	2023	1901 ALAMO DR
409	MUELLER	IMPROVED	1966	1739 E MULBERRY ST
473	MUELLER	CENTURION	1998	SOUTHWEST CORNER OF E MULBERRY ST AND SAN FELIPE ST
325	MUELLER	IMPROVED	1966	7 RAYBURN RIDGE
933	MUELLER	CENTURION	2022	SOUTHWEST CORNER OF N ARCOLA ST AND E LOCUST ST
572	MUELLER	CENTURION	1979	216 E PLUM ST
130	MUELLER	IMPROVED	1950	201 FARRER ST
581	MUELLER	IMPROVED	1953	445 E ORANGE ST
575	MUELLER	IMPROVED	1978	NORTHWEST CORNER OF E ORANGE ST AND S CHENANGO ST
576	MUELLER	IMPROVED	1953	NORTHEAST CORNER OF HWY 288 BUSINESS AND E ORANGE ST
568	MUELLER	IMPROVED	1960	SOUTHEAST CORNER OF W ORANGE ST AND S FRONT ST
578	MUELLER	IMPROVED	1953	234 S ARCOLA ST
323	MUELLER	CENTURION	1999	140 E HOSPITAL DR
577	MUELLER	CENTURION	2002	SOUTHWEST CORNER OF E MULBERRY ST AND S CHENANGO ST
404	MUELLER	IMPROVED	1974	SOUTH INTERSECTION OF E CEDAR ST AND E MIMOSA ST
904	MUELLER	CENTURION	2013	444 E MULBERRY ST
187	MUELLER	CENTURION	1981	2801 SHANKS RD
127	MUELLER	IMPROVED	1960	620 E PLUM ST
185	MUELLER	CENTURION	1981	2328 SHANKS RD
131	MUELLER	IMPROVED	1950	409 FARRER ST
902	MUELLER	CENTURION	2021	42 YARDS EAST FROM THE SOUTHEAST CORNER OF GREENBRIAR LP AND BRYAN WAY
569	MUELLER	IMPROVED	1960	NORTHEAST CORNER OF W PEACH ST AND S FRONT ST
304	MUELLER	CENTURION	1973	EAST END OF BASTROP ST

Standard Hydrants

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29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
326	MUELLER	CENTURION	1984	220 E HOSPITAL DR
317	MUELLER	CENTURION	1981	108 DEBORAH DR
316	MUELLER	CENTURION	1983	124 KNIGHT ST
315	MUELLER	CENTURION	1985	116 KNIGHT ST
314	MUELLER	CENTURION	1985	108 KNIGHT DR
311	MUELLER	IMPROVED	1969	133 DALLAS ST
139	MUELLER	IMPROVED	1953	NORTHEAST INTERSECTION OF S DOWNING ST AND E ORANGE ST
307	MUELLER	CENTURION	1976	109 BASTROP ST
403	MUELLER	IMPROVED	1974	SOUTHWEST CORNER OF CEDAR ST AND E MULBERRY ST
302	MUELLER	CENTURION	2014	240 AUSTIN ST
900	MUELLER	CENTURION	2019	130 AUSTIN RD
901	MUELLER	CENTURION	2020	106 AUSTIN RD
299	MUELLER	CENTURION	2018	21039 COUNTY RD 171
300	MUELLER	CENTURION	1989	20799 COUNTY RD 171 - NEXT TO SIGN
298	MUELLER	IMPROVED	1978	SOUTH CORNER OF FM 210 AND ANGLETON DANBURY RD
903	MUELLER	CENTURION	2021	NORTHEAST CORNER OF GREENBRIAR LOOP
310	MUELLER	CENTURION	2023	6 DALLAS CT
634	MUELLER	CENTURION	2014	1317 LAUREL LOOP
749	MUELLER	CENTURION	2021	883 OAK RIDGE DR
748	MUELLER	CENTURION	2021	303 OAK RIDGE DR
29	MUELLER	CENTURION	2003	SOUTH CORNER OF OAK RIDGE DR AND ENCHANTED OAKS DR
30	MUELLER	CENTURION	2003	1000 SHADY OAK DR
31	MUELLER	CENTURION	2007	1016 SHADY OAK DR
32	MUELLER	CENTURION	2007	1112 SHADY OAK DR
4	MUELLER	CENTURION	1998	NORTHWEST CORNER OF HERITAGE OAKS DR AND WESTERN AVE
636	MUELLER	CENTURION	2014	1349 LAUREL LOOP

Standard Hydrants

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29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
624	MUELLER	CENTURION	2014	810 OAK RIDGE DR
631	MUELLER	CENTURION	2014	1249 LAUREL LOOP
649	MUELLER	CENTURION	1999	608 HERITAGE OAKS DR
8	MUELLER	CENTURION	1998	805 HERITAGE OAKS DR
7	MUELLER	CENTURION	1998	ACROSS FROM 904 HERITAGE OAKS DR
36	MUELLER	CENTURION	2015	ACROSS FROM 1005 HERITAGE OAKS DR
189	MUELLER	CENTURION	1981	ACROSS FROM 2615 SHANKS RD
33	MUELLER	CENTURION	2007	1100 SOUTHERN OAKS DR
27	MUELLER	CENTURION	2003	2304 W MULBERRY ST
73	MUELLER	CENTURION	1981	220 N WALKER ST
82	MUELLER	CENTURION	2004	WEST END OF W MILLER ST
83	MUELLER	IMPROVED	1967	700 W ASH ST
81	MUELLER	CENTURION	2003	SOUTHEAST CORNER OF W MILLER ST AND N WALKER ST
60	MUELLER	CENTURION	1998	NORTHWEST CORNER OF N HANCOCK ST AND W MYRTLE ST
14	MUELLER	CENTURION	2023	820 W MULBERRY ST
752	MUELLER	CENTURION	2021	854 OAK RIDGE DR
16	MUELLER	IMPROVED	1966	1116 W MULBERRY ST
753	MUELLER	CENTURION	2021	838 OAK RIDGE DR
25	MUELLER	CENTURION	2023	474 COUTY RD 609 - WATER TREATMENT PLANT
626	MUELLER	CENTURION	2015	883 SPREADING OAKS DR
625	MUELLER	CENTURION	2015	ACROSS FROM 899 SPREADING OAKS DR
911	MUELLER	CENTURION	2015	904 SPREADING OAKS DR
912	MUELLER	CENTURION	2015	709 RUSTIC OAKS DR
646	MUELLER	CENTURION	2015	721 RUSTIC OAKS DR
5	MUELLER	CENTURION	1998	400 HERITAGE OAKS DR
15	MUELLER	IMPROVED	1967	1008 W MULBERRY

Standard Hydrants

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29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
538	MUELLER	CENTURION	1946	624 E MAGNOLIA ST
542	MUELLER	IMPROVED	1946	911 E MULBERRY ST
540	MUELLER	IMPROVED	1953	909 E MYRTLE ST
546	MUELLER	CENTURION	2006	503 E MYRTLE ST
549	MUELLER	IMPROVED	1959	427 E MAGNOLIA ST
548	MUELLER	CENTURION	2003	SOUTHEAST CORNER OF N MORGAN ST AND E LOCUS ST
545	MUELLER	CENTURION	2006	601 E MYRTLE ST
35	MUELLER	CENTURION	2005	1020 HERITAGE OAKS DR
536	MUELLER	CENTURION	2003	604 E LIVE OAK
550	MUELLER	CENTURION	2006	1208 N VELASCO ST
510	MUELLER	CENTURION	2023	603 N TINSLEY
406	MUELLER	IMPROVED	1974	1524 E MULBERRY ST - ACROSS FROM SOUTHEAST CORNER OF BUILDING
284	MUELLER	CENTURION	2004	2760 BRAZOS PKWY - SOUTH EAST SIDE OF PROPERTY
285	MUELLER	CENTURION	2005	2760 BRAZOS PKWY - NORTH SIDE OF PROPERTY
286	MUELLER	CENTURION	2004	NORTH END OF BRAZOS PKWY
138	MUELLER	IMPROVED	1950	901 S DOWNING ST - NORTH SIDE OF LIVESTOCK JUDGE SEATING AREA
537	MUELLER	IMPROVED	1960	603 E LOCUS ST
558	MUELLER	CENTURION	2023	NORTHWEST CORNER OF N CHENANGO ST AND E MAGNOLIA ST
6	MUELLER	CENTURION	1998	305 HERITAGE OAKS DR
632	MUELLER	CENTURION	2014	1217 LAUREL LOOP
633	MUELLER	CENTURION	2014	1233 LAUREL LOOP
26	MUELLER	CENTURION	1993	217 SEBESTA RD
563	MUELLER	IMPROVED	1946	130 W MULBERRY ST
565	MUELLER	CENTURION	1998	SOUTHEAST CORNER OF W MAGNOLIA ST AND N FRONT ST
539	MUELLER	IMPROVED	1953	937 E MULBERRY ST
557	MUELLER	IMPROVED	2022	136 E LOCUS ST

Standard Hydrants

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29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
552	MUELLER	IMPROVED	1953	301 E MAGNOLIA ST
561	MUELLER	IMPROVED	1978	136 E MYRTLE ST
562	MUELLER	CENTURION	2002	100 N VELASCO ST
559	MUELLER	IMPROVED	1953	300 N VELASCO ST
556	MUELLER	CENTURION	1976	111 E LOCUS ST - NEXT TO NO PARKING SIGN
555	MUELLER	IMPROVED	1978	ACROSS FROM 500 N CHENANGO
551	MUELLER	CENTURION	2002	305 E MULBERRY ST
68	MUELLER	CENTURION	1981	NORTHWEST CORNER OF N PARISH ST AND W LIVE OAK
566	MUELLER	IMPROVED	1960	SOUTHWEST CORNER OF W LOCUS ST AND N VELASCO ST
275	MUELLER	CENTURION	2022	SOUTHWEST INTERSECTION OF S FRONT ST AND JOHN DR
293	MUELLER	CENTURION	1981	288 S VELASCO ST - UNIT B
265	MUELLER	CENTURION	1981	ACROSS FROM 1099 S FRONT ST
267	MUELLER	CENTURION	1981	1116 WAYNE ST
268	MUELLER	CENTURION	1981	1306 WAYNE ST
271	MUELLER	CENTURION	1981	ACROSS FROM 1429 S FRONT ST
272	MUELLER	CENTURION	1981	ACROSS FROM 1501 S FRONT ST
77	MUELLER	CENTURION	1981	NORTHEAST CORNER OF CEDAR AND W COLUMBIA
274	MUELLER	CENTURION	2022	NORTHWEST INTERSECTION OF S FRONT ST AND KETCHUM DR
295	MUELLER	CENTURION	1981	1600 S VELASCO ST
281	MUELLER	CENTURION	2021	ACROSS FROM 2221 S FRONT ST
148	MUELLER	CENTURION	1981	113 LOSTRACCO ST
145	MUELLER	CENTURION	1981	100 WALNUT ST
146	MUELLER	CENTURION	1982	134 WALNUT ST
280	MUELLER	CENTURION	1981	NORTHEAST CORNER OF LOSTRACCO ST AND S FRONT ST
282	MUELLER	CENTURION	1981	ACROSS FROM 2329 S FRONT ST
273	MUELLER	CENTURION	2022	SOUTHWEST CORNER OF S FRONT ST AND YANCY RD

Standard Hydrants

HYDRANTS HAVE NO LEAKS, OPEN EASILY, ARE CONSPICUOUS AND WELL LOCATED FOR USE BY PUMPER

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
163	MUELLER	CENTURION	1981	2113 S VELASCO ST
919	MUELLER	CENTURION	2022	901 CHEVY CHASE DR
188	MUELLER	CENTURION	1981	2600 SHANKS RD
136	MUELLER	CENTURION	2022	1716 COUNTY RD 428 - NORTH WEST SIDE OF PROPERTY
191	MUELLER	CENTURION	2023	SOUTH END OF OF SHANKS RD
154	MUELLER	CENTURION	1981	2825 S VELASCO
155	MUELLER	CENTURION	1981	2713 S VELASCO
292	MUELLER	CENTURION	1981	1404 S VELASCO ST
159	MUELLER	CENTURION	1981	2317 S VELASCO ST
288	MUELLER	CENTURION	1973	NORTHWEST CORNER OF S VELASCO AND CEMETERY RD
151	MUELLER	CENTURION	1981	2288 S VELASCO ST
166	MUELLER	CENTURION	1981	2005 S VELASCO ST
167	MUELLER	CENTURION	1981	1725 S VELASCO ST
169	MUELLER	CENTURION	1981	1423 S VELASCO ST
170	MUELLER	CENTURION	1981	1401 S VELASCO ST
294	MUELLER	CENTURION	1981	1500 S VELASCO ST
296	MUELLER	CENTURION	1981	145 W PHILLIPS ST
158	MUELLER	CENTURION	1981	2425 S VELASCO ST
19	MUELLER	IMPROVED	1953	SOUTHEAST CORNER OF S WALKER ST AND W MULBERRY
706	MUELLER	CENTURION	2022	COALE RD FEEDER BETWEEN 288 AND S FRONT ST - EASTERN ENTRANCE TO WAREHOUSE DEVELOPMENT
22	MUELLER	CENTURION	1983	ACROSS FROM 300 S WALKER ST
56	MUELLER	CENTURION	1983	600 W PEACH ST
55	MUELLER	CENTURION	1981	504 W PEACH ST
57	MUELLER	CENTURION	1984	601 W ORANGE ST
830	MUELLER	CENTURION	2017	800 PATTEN RD
50	MUELLER	STANDARD	1955	500 CATALPA ST

Standard Hydrants

HYDRANTS HAVE NO LEAKS, OPEN EASILY, ARE CONSPICUOUS AND WELL LOCATED FOR USE BY PUMPER

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
18	MUELLER	CENTURION	2010	ACROSS FROM 724 W MULBERRY ST
51	MUELLER	STANDARD		608 CATALPA ST
59	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF W MULBERRY ST AND S PARISH ST
62	MUELLER	IMPROVED	1953	NORTHEAST CORNER OF W MULBERRY ST AND T J WRIGHT ST
63	MUELLER	CENTURION	1981	324 W MAGNOLIA ST
712	MUELLER	CENTURION	2016	206 N PARISH ST
713	MUELLER	CENTURION	2015	ACROSS FROM 221 N PARISH ST
714	MUELLER	CENTURION	2016	ACROSS FROM 409 N PARISH ST
190	MUELLER	CENTURION	1981	2412 SHANKS RD
17	MUELLER	CENTURION	1982	721 W MULBERRY ST
38	MUELLER	CENTURION	1981	504 BRYAN ST
69	MUELLER	CENTURION	1981	523 N PARISH ST
297	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF W PHILLIPS AND S VELASCO ST
287	MUELLER	CENTURION	2004	1034 S VELASCO ST
54	MUELLER	IMPROVED	1973	220 W ORANGE ST
44	MUELLER	CENTURION	1980	600 S HANCOCK ST
41	MUELLER	CENTURION	1976	222 W MUNSON ST
24	MUELLER	CENTURION	1980	713 BETTY ST
39	MUELLER	CENTURION	1976	726 S ERSKINE ST
910	MUELLER	CENTURION	2016	2113 C.R. 220
49	MUELLER	CENTURION	1981	937 S WALKER ST
263	MUELLER	CENTURION	2013	1050 CRYSTAL ST
47	MUELLER	CENTURION	2005	716 MUNSON PL
831	MUELLER	CENTURION	2017	500 WARD RD
46	MUELLER	CENTURION	1995	727 S WALKER ST
45	MUELLER	CENTURION	1983	ACROSS FROM 700 S WALKER ST

Standard Hydrants

HYDRANTS HAVE NO LEAKS, OPEN EASILY, ARE CONSPICUOUS AND WELL LOCATED FOR USE BY PUMPER

*** HYDRANT.COM ASSESSED CONDITION OF HYDRANTS. CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE**

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
52	MUELLER	IMPROVED	1955	641 W MIMOSA ST
40	MUELLER	CENTURION	1981	624 S HANCOCK ST

HYDRANT.COM ASSESSED CONDITION OF HYDRANTS.
CONDITIONS ARE NOT ASSIGNED BY INSURANCE SERVICES OFFICE

Total: 288

19. FIRE FLOW TEST DATA

Sorted by GPM available at 20 PSI

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
286	12 INCH	1/27/2025	60	52	1210	2886
291	10 INCH	1/17/2025	57	49	1175	2687
174		1/17/2025	59	48	1163	2304
304	8 INCH	1/15/2025	60	48	1163	2228
773	8 INCH	1/15/2025	57	46	1140	2195
902		1/15/2025	58	46	1140	2124
177		1/17/2025	58	46	1138	2121
225	12 INCH	1/16/2025	57	45	1125	2066
906	8 INCH	1/16/2025	54	43	1101	2025
210	12 INCH	1/17/2025	54	43	1100	2023
121		1/16/2025	56	44	1110	2009
200		1/16/2025	58	45	1125	2008
147		1/23/2025	53	42	1088	1969
134		1/16/2025	55	43	1100	1961
205	12 INCH	1/17/2025	59	45	1126	1958
40		1/23/2025	50	40	1062	1922
116	6 INCH	1/16/2025	60	45	1126	1912
208		1/17/2025	54	42	1088	1909
148	6 INCH	1/23/2025	54	42	1088	1909
473		1/27/2025	54	42	1088	1909
546	8 NCH	1/27/2025	58	44	1113	1908
193	8 INCH	1/17/2025	56	43	1101	1908

CITY OF ANGLETON

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
173	8 INCH	1/16/2025	56	43	1100	1907
230		1/16/2025	56	43	1100	1907
904	12 INCH	1/16/2025	56	43	1100	1907
705		1/23/2025	61	45	1126	1872
199		1/16/2025	55	42	1090	1861
644	6 INCH	1/27/2025	55	42	1088	1857
477	8 INCH	1/27/2025	60	44	1113	1826
648	8 INCH	1/27/2025	60	44	1113	1826
545		1/27/2025	60	44	1113	1826
267	8 INCH	1/23/2025	60	44	1113	1826
403		1/15/2025	60	44	1110	1821
216	8 INCH	1/16/2025	58	43	1101	1819
223		1/16/2025	58	43	1101	1819
117		1/16/2025	58	43	1101	1819
935		1/27/2025	58	43	1101	1819
562		1/27/2025	56	42	1090	1815
234	8 INCH	1/16/2025	56	42	1090	1815
771	8 INCH	1/16/2025	56	42	1088	1812
61		1/24/2025	54	41	1075	1807
155		1/17/2025	50	39	1050	1805
474		1/27/2025	59	43	1101	1781
119	8 INCH	1/16/2025	59	43	1101	1781

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
713	8 INCH	1/24/2025	57	42	1090	1775
64		1/24/2025	57	42	1090	1775
196	8 INCH	1/17/2025	57	42	1090	1775
227	12 INCH	1/16/2025	57	42	1090	1775
171		1/16/2025	57	42	1088	1772
76	12 INCH	1/24/2025	57	42	1088	1772
172		1/16/2025	57	42	1088	1772
923		1/15/2025	57	42	1088	1772
905	8 INCH	1/16/2025	55	41	1075	1763
42	8 INCH	1/16/2025	55	41	1075	1763
479	6 INCH	1/27/2025	53	40	1062	1756
568	8 INCH	1/15/2025	53	40	1062	1756
269		1/23/2025	53	40	1060	1753
270	12 INCH	1/23/2025	53	40	1060	1753
540	6 INCH	1/27/2025	60	43	1101	1748
197	8 INCH	1/17/2025	60	43	1101	1748
166	10 INCH	1/17/2025	60	43	1101	1748
233	8 INCH	1/16/2025	58	42	1090	1739
218		1/16/2025	58	42	1090	1739
179		1/17/2025	58	42	1088	1736
290		1/17/2025	58	42	1088	1736
907		1/16/2025	58	42	1088	1736

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
215		1/16/2025	58	42	1088	1736
926		1/15/2025	56	41	1075	1725
226	12 INCH	1/16/2025	56	41	1075	1725
557	8 INCH	1/27/2025	56	41	1075	1725
274		1/23/2025	56	41	1075	1725
566		1/27/2025	56	41	1075	1725
77		1/24/2025	54	40	1062	1715
63	8 INCH	1/24/2025	54	40	1060	1712
112	8 INCH	1/16/2025	54	40	1060	1712
322	8 INCH	1/15/2025	54	40	1060	1712
167		1/17/2025	59	42	1088	1704
920		1/27/2025	59	42	1088	1704
124		1/16/2025	57	41	1075	1690
712		1/24/2025	57	41	1075	1690
532	6 INCH	1/27/2025	57	41	1075	1690
220	6 INCH	1/16/2025	55	40	1062	1678
476		1/27/2025	55	40	1062	1678
465	8 INCH	1/27/2025	55	40	1062	1678
647	8 INCH	1/27/2025	55	40	1062	1678
212	8 INCH	1/17/2025	55	40	1062	1678
217		1/16/2025	60	42	1090	1678
571	8 INCH	1/16/2025	55	40	1060	1675

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
297		1/23/2025	55	40	1060	1675
510	6 INCH	1/27/2025	60	42	1088	1675
324		1/15/2025	60	42	1088	1675
191	8 INCH	1/17/2025	60	42	1088	1675
163		1/17/2025	60	42	1088	1675
189		1/17/2025	60	42	1088	1675
235		1/16/2025	53	39	1048	1665
551		1/27/2025	63	43	1101	1665
83	12 INCH	1/24/2025	58	41	1075	1660
554		1/27/2025	58	41	1075	1660
111	8 INCH	1/16/2025	58	41	1075	1660
745	8 INCH	1/16/2025	58	41	1075	1660
219		1/16/2025	58	41	1075	1660
141	6 INCH	1/16/2025	56	40	1062	1646
409	8 INCH	1/27/2025	56	40	1062	1646
481	6 INCH	1/27/2025	56	40	1062	1646
464		1/27/2025	56	40	1062	1646
921		1/27/2025	56	40	1062	1646
747	8 INCH	1/16/2025	56	40	1062	1646
746	8 INCH	1/16/2025	56	40	1062	1646
292	10 INCH	1/17/2025	56	40	1060	1642
66	6 INCH	1/27/2025	56	40	1060	1642

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
65		1/24/2025	56	40	1060	1642
188	8 INCH	1/17/2025	64	43	1101	1642
908		1/16/2025	59	41	1075	1632
930		1/16/2025	54	39	1048	1630
512	8 INCH	1/27/2025	54	39	1048	1630
72		1/24/2025	54	39	1048	1630
640	8 INCH	1/27/2025	54	39	1048	1630
178		1/17/2025	54	39	1048	1630
919	8 INCH	1/27/2025	54	39	1048	1630
296		1/23/2025	62	42	1088	1624
162		1/17/2025	62	42	1088	1624
271	12 INCH	1/23/2025	62	42	1088	1624
934		1/27/2025	57	40	1062	1616
120	6 INCH	1/17/2025	57	40	1060	1613
774	8 INCH	1/16/2025	57	40	1060	1613
714	8 INCH	1/24/2025	57	40	1060	1613
181		1/17/2025	57	40	1060	1613
320		1/15/2025	60	41	1075	1607
281		1/23/2025	60	41	1075	1607
927		1/15/2025	60	41	1075	1607
275		1/23/2025	60	41	1075	1607
538	6 INCH	1/27/2025	60	41	1075	1607

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
204	12 INCH	1/17/2025	60	41	1075	1607
321	8 INCH	1/15/2025	60	41	1075	1607
272		1/23/2025	60	41	1075	1607
165		1/17/2025	55	39	1050	1602
268	8 INCH	1/23/2025	55	39	1050	1602
74		1/24/2025	55	39	1048	1599
213	8 INCH	1/17/2025	58	40	1062	1590
221		1/16/2025	58	40	1062	1590
170	8 INCH	1/17/2025	58	40	1062	1590
224	6 INCH	1/16/2025	58	40	1062	1590
550		1/27/2025	58	40	1062	1590
229		1/16/2025	58	40	1062	1590
314	8 INCH	1/15/2025	58	40	1062	1590
198	8 INCH	1/17/2025	58	40	1060	1587
574		1/15/2025	58	40	1060	1587
287	8 INCH	1/23/2025	58	40	1060	1587
289		1/17/2025	58	40	1060	1587
17		1/24/2025	53	38	1035	1584
73		1/24/2025	53	38	1035	1584
278		1/23/2025	53	38	1035	1584
187	8 INCH	1/17/2025	61	41	1075	1584
277	8 INCH	1/23/2025	56	39	1050	1575

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
283		1/23/2025	56	39	1050	1575
130	6 INCH	1/15/2025	56	39	1050	1575
19	8 INCH	1/23/2025	56	39	1050	1575
169		1/17/2025	56	39	1048	1572
22		1/23/2025	56	39	1048	1572
933		1/27/2025	59	40	1062	1566
931		1/17/2025	59	40	1062	1566
626		1/24/2025	59	40	1062	1566
185		1/17/2025	62	41	1075	1563
55	8 INCH	1/23/2025	59	40	1060	1563
151	8 INCH	1/17/2025	54	38	1040	1562
576	8 INCH	1/15/2025	54	38	1040	1562
38	8 INCH	1/23/2025	54	38	1040	1562
62	8 INCH	1/24/2025	54	38	1035	1555
575		1/15/2025	54	38	1035	1555
69	6 INCH	1/24/2025	54	38	1035	1555
143	8 INCH	1/16/2025	57	39	1048	1546
770	8 INCH	1/16/2025	57	39	1048	1546
81	12 INCH	1/24/2025	57	39	1048	1546
928		1/15/2025	57	39	1048	1546
160		1/17/2025	60	40	1062	1544
192	6 INCH	1/17/2025	60	40	1062	1544

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
280		1/23/2025	60	40	1062	1544
313	8 INCH	1/15/2025	60	40	1062	1544
158		1/17/2025	60	40	1062	1544
300		1/15/2025	60	40	1062	1544
154		1/17/2025	60	40	1062	1544
542		1/27/2025	60	40	1062	1544
539	8 INCH	1/27/2025	60	40	1062	1544
534	6 INCH	1/27/2025	60	40	1062	1544
561		1/27/2025	60	40	1062	1544
535	6 INCH	1/27/2025	60	40	1062	1544
207		1/17/2025	60	40	1062	1544
161		1/17/2025	60	40	1062	1544
206		1/17/2025	60	40	1062	1544
232		1/16/2025	60	40	1062	1544
266	8 INCH	1/23/2025	60	40	1060	1541
294	8 INCH	1/17/2025	60	40	1060	1541
209		1/17/2025	60	40	1060	1541
706		1/23/2025	60	40	1060	1541
288		1/17/2025	60	40	1060	1541
307	6 INCH	1/15/2025	55	38	1040	1536
544	8 INCH	1/27/2025	55	38	1035	1529
772	8 INCH	1/15/2025	55	38	1035	1529

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
319	8 INCH	1/15/2025	61	40	1062	1524
180		1/17/2025	61	40	1062	1524
164		1/17/2025	61	40	1062	1524
168		1/17/2025	58	39	1048	1524
641	8 INCH	1/15/2025	53	37	1025	1515
625	8 INCH	1/24/2025	53	37	1025	1515
308	6 INCH	1/15/2025	59	39	1050	1506
909		1/23/2025	62	40	1062	1506
131	6 INCH	1/15/2025	62	40	1062	1506
184		1/17/2025	62	40	1062	1506
903		1/15/2025	62	40	1062	1506
51	8 INCH	1/23/2025	56	38	1035	1505
144	8 INCH	1/16/2025	56	38	1035	1505
901		1/15/2025	59	39	1048	1503
558	8 INCH	1/27/2025	59	39	1048	1503
552	8 INCH	1/27/2025	59	39	1048	1503
541		1/27/2025	59	39	1048	1503
41	8 INCH	1/23/2025	59	39	1048	1503
559		1/27/2025	57	38	1040	1491
318	8 INCH	1/15/2025	57	38	1040	1491
70		1/24/2025	63	40	1062	1489
295		1/17/2025	60	39	1050	1487

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
75		1/24/2025	54	37	1021	1485
54		1/23/2025	60	39	1048	1484
316	8 INCH	1/15/2025	60	39	1048	1484
533	6 INCH	1/27/2025	60	39	1048	1484
228		1/16/2025	60	39	1048	1484
543	8 INCH	1/27/2025	60	39	1048	1484
306		1/15/2025	57	38	1035	1483
60	8 INCH	1/24/2025	57	38	1035	1483
23		1/23/2025	57	38	1035	1483
900		1/15/2025	57	38	1035	1483
78		1/24/2025	57	38	1035	1483
135		1/16/2025	57	38	1035	1483
646	8 INCH	1/24/2025	57	38	1035	1483
82	12 INCH	1/24/2025	57	38	1035	1483
328		1/16/2025	58	38	1040	1471
138		1/16/2025	58	38	1040	1471
311	6 INCH	1/15/2025	61	39	1048	1467
323		1/15/2025	58	38	1035	1464
298		1/15/2025	58	38	1035	1464
911	8 INCH	1/24/2025	58	38	1035	1464
565		1/27/2025	58	38	1035	1464
159		1/17/2025	58	38	1035	1464

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
45		1/23/2025	56	37	1025	1447
312	6 INCH	1/15/2025	59	38	1035	1446
118	8 INCH	1/16/2025	59	38	1035	1446
139		1/15/2025	59	38	1035	1446
404		1/15/2025	59	38	1035	1446
309	6 INCH	1/15/2025	59	38	1035	1446
310	6 INCH	1/15/2025	59	38	1035	1446
924		1/15/2025	59	38	1035	1446
932		1/27/2025	59	38	1035	1446
190	8 INCH	1/17/2025	53	36	1010	1445
44		1/23/2025	53	36	1010	1445
293		1/17/2025	56	37	1021	1442
49	8 INCH	1/23/2025	53	36	1007	1441
577		1/15/2025	53	36	1007	1441
11	8 INCH	1/24/2025	60	38	1040	1436
461		1/27/2025	60	38	1035	1429
231		1/16/2025	60	38	1035	1429
20		1/23/2025	60	38	1035	1429
145	6 INCH	1/23/2025	60	38	1035	1429
315	8 INCH	1/15/2025	57	37	1025	1429
549		1/27/2025	54	36	1010	1424
152		1/17/2025	54	36	1010	1424

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
125	6 INCH	1/15/2025	54	36	1010	1424
21		1/23/2025	57	37	1021	1423
9	8 INCH	1/24/2025	57	37	1021	1423
265		1/17/2025	57	37	1021	1423
910	12 INCH	1/23/2025	68	40	1062	1421
753	8 INCH	1/24/2025	54	36	1007	1420
80		1/24/2025	54	36	1007	1420
302	8 INCH	1/15/2025	61	38	1035	1414
563	8 INCH	1/27/2025	58	37	1021	1406
126		1/15/2025	55	36	1010	1405
175		1/16/2025	55	36	1007	1401
511	8 INCH	1/27/2025	55	36	1007	1401
775	8 INCH	1/15/2025	55	36	1007	1401
123		1/15/2025	55	36	1007	1401
925		1/15/2025	62	38	1035	1400
303		1/15/2025	59	37	1021	1391
195	8 INCH	1/17/2025	56	36	1010	1387
79		1/24/2025	56	36	1010	1387
831	6 INCH	1/23/2025	56	36	1010	1387
186		1/17/2025	63	38	1035	1387
749	8 INCH	1/24/2025	56	36	1007	1383
202	8 INCH	1/16/2025	56	36	1007	1383

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
34	8 INCH	1/24/2025	56	36	1007	1383
624	8 INCH	1/24/2025	53	35	993	1378
16		1/27/2025	60	37	1021	1377
52		1/23/2025	60	37	1021	1377
10		1/24/2025	60	37	1021	1377
325		1/15/2025	60	37	1021	1377
146	6 INCH	1/23/2025	60	37	1021	1377
560		1/27/2025	57	36	1010	1371
569		1/15/2025	57	36	1007	1367
299		1/15/2025	57	36	1007	1367
47	8 INCH	1/23/2025	57	36	1007	1367
567		1/27/2025	69	39	1048	1366
406	6 INCH	1/27/2025	65	38	1035	1364
572		1/15/2025	54	35	993	1360
59		1/24/2025	54	35	993	1360
68		1/24/2025	54	35	993	1360
573		1/15/2025	58	36	1010	1357
748	8 INCH	1/24/2025	51	34	980	1356
37	8 INCH	1/23/2025	58	36	1007	1353
1	6 INCH	1/24/2025	58	36	1007	1353
222		1/16/2025	58	36	1007	1353
113	6 INCH	1/16/2025	58	36	1007	1353

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
57		1/23/2025	58	36	1007	1353
128	6 INCH	1/15/2025	55	35	993	1343
24	6 INCH	1/23/2025	59	36	1007	1339
912	8 INCH	1/24/2025	59	36	1007	1339
142	6 INCH	1/16/2025	59	36	1007	1339
201	8 INCH	1/16/2025	59	36	1007	1339
50	8 INCH	1/23/2025	59	36	1007	1339
114	6 INCH	1/16/2025	59	36	1007	1339
35	8 INCH	1/24/2025	60	36	1010	1331
27	8 INCH	1/27/2025	60	36	1007	1327
15		1/27/2025	60	36	1007	1327
183		1/17/2025	60	36	1007	1327
136	8 INCH	1/27/2025	60	36	1007	1327
39		1/23/2025	53	34	980	1320
6	7:13 AM	1/24/2025	61	36	1010	1319
326		1/15/2025	61	36	1007	1315
182		1/17/2025	62	36	1007	1305
327		1/15/2025	62	36	1007	1305
46		1/23/2025	58	35	993	1302
263	8 INCH	1/23/2025	63	36	1007	1295
564		1/27/2025	59	35	993	1291
279	6 INCH	1/23/2025	64	36	1007	1285

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
7	8 INCH	1/24/2025	60	35	993	1280
649	8 INCH	1/24/2025	60	35	993	1280
8	8 INCH	1/24/2025	60	35	993	1280
636	8 INCH	1/24/2025	60	35	993	1280
4	8 INCH	1/24/2025	60	35	993	1280
536	6 INCH	1/27/2025	60	35	993	1280
317	8 INCH	1/15/2025	61	35	993	1270
14	8 INCH	1/24/2025	62	35	993	1261
133	6 INCH	1/15/2025	58	34	980	1256
750,751		1/24/2025	54	33	964	1250
752	8 INCH	1/24/2025	54	33	964	1250
127	6 INCH	1/15/2025	54	33	964	1250
71	6 INCH	1/24/2025	55	33	964	1239
12	8 INCH	1/24/2025	60	34	979	1235
150		1/17/2025	60	34	979	1235
132	8 INCH	1/15/2025	56	33	964	1228
18	8 INCH	1/24/2025	52	32	950	1224
36	8 INCH	1/24/2025	62	34	979	1219
56	8 INCH	1/23/2025	58	33	964	1209
211		1/17/2025	58	33	964	1209
67	6 INCH	1/24/2025	54	32	950	1202
58		1/24/2025	54	32	950	1202

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
3	6 INCH	1/24/2025	60	33	964	1192
282		1/23/2025	55	32	950	1192
5	8 INCH	1/24/2025	62	33	964	1177
115	6 INCH	1/16/2025	60	32	950	1152
273		1/23/2025	61	32	950	1145
129	6 INCH	1/15/2025	56	31	935	1138
31	8 INCH	1/24/2025	59	31	935	1118
553		1/27/2025	54	30	920	1110
203	8 INCH	1/17/2025	55	30	919	1102
26	8 INCH	1/27/2025	56	30	920	1097
214	8 INCH	1/17/2025	56	30	919	1096
30	12 8 INCH	1/24/2025	58	30	919	1084
29	8 INCH	1/24/2025	58	30	919	1084
645	12 INCH	1/24/2025	59	30	920	1080
630		1/24/2025	59	30	919	1078
635	8 INCH	1/24/2025	60	30	920	1075
631	8 INCH	1/24/2025	60	30	919	1073
634	8 INCH	1/24/2025	60	30	919	1073
632	8 INCH	1/24/2025	60	30	919	1073
633	8 INCH	1/24/2025	60	30	919	1073
32	8 INCH	1/24/2025	60	30	919	1073
276		1/23/2025	61	30	919	1069

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI
13	8 INCH	1/24/2025	56	29	904	1056
830	8 INCH	1/24/2025	65	30	919	1053
285	8 INCH	1/27/2025	58	29	904	1046
581	4 INCH	1/15/2025	54	28	888	1026
110	8 INCH	1/16/2025	57	28	888	1013
28		1/27/2025	58	28	888	1009
25	8 INCH	1/27/2025	58	28	888	1009
548	6 INCH	1/27/2025	58	28	888	1009
537	6 INCH	1/27/2025	60	28	888	1002
33	8 INCH	1/24/2025	57	27	875	980
913		1/24/2025	58	26	856	939
914		1/24/2025	58	25	839	905
149	6 INCH	1/23/2025	52	21	769	782
622		1/16/2025	58	20	750	750
284	12 INCH	1/23/2025	60	20	750	750
157		1/17/2025	58	16	671	636
153		1/17/2025	60	15	650	610
579		1/15/2025	56	15	650	606
578		1/15/2025	55	15	650	605
2	6 INCH	1/24/2025	56	6	411	344
556		1/27/2025	60	5	375	316
555	8 INCH	1/27/2025	58	4	336	278

Fire Flow Test Data

30-Jan-25

SORTED BY GPM @ 20 PSI

SINGLE HYDRANT USED FOR STATIC, RESIDUAL, AND FLOW READINGS PER NFPA 291 4.5.1

HYD	MAIN SIZE	DATE	STATIC PSI	FLOW PSI	HOSE GPM	GPM @ 20 PSI

Total Static and Flow Tests: 396

20. TESTING AVAILABLE WATER SUPPLY IN WATER-MAINS

Data provided both numerically and graphically

Testing Available Water Supply In Water-Mains

30-Jan-25

HYDRANT	MAIN SIZE	MATCHING HYD	STATIC PSI	RESIDUAL PSI	FLOW GPM DURING RESIDUAL TEST	GPM @ 20 PSI	NEAREST CROSS ST
321	8 INCH	322			1424	1837	DEBORAH ST
322	8 INCH	321	60	35			DEBORAH DR
900		901	57	37			ANGLETON BLVD
901		900			1384	1924	S BUTCHA RD
575		576	54	40			S CHENANGO ST
576	8 INCH	575			1256	2022	ORANGE ST
50	8 INCH	51	58	40			GARDENIA ST
51	8 INCH	50		40	1162	1743	S WALKER ST
131	6 INCH	133	62	23			E KIBER ST
133	6 INCH	131			1256	1306	E KIBER ST
773	8 INCH	775	55	35			LAGO CT
775	8 INCH	773			1424	1922	BRYAN WAY
746	8 INCH	747			1644	2745	SMITH PL
747	8 INCH	746	56	42			PARK LN
222		223	52	40			GIFFORD RD
223		222			1538	2615	BALD PRAIRIE DR
219		218	58	36			PRAIRIE LEA DR
218		219			1500	2010	GIFFORD RD
229		228			1644	2121	CEMETERY RD
228		229	60	35			CEMETERY RD
197	8 INCH	198	60	45			WILBERT ST
198	8 INCH	197			1574	2676	KADERA RD

Testing Available Water Supply In Water-Mains

30-Jan-25

HYDRANT	MAIN SIZE	MATCHING HYD	STATIC PSI	RESIDUAL PSI	FLOW GPM DURING RESIDUAL TEST	GPM @ 20 PSI	NEAREST CROSS ST
182		183			1712	2482	E PHILLIPS RD
183		182	60	40			KADERA RD
295		294			1610	2335	FOX LN
294	8 INCH	295	60	40			FOX LN
289		288			1644	2532	CEMETERY RD
288		289	60	42			S VELASCO
146	6 INCH	145			1300	1885	BEECHNUT ST
145	6 INCH	146	60	40			LOSTRACCO ST
46		47	62	40			BRYAN ST
47	8 INCH	46			1424	2022	S WALKER ST
23		22	57	40			S WALKER ST
22		23			1574	2392	HOLLY ST
66	6 INCH	67	54	45			W LIVE OAKS ST
67	6 INCH	66			1210	2481	W CEDAR ST
151	8 INCH	150			1256	1620	LOSTRACCO ST
150		151	60	35			S VELASCO ST
557	8 INCH	566			1162	1766	N CHENANGO ST
566		557	57	40			N VELASCO ST
549		548	60	55			N MORGAN ST
548	6 INCH	549			1008	3095	E LOCUS ST
714	8 INCH	713			1538	2476	W LOCUS ST
713	8 INCH	714	54	40			W MAGNOLIA ST

Testing Available Water Supply In Water-Mains

30-Jan-25

HYDRANT	MAIN SIZE	MATCHING HYD	STATIC PSI	RESIDUAL PSI	FLOW GPM DURING RESIDUAL TEST	GPM @ 20 PSI	NEAREST CROSS ST
537	6 INCH	536	60	23			N ANDERSON ST
536	6 INCH	537			1162	1208	N ANDERSON ST
465	8 INCH	464	55	48			N TINSLEY ST
464		465			1162	2766	N DOWNING ST
932		552			1678	2064	N ARCOLA ST
552	8 INCH	932	58	32			N ARCOLA ST
285	8 INCH	284			1162	1208	COALE RD
284	12 INCH	285	60	23			COALE RD

Total residual tests: 26

CITY OF ANGLETON

Testing Available Water Supply in Water Main

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on at 2:25 PM

RESIDUAL HYDRANT #: 480

RESIDUAL HYDRANT LOCATION: NORTHWEST CORNER OF N DOWNING AN E MILLER

STATIC PSI: 0

RESIDUAL PSI: 0 while flowing hydrant # 919

FLOW HYDRANT #: 919

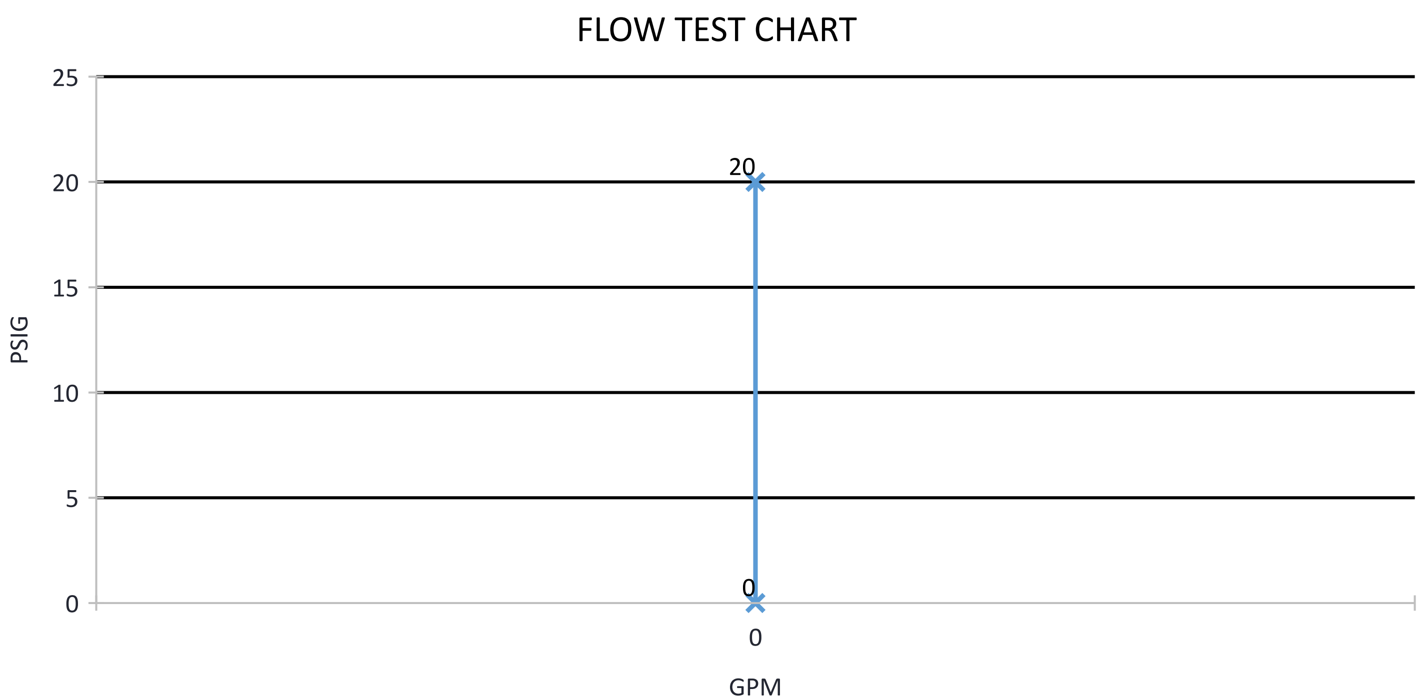
FLOW HYD LOCATION: 901 CHEVY CHASE DR

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 0

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 0

GPM FLOWED DURING TEST: 0 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 0 GPM



Graph data should always be independently calculated and reviewed

Operational conditions of hydrants and test results reflect conditions of the hydrants and system at the time of the inspections/tests. Data Hydrant Inc. dba Hydrant.com does not guarantee, certify, or imply future pressures or operability of the hydrants at any time before, during, or after tests are conducted.

All fire hydrants should be inspected, operated, and flushed at least annually.

Data Hydrant Inc. dba Hydrant.com
5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/15/2025 at 7:17 AM

RESIDUAL HYDRANT #: 322

RESIDUAL HYDRANT LOCATION: 132 E HOSPITAL DR -

STATIC PSI: 60

RESIDUAL PSI: 35 while flowing hydrant # 321

FLOW HYDRANT #: 321

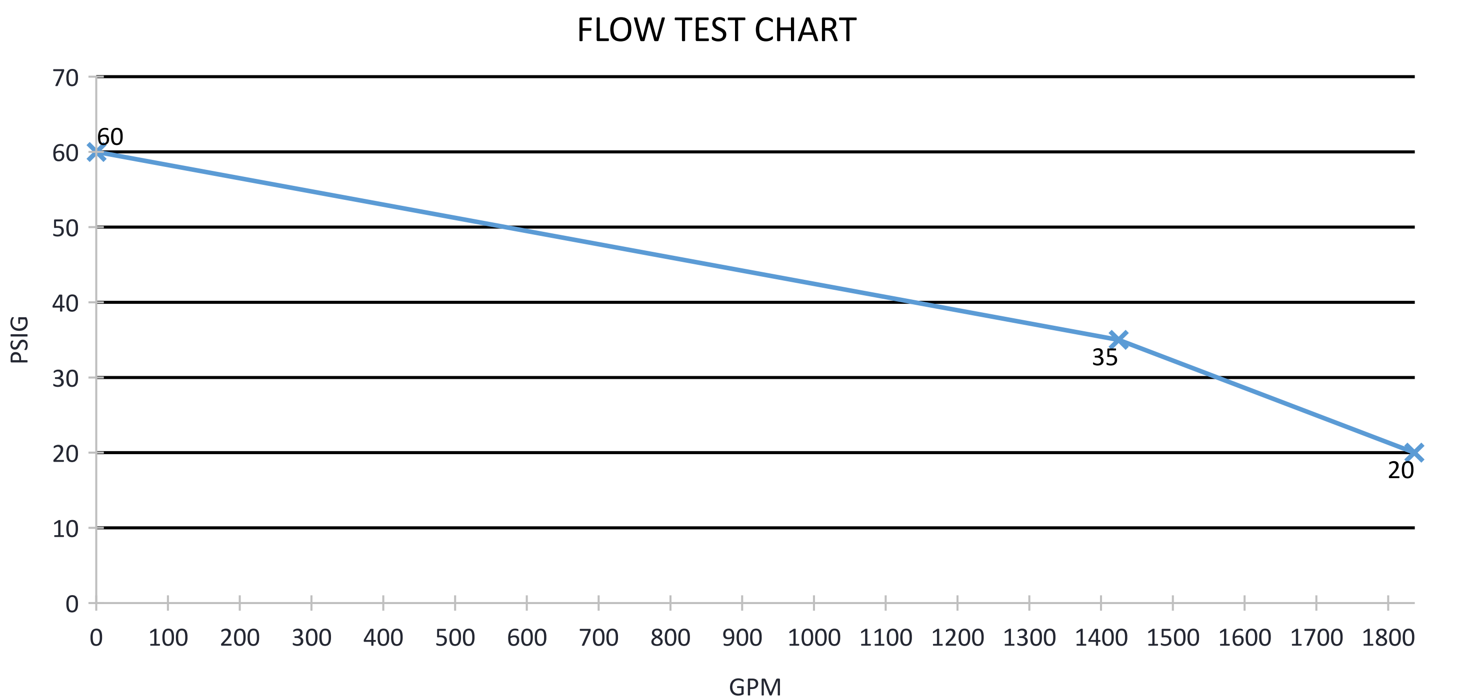
FLOW HYD LOCATION: 132 E HOSPITAL DR

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 18

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 18

GPM FLOWED DURING TEST: 1424 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1837 GPM



Graph data should always be independently calculated and reviewed

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Testing Available Water Supply in Water Main

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/15/2025 at 10:20 AM

RESIDUAL HYDRANT #: 900

RESIDUAL HYDRANT LOCATION: 130 AUSTIN RD

STATIC PSI: 57

RESIDUAL PSI: 37 while flowing hydrant # 901

FLOW HYDRANT #: 901

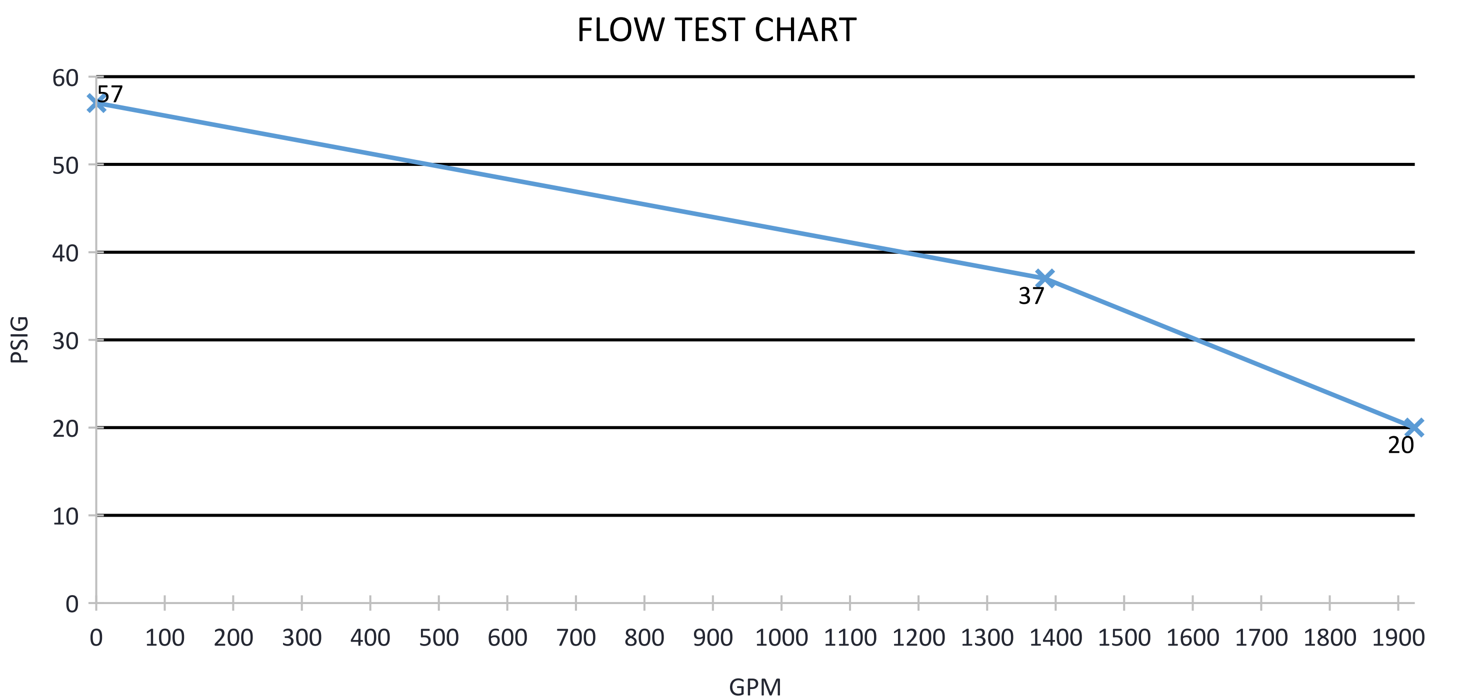
FLOW HYD LOCATION: 106 AUSTIN RD

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 17

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 17

GPM FLOWED DURING TEST: 1384 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1924 GPM



Graph data should always be independently calculated and reviewed

Operational conditions of hydrants and test results reflect conditions of the hydrants and system at the time of the inspections/tests. Data Hydrant Inc. dba Hydrant.com does not guarantee, certify, or imply future pressures or operability of the hydrants at any time before, during, or after tests are conducted.

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5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

Item 6.

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/15/2025 at 11:40 AM

RESIDUAL HYDRANT #: 575

RESIDUAL HYDRANT LOCATION: NORTHWEST CORNER OF E ORANGE ST AND S CHENANGO ST

STATIC PSI: 54

RESIDUAL PSI: 40 while flowing hydrant # 576

FLOW HYDRANT #: 576

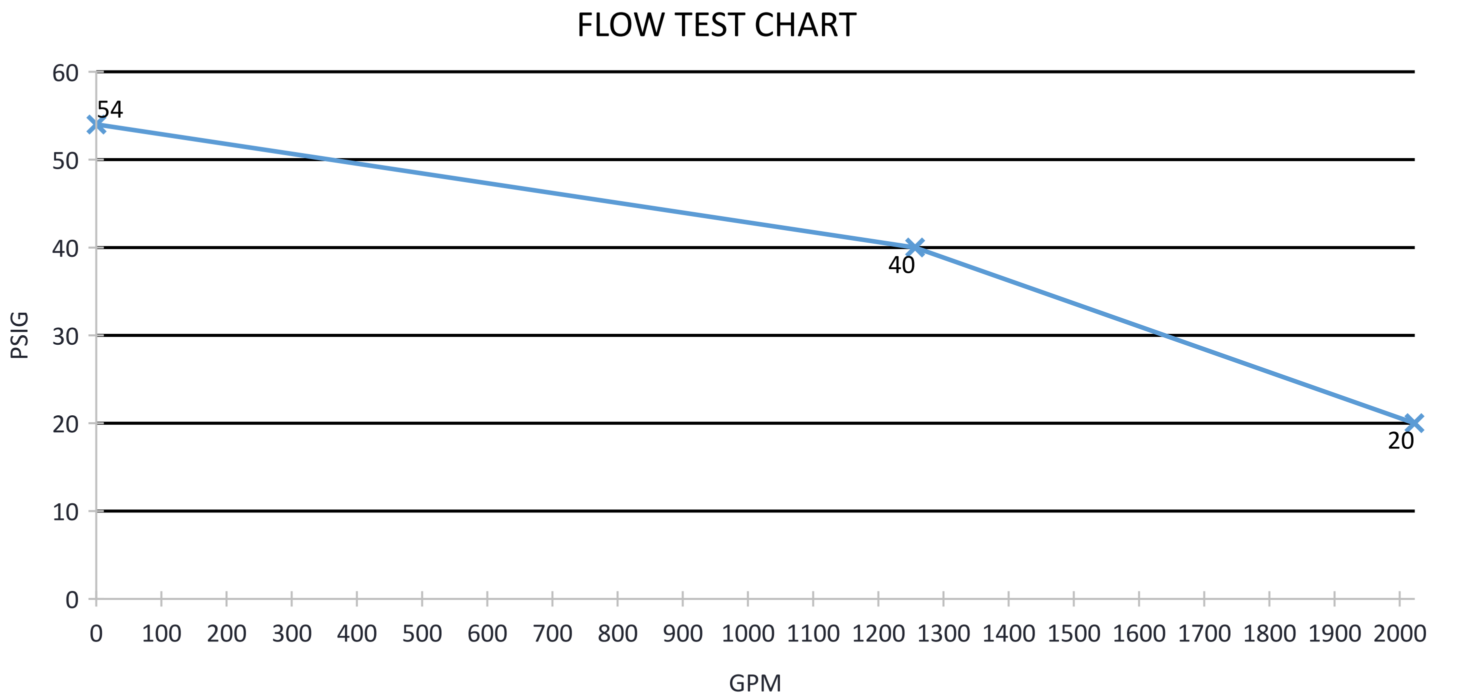
FLOW HYD LOCATION: NORTHEAST CORNER OF HWY 288 BUSINESS AND E ORANGE ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 14

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 14

GPM FLOWED DURING TEST: 1256 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2022 GPM



Graph data should always be independently calculated and reviewed

Operational conditions of hydrants and test results reflect conditions of the hydrants and system at the time of the inspections/tests. Data Hydrant Inc. dba Hydrant.com does not guarantee, certify, or imply future pressures or operability of the hydrants at any time before, during, or after tests are conducted.

All fire hydrants should be inspected, operated, and flushed at least annually.

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5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/15/2025 at 1:43 PM

RESIDUAL HYDRANT #: 50

RESIDUAL HYDRANT LOCATION: 500 CATALPA ST

STATIC PSI: 58

RESIDUAL PSI: 40 while flowing hydrant # 51

FLOW HYDRANT #: 51

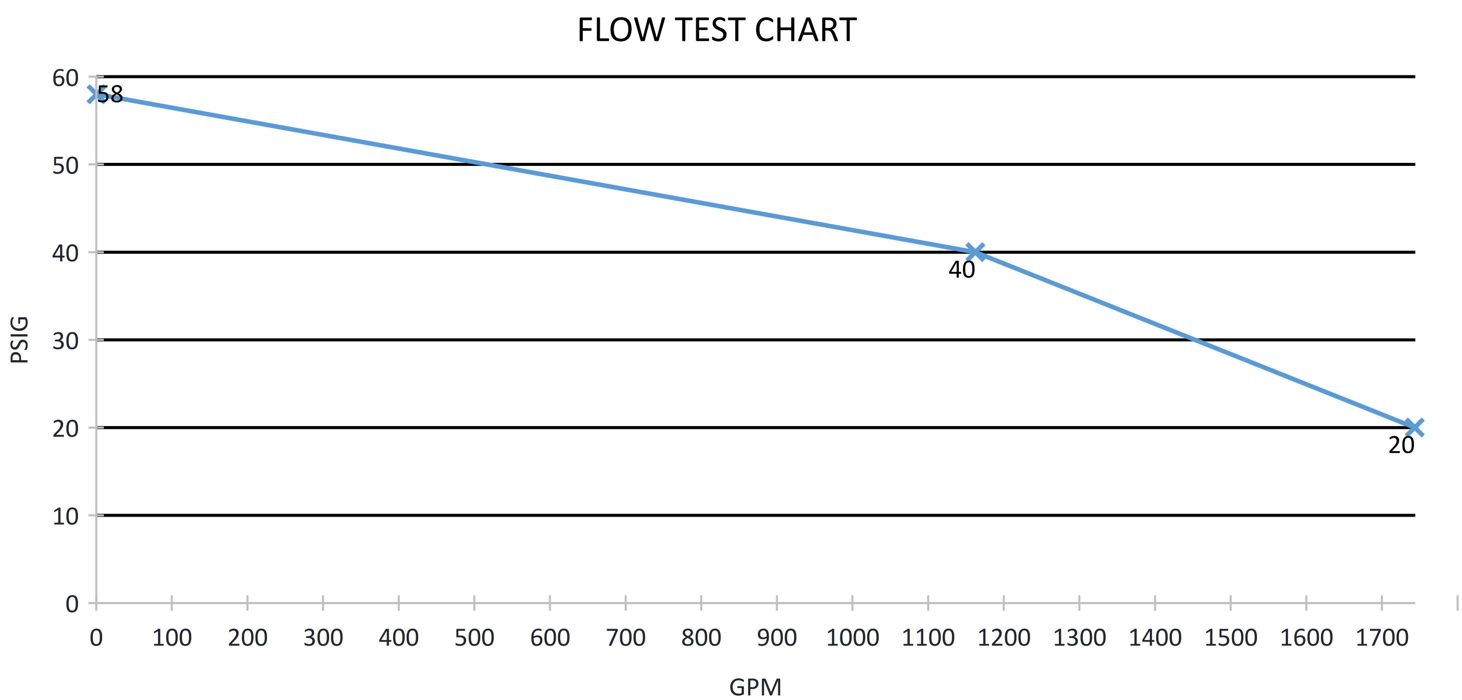
FLOW HYD LOCATION: 608 CATALPA ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 12

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 12

GPM FLOWED DURING TEST: 1162 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1743 GPM



Graph data should always be independently calculated and reviewed

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5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/15/2025 at 2:02 PM

RESIDUAL HYDRANT #: 131

RESIDUAL HYDRANT LOCATION: 409 FARRER ST

STATIC PSI: 62

RESIDUAL PSI: 23 while flowing hydrant # 133

FLOW HYDRANT #: 133

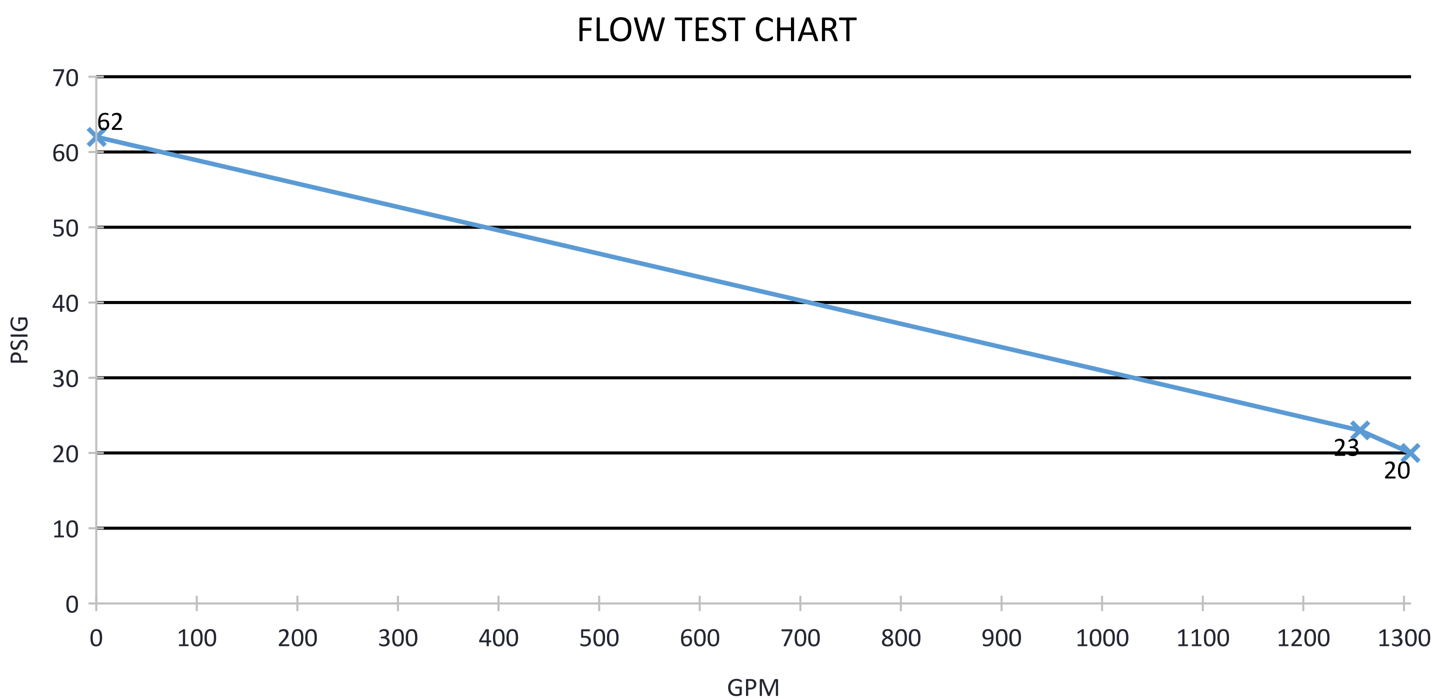
FLOW HYD LOCATION: 408 EVANS ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 14

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 14

GPM FLOWED DURING TEST: 1256 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1306 GPM



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Testing Available Water Supply in Water Main

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The test was conducted on 1/15/2025 at 2:35 PM

RESIDUAL HYDRANT #: 773

RESIDUAL HYDRANT LOCATION: 308 BRYAN WAY

STATIC PSI: 55

RESIDUAL PSI: 35 while flowing hydrant # 775

FLOW HYDRANT #: 775

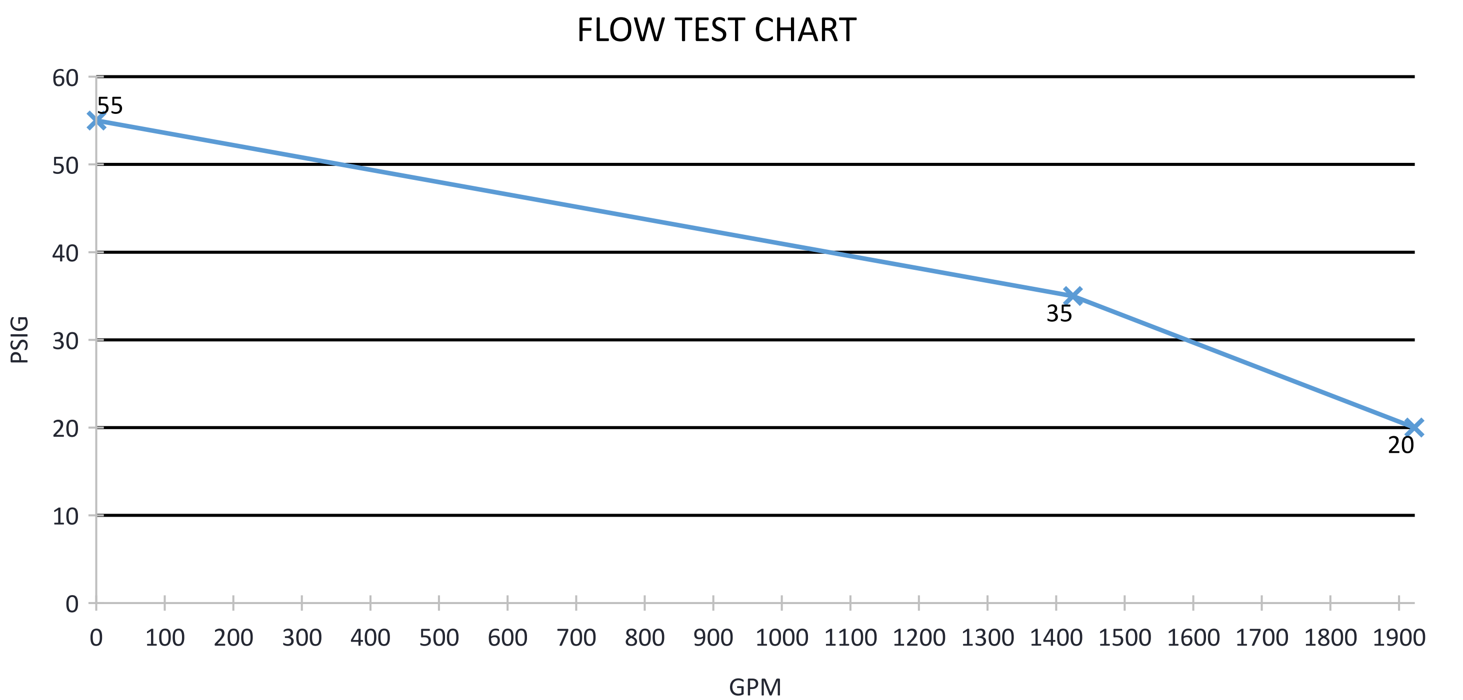
FLOW HYD LOCATION: 3 LAGO CT

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 18

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 18

GPM FLOWED DURING TEST: 1424 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1922 GPM



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5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

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The test was conducted on 1/16/2025 at 11:27 AM

RESIDUAL HYDRANT #: 747

RESIDUAL HYDRANT LOCATION: ACROSS FROM 825 SOUTHSIDE DR

STATIC PSI: 56

RESIDUAL PSI: 42 while flowing hydrant # 746

FLOW HYDRANT #: 746

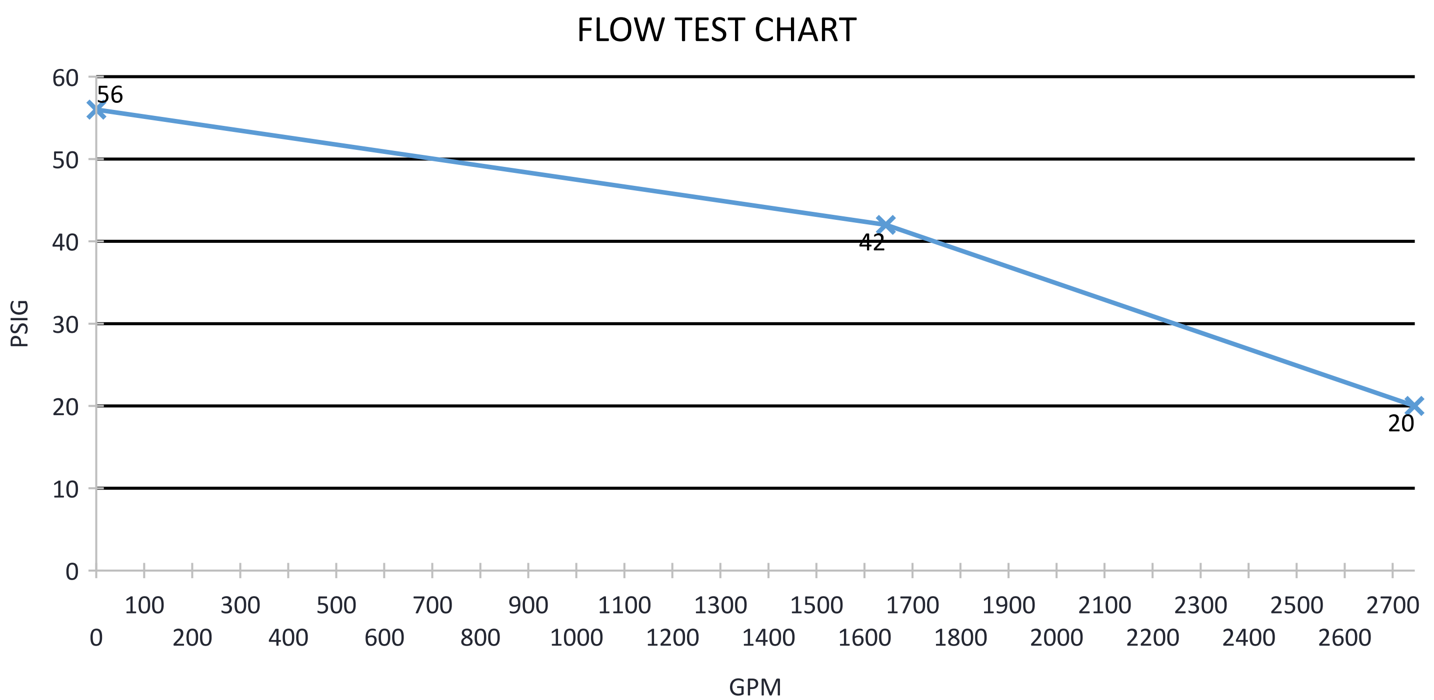
FLOW HYD LOCATION: 1009 SOUTHSIDE DR

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 24

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 24

GPM FLOWED DURING TEST: 1644 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2745 GPM



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Testing Available Water Supply in Water Main

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The test was conducted on 1/16/2025 at 1:56 PM

RESIDUAL HYDRANT #: 222
RESIDUAL HYDRANT LOCATION: 137 PRAIRIE LEA DR

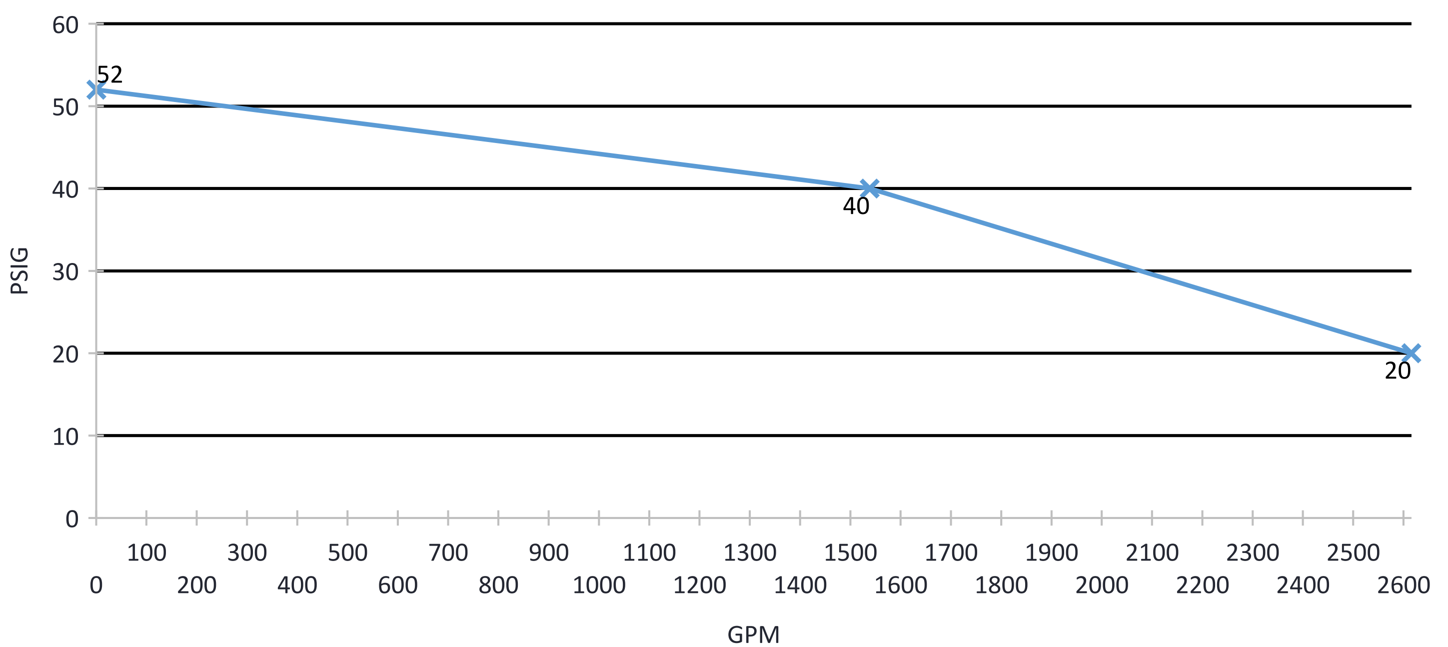
STATIC PSI: 52
RESIDUAL PSI: 40 while flowing hydrant # 223

FLOW HYDRANT #: 223
FLOW HYD LOCATION: 205 PRAIRIE LEA DR

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 21
2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 21
GPM FLOWED DURING TEST: 1538 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2615 GPM

FLOW TEST CHART



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Testing Available Water Supply in Water Main

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The test was conducted on 1/16/2025 at 2:23 PM

RESIDUAL HYDRANT #: 219

RESIDUAL HYDRANT LOCATION: 205 BALD PRAIRIE DR

STATIC PSI: 58

RESIDUAL PSI: 36 while flowing hydrant # 218

FLOW HYDRANT #: 218

FLOW HYD LOCATION: 137 BALD PRAIRIE DR

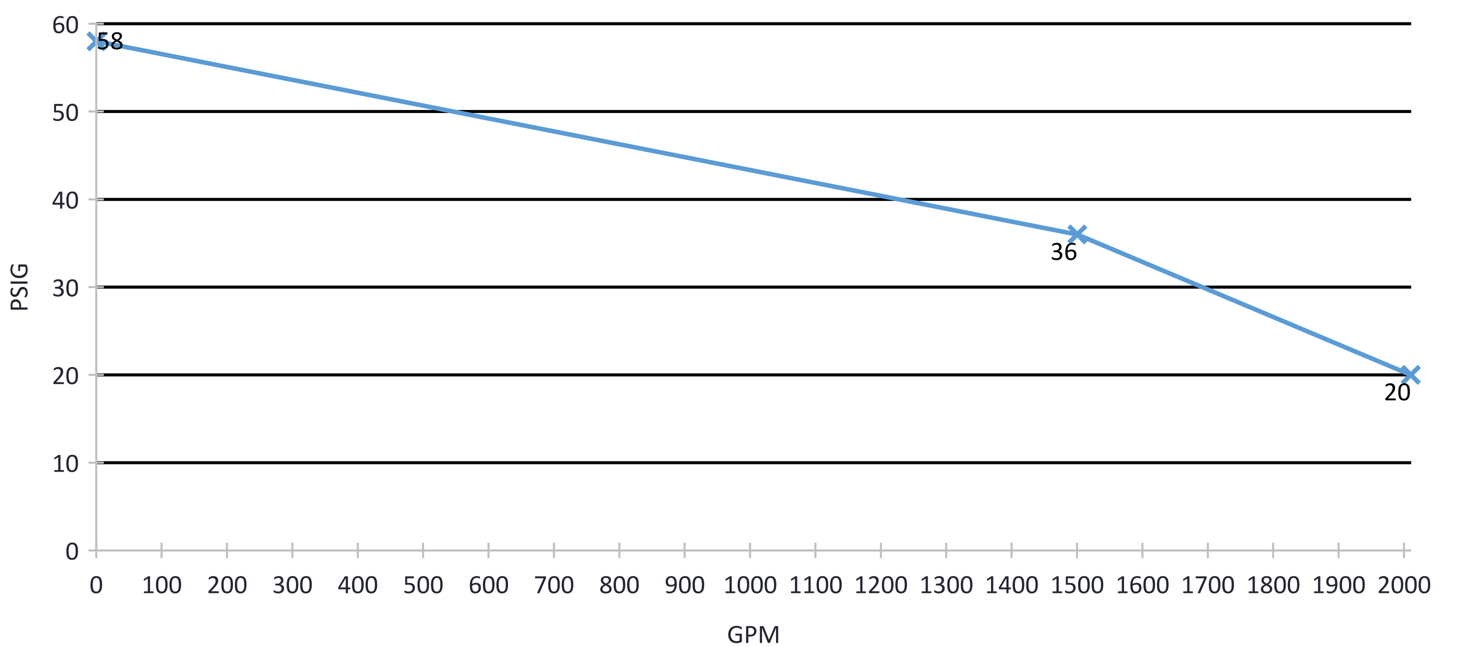
2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 20

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 20

GPM FLOWED DURING TEST: 1500 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2010 GPM

FLOW TEST CHART



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Testing Available Water Supply in Water Main

Item 6.

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The test was conducted on 1/16/2025 at 10:29 AM

RESIDUAL HYDRANT #: 228

RESIDUAL HYDRANT LOCATION: 1060 VINE DR

STATIC PSI: 60

RESIDUAL PSI: 35 while flowing hydrant # 229

FLOW HYDRANT #: 229

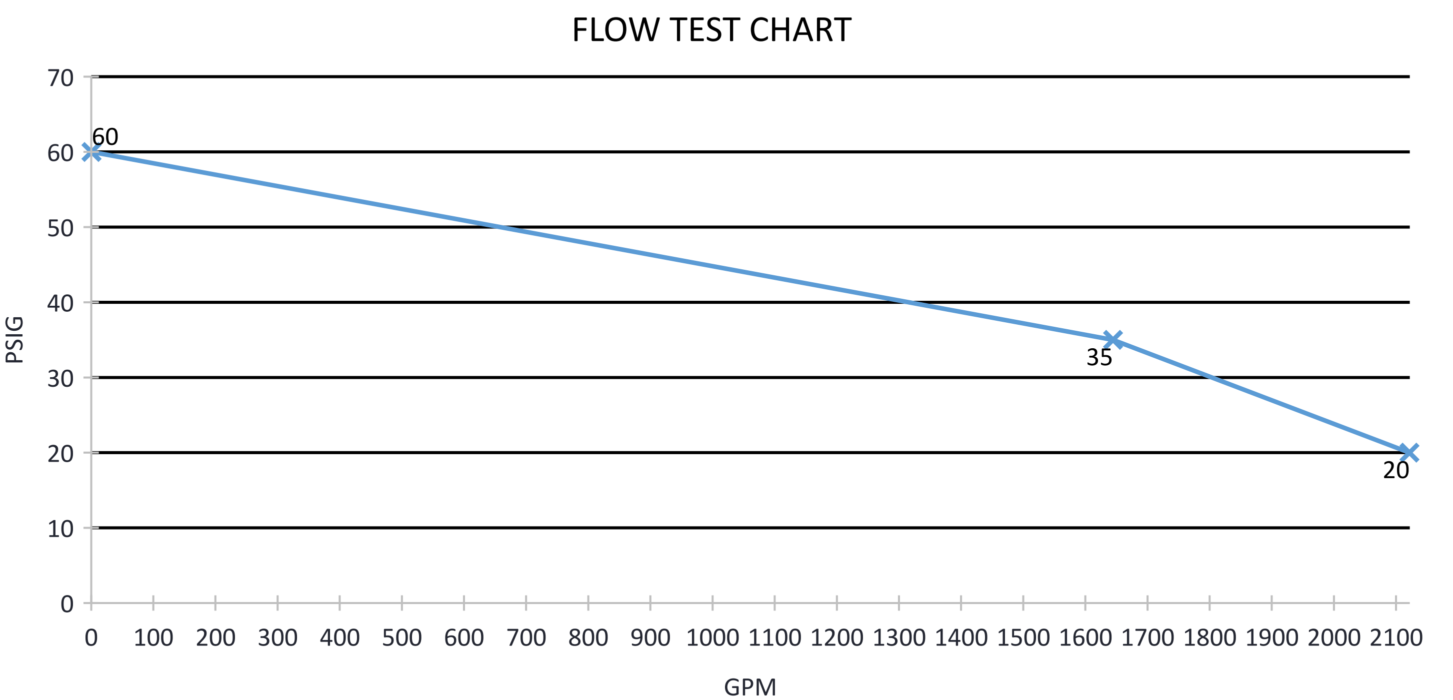
FLOW HYD LOCATION: 1060 GROVE DR

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 24

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 24

GPM FLOWED DURING TEST: 1644 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2121 GPM



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5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

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The test was conducted on 1/17/2025 at 7:48 AM

RESIDUAL HYDRANT #: 197

RESIDUAL HYDRANT LOCATION: SOUTHEAST CORNER OF KADERA RD AND WILBERT ST

STATIC PSI: 60

RESIDUAL PSI: 45 while flowing hydrant # 198

FLOW HYDRANT #: 198

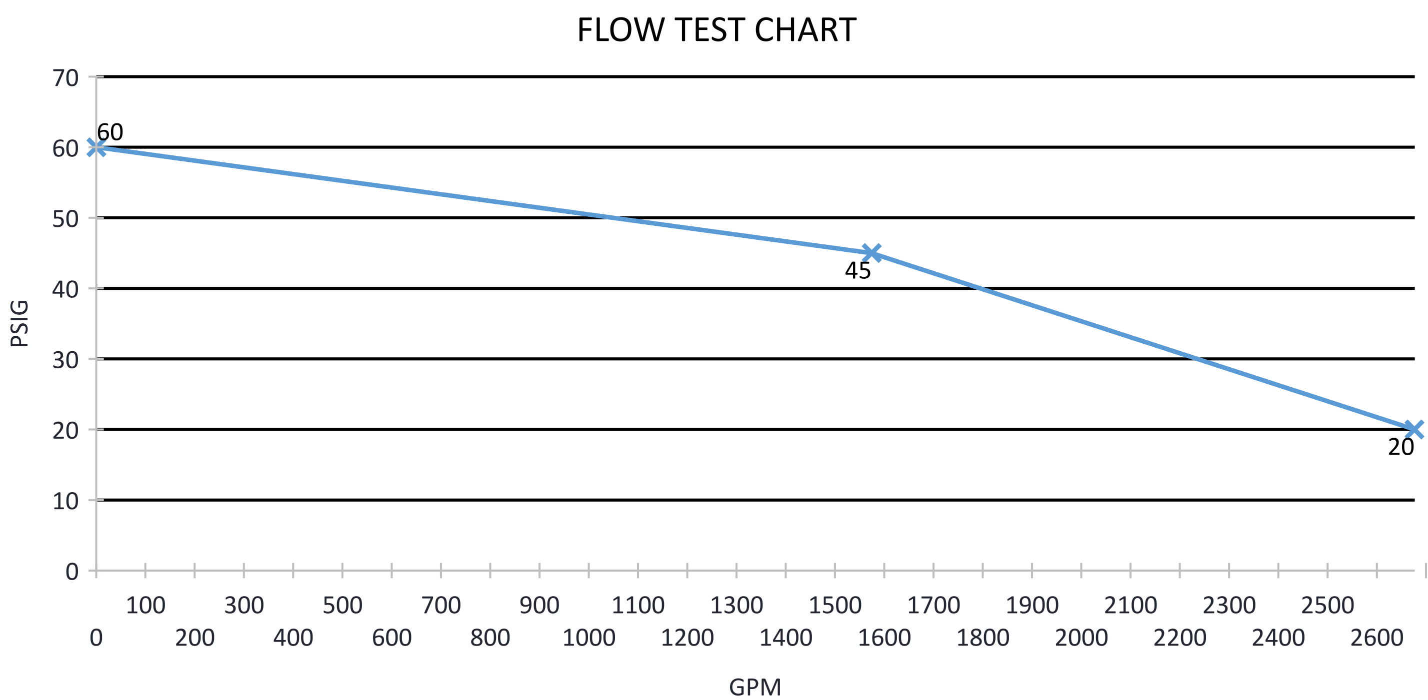
FLOW HYD LOCATION: 1621 WILBERT RD

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 22

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 22

GPM FLOWED DURING TEST: 1574 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2676 GPM



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5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

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The test was conducted on 1/17/2025 at 9:49 AM

RESIDUAL HYDRANT #: 183
RESIDUAL HYDRANT LOCATION: 1712 SHANKS RD

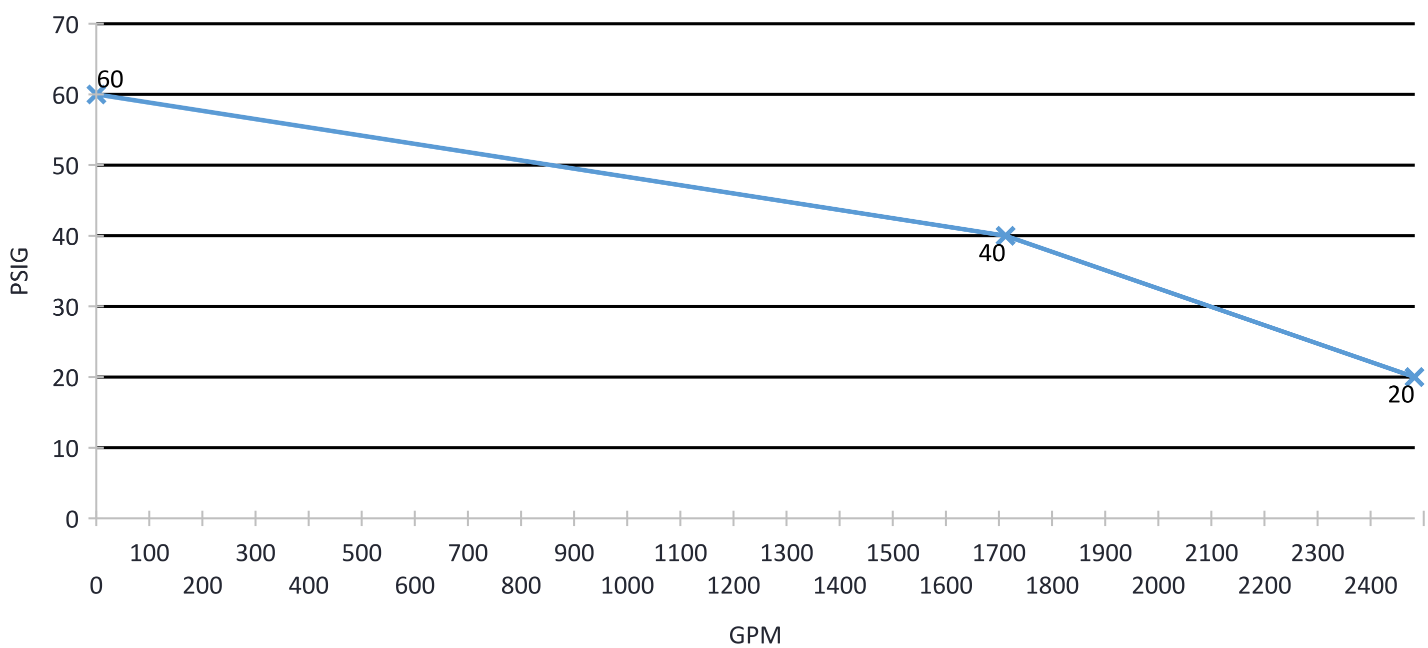
STATIC PSI: 60
RESIDUAL PSI: 40 while flowing hydrant # 182

FLOW HYDRANT #: 182
FLOW HYD LOCATION: 1820 SHANKS RD

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 26
2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 26
GPM FLOWED DURING TEST: 1712 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2482 GPM

FLOW TEST CHART



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Testing Available Water Supply in Water Main

Item 6.

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/17/2025 at 2:11 PM

RESIDUAL HYDRANT #: 294

RESIDUAL HYDRANT LOCATION: 1500 S VELASCO ST

STATIC PSI: 60

RESIDUAL PSI: 40 while flowing hydrant # 295

FLOW HYDRANT #: 295

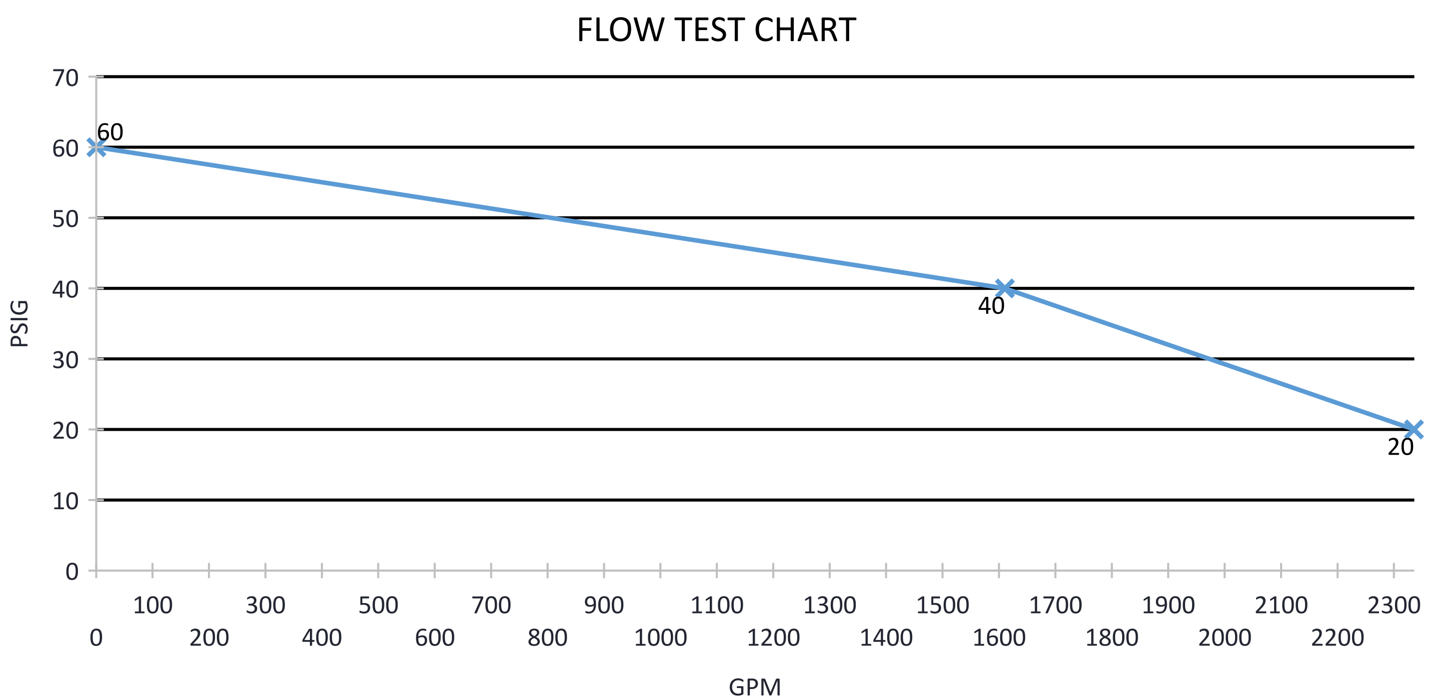
FLOW HYD LOCATION: 1600 S VELASCO ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 23

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 23

GPM FLOWED DURING TEST: 1610 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2335 GPM



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Testing Available Water Supply in Water Main

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The test was conducted on 1/17/2025 at 2:25 PM

RESIDUAL HYDRANT #: 288

RESIDUAL HYDRANT LOCATION: NORTHWEST CORNER OF S VELASCO AND CEMETERY RD

STATIC PSI: 60

RESIDUAL PSI: 42 while flowing hydrant # 289

FLOW HYDRANT #: 289

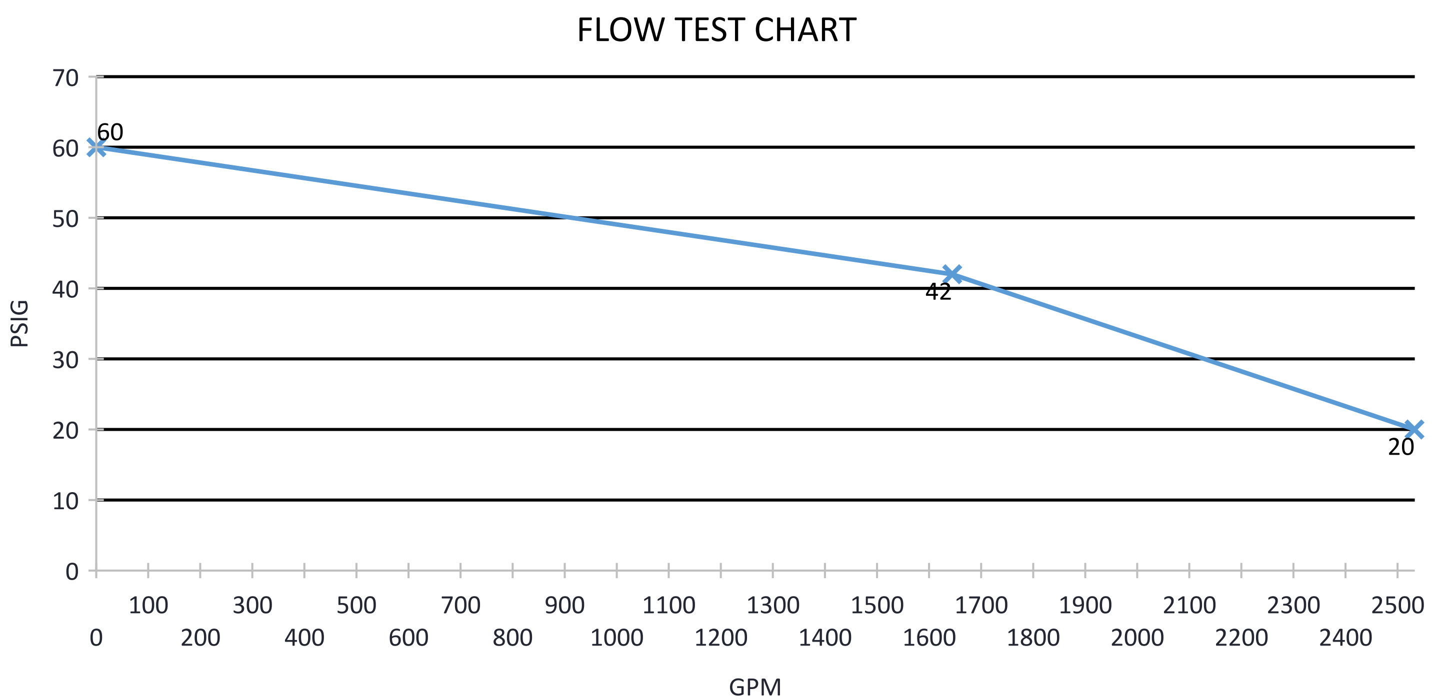
FLOW HYD LOCATION: SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 24

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 24

GPM FLOWED DURING TEST: 1644 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2532 GPM



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5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

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The test was conducted on 1/23/2025 at 10:28 AM

RESIDUAL HYDRANT #: 145

RESIDUAL HYDRANT LOCATION: 100 WALNUT ST

STATIC PSI: 60

RESIDUAL PSI: 40 while flowing hydrant # 146

FLOW HYDRANT #: 146

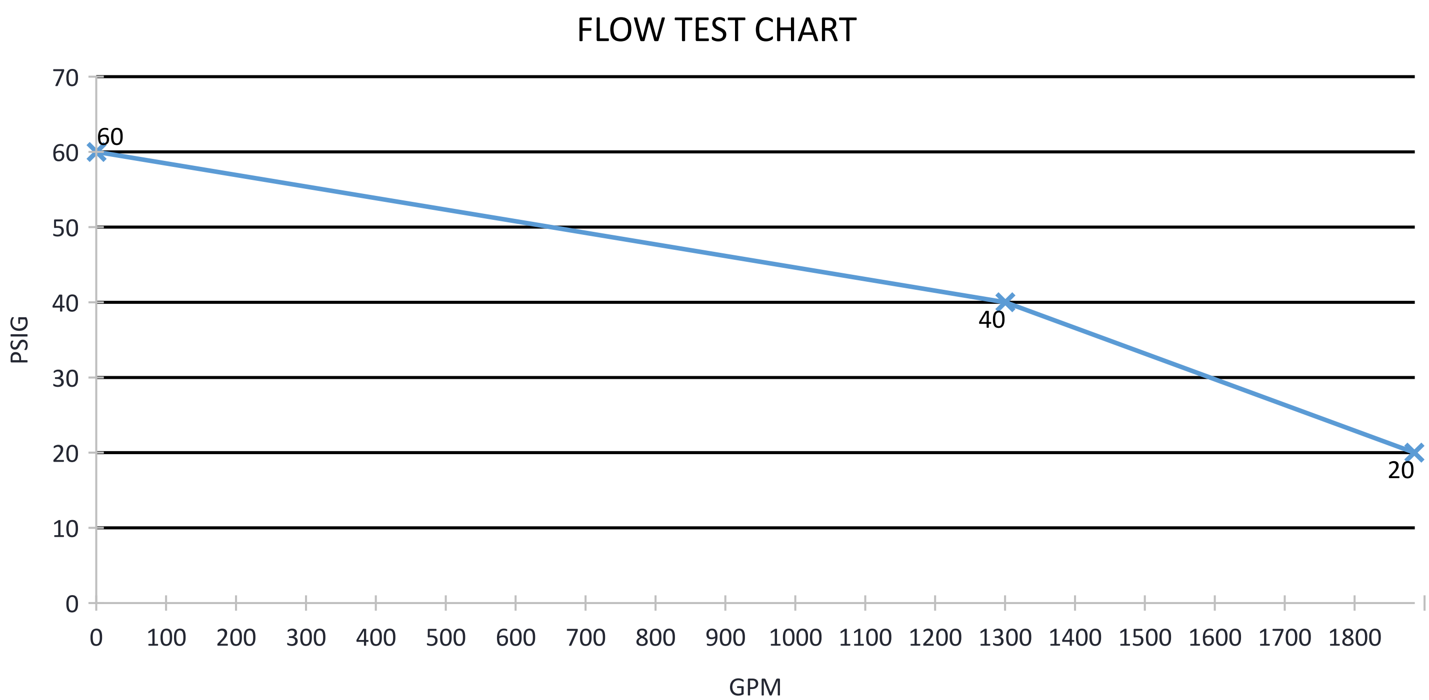
FLOW HYD LOCATION: 134 WALNUT ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 15

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 15

GPM FLOWED DURING TEST: 1300 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1885 GPM



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Testing Available Water Supply in Water Main

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The test was conducted on 1/23/2025 at 1:25 PM

RESIDUAL HYDRANT #: 46

RESIDUAL HYDRANT LOCATION: 727 S WALKER ST

STATIC PSI: 62

RESIDUAL PSI: 40 while flowing hydrant # 47

FLOW HYDRANT #: 47

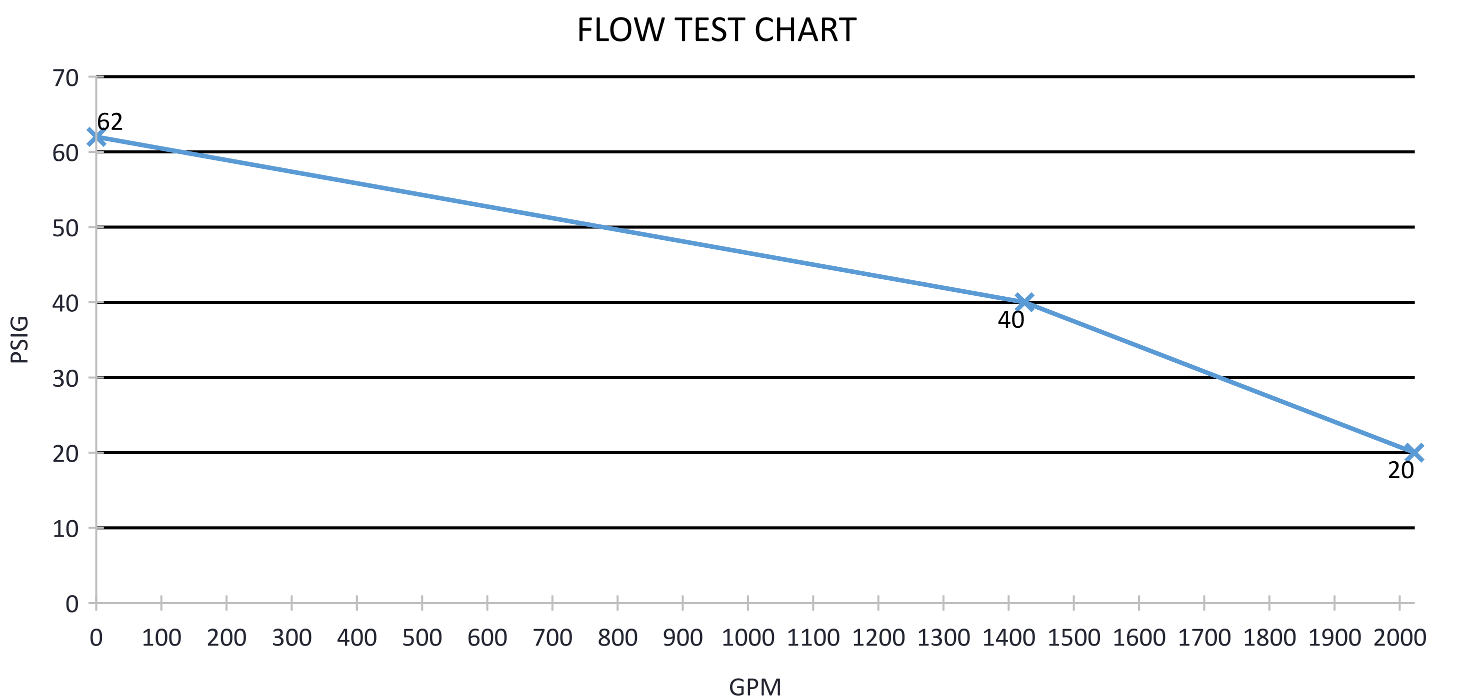
FLOW HYD LOCATION: 716 MUNSON PL

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 18

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 18

GPM FLOWED DURING TEST: 1424 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2022 GPM



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Testing Available Water Supply in Water Main

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The test was conducted on 1/23/2025 at 1:57 PM

RESIDUAL HYDRANT #: 23

RESIDUAL HYDRANT LOCATION: 629 HOLLY ST

STATIC PSI: 57

RESIDUAL PSI: 40 while flowing hydrant # 22

FLOW HYDRANT #: 22

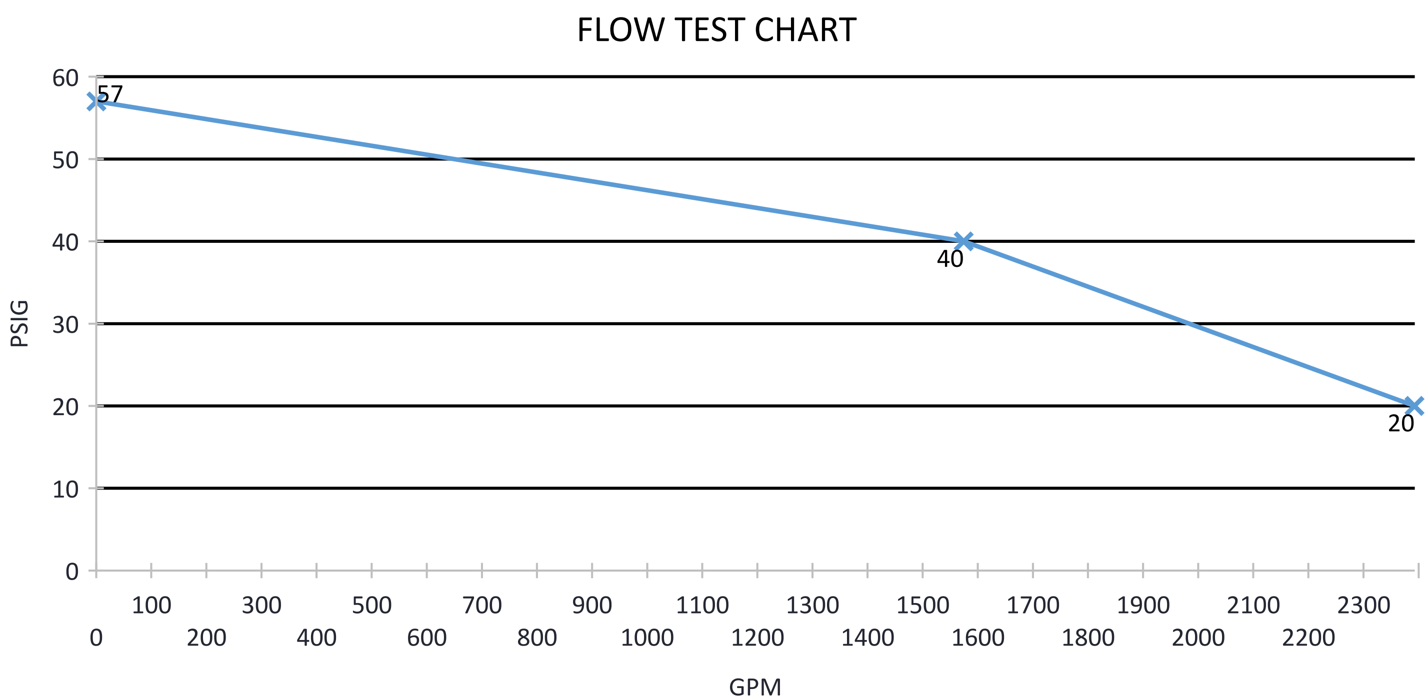
FLOW HYD LOCATION: ACROSS FROM 300 S WALKER ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 22

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 22

GPM FLOWED DURING TEST: 1574 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2392 GPM



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Testing Available Water Supply in Water Main

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The test was conducted on 1/24/2025 at 9:03 AM

RESIDUAL HYDRANT #: 66

RESIDUAL HYDRANT LOCATION: 18 T J WRIGHT ST

STATIC PSI: 54

RESIDUAL PSI: 45 while flowing hydrant # 67

FLOW HYDRANT #: 67

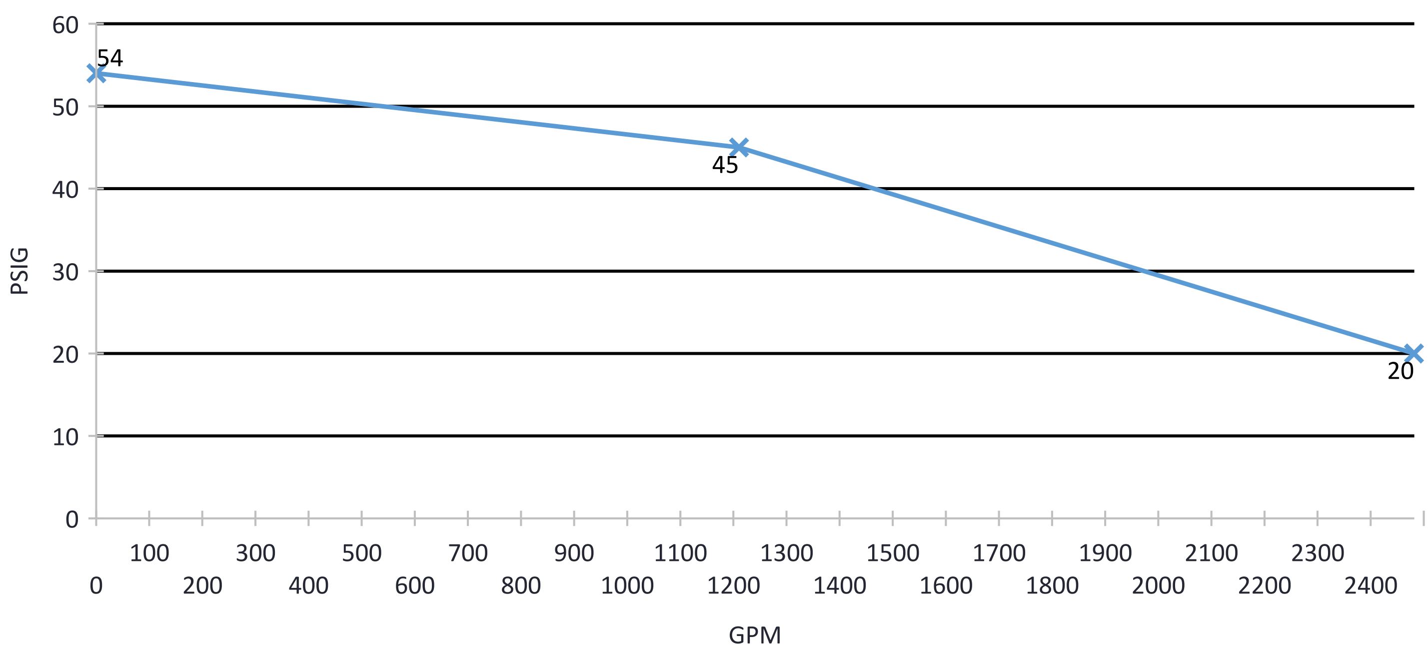
FLOW HYD LOCATION: 612 T J WRIGHT ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 13

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 13

GPM FLOWED DURING TEST: 1210 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2481 GPM



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Testing Available Water Supply in Water Main

Item 6.

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The test was conducted on 1/17/2025 at 1:06 PM

RESIDUAL HYDRANT #: 150

RESIDUAL HYDRANT LOCATION: 97 LOSTROCCO ST

STATIC PSI: 60

RESIDUAL PSI: 35 while flowing hydrant # 151

FLOW HYDRANT #: 151

FLOW HYD LOCATION: 2288 S VELASCO ST

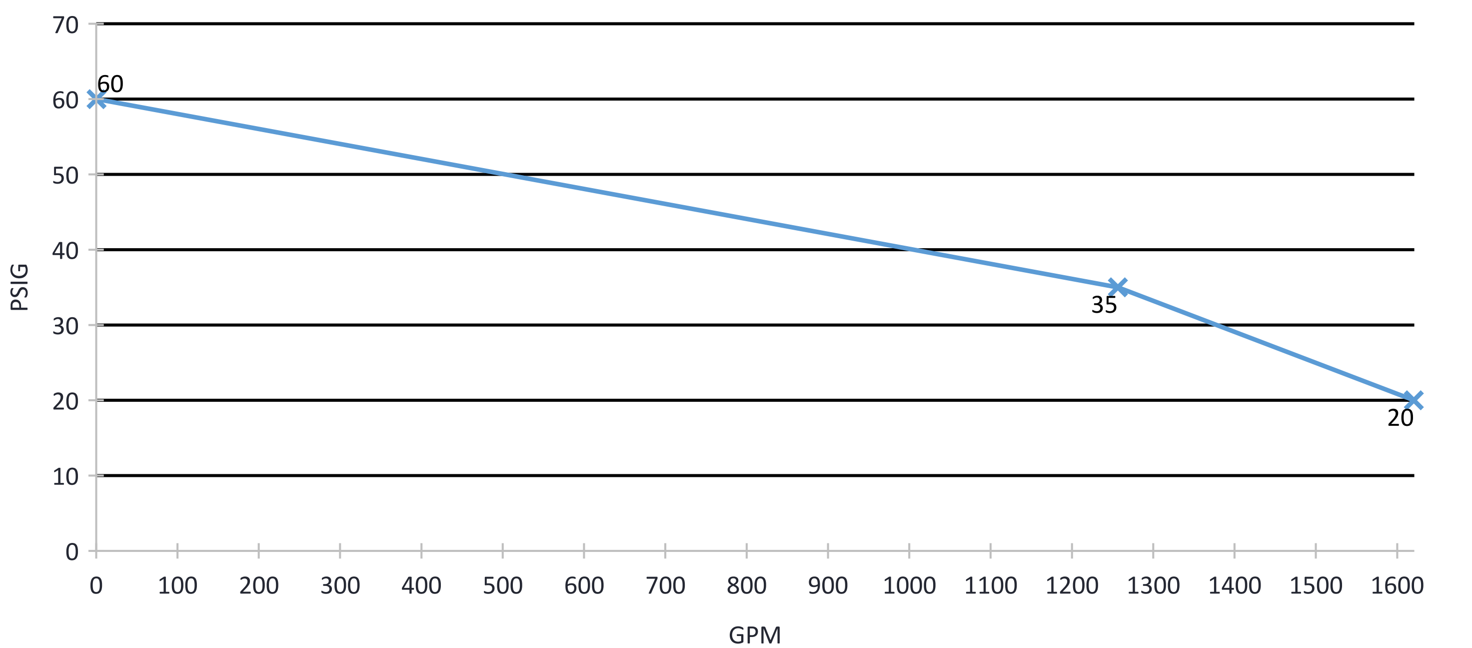
2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 14

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 14

GPM FLOWED DURING TEST: 1256 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1620 GPM

FLOW TEST CHART



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Testing Available Water Supply in Water Main

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The test was conducted on 1/27/2025 at 8:12 AM

RESIDUAL HYDRANT #: 566

RESIDUAL HYDRANT LOCATION: SOUTHWEST CORNER OF W LOCUS ST AND N VELASCO ST

STATIC PSI: 57

RESIDUAL PSI: 40 while flowing hydrant # 557

FLOW HYDRANT #: 557

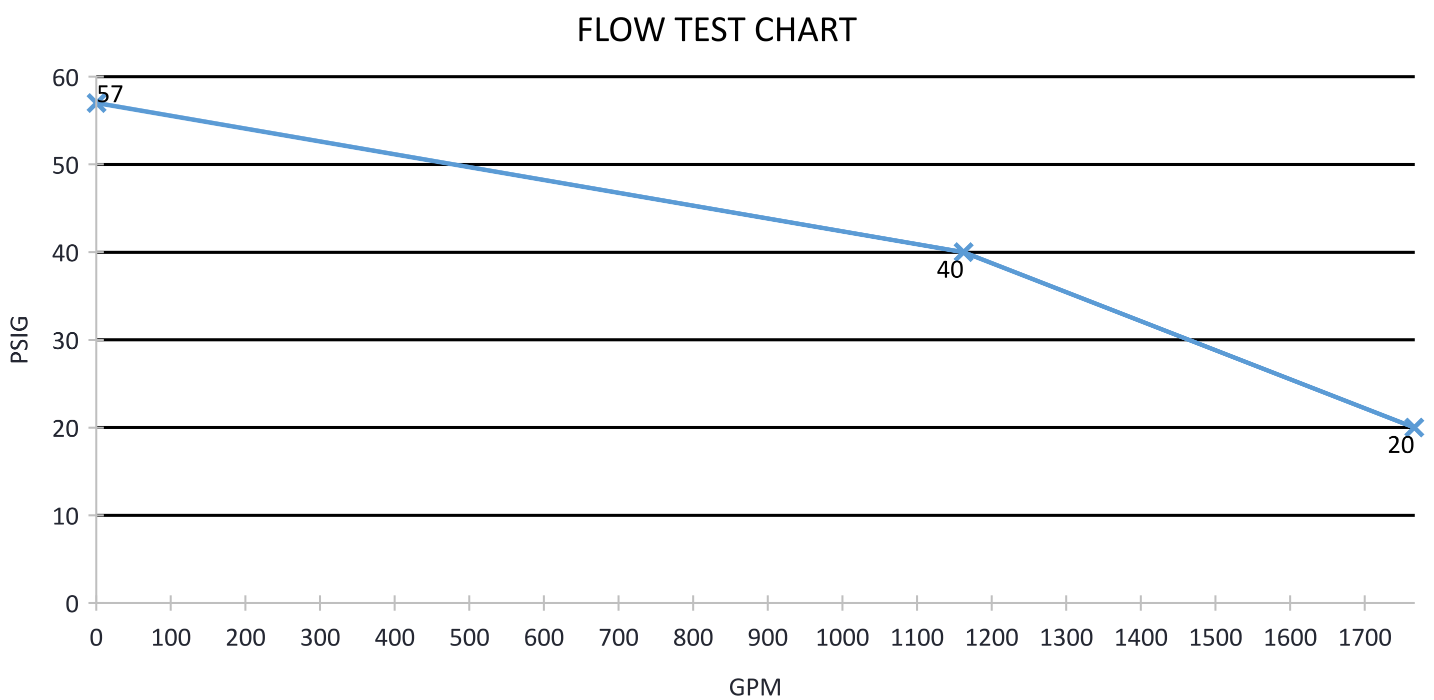
FLOW HYD LOCATION: 136 E LOCUS ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 12

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 12

GPM FLOWED DURING TEST: 1162 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1766 GPM



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Testing Available Water Supply in Water Main

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The test was conducted on 1/27/2025 at 10:55 AM

RESIDUAL HYDRANT #: 549

RESIDUAL HYDRANT LOCATION: 427 E MAGNOLIA ST

STATIC PSI: 60

RESIDUAL PSI: 55 while flowing hydrant # 548

FLOW HYDRANT #: 548

FLOW HYD LOCATION: SOUTHEAST CORNER OF N MORGAN ST AND E LOCUS ST

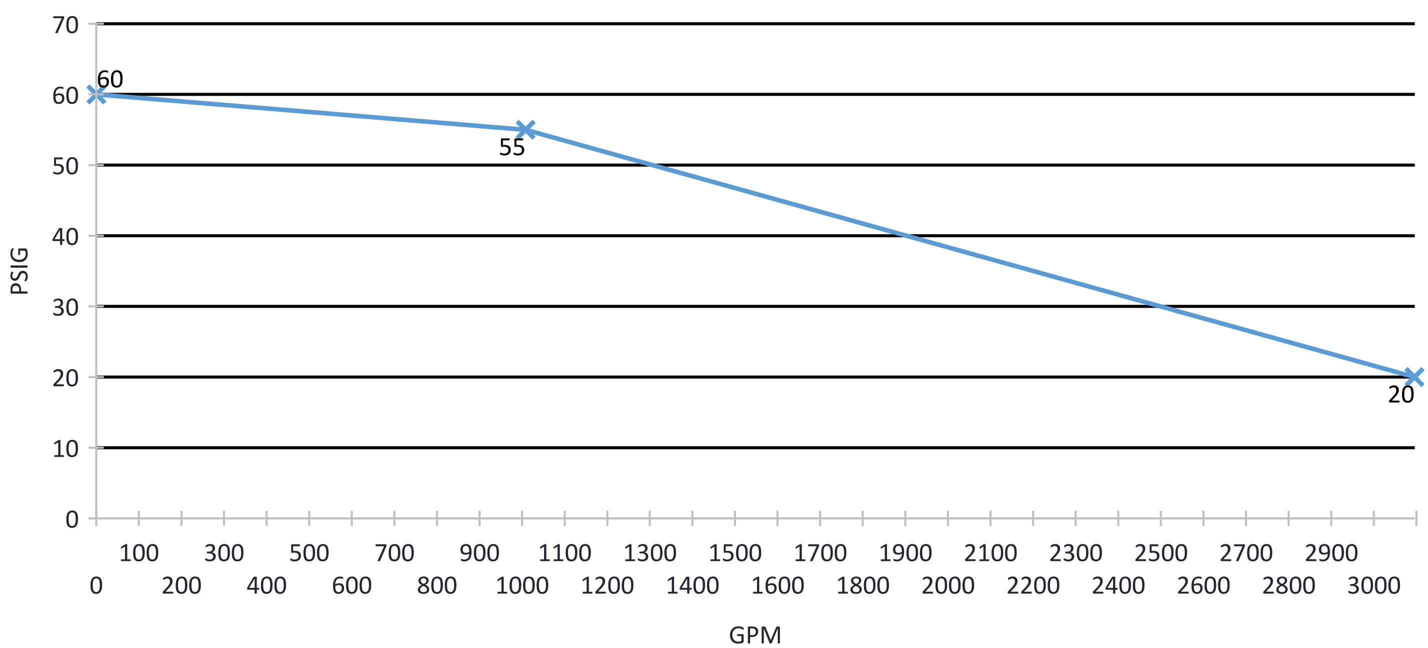
2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 9

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 9

GPM FLOWED DURING TEST: 1008 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 3095 GPM

FLOW TEST CHART



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Testing Available Water Supply in Water Main

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The test was conducted on 1/24/2025 at 9:21 AM

RESIDUAL HYDRANT #: 713

RESIDUAL HYDRANT LOCATION: ACROSS FROM 221 N PARISH ST

STATIC PSI: 54

RESIDUAL PSI: 40 while flowing hydrant # 714

FLOW HYDRANT #: 714

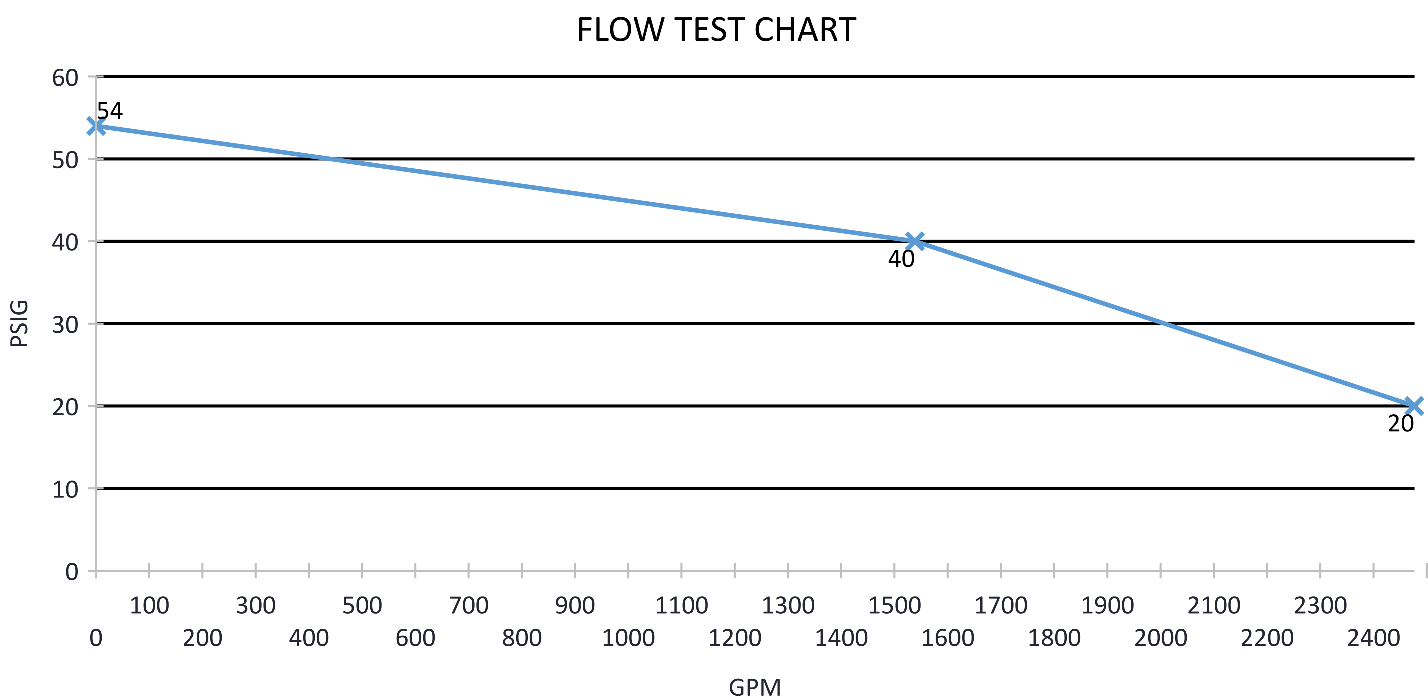
FLOW HYD LOCATION: ACROSS FROM 409 N PARISH ST

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 21

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 21

GPM FLOWED DURING TEST: 1538 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2476 GPM



Graph data should always be independently calculated and reviewed

Operational conditions of hydrants and test results reflect conditions of the hydrants and system at the time of the inspections/tests. Data Hydrant Inc. dba Hydrant.com does not guarantee, certify, or imply future pressures or operability of the hydrants at any time before, during, or after tests are conducted.

All fire hydrants should be inspected, operated, and flushed at least annually.

Data Hydrant Inc. dba Hydrant.com
5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/27/2025 at 11:24 AM

RESIDUAL HYDRANT #: 537

RESIDUAL HYDRANT LOCATION: 603 E LOCUS ST

STATIC PSI: 60

RESIDUAL PSI: 23 while flowing hydrant # 536

FLOW HYDRANT #: 536

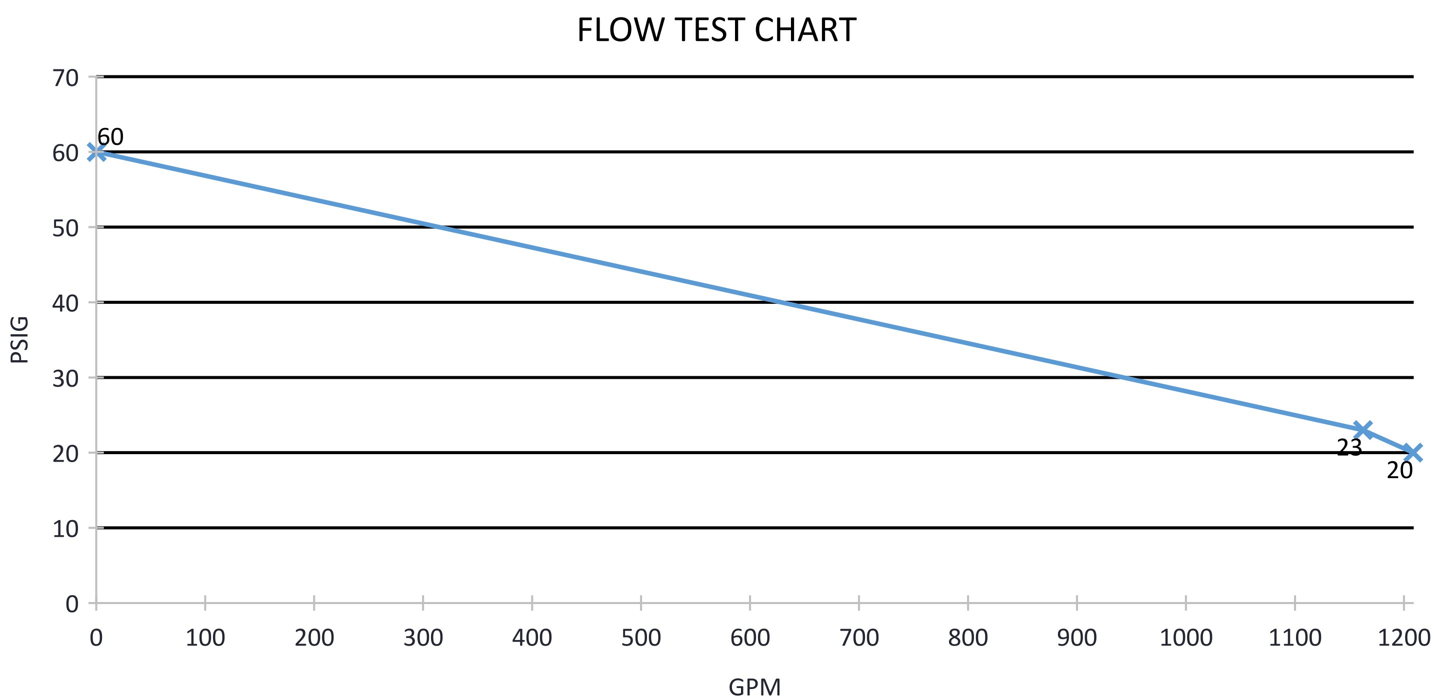
FLOW HYD LOCATION: 604 E LIVE OAK

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 12

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 12

GPM FLOWED DURING TEST: 1162 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1208 GPM



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Data Hydrant Inc. dba Hydrant.com
5380 West 34th Street #214 Houston, TX 77092

Item 6.

Testing Available Water Supply in Water Main

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/27/2025 at 3:03 PM

RESIDUAL HYDRANT #: 465

RESIDUAL HYDRANT LOCATION: 901 NOTTINGHAM DR

STATIC PSI: 55

RESIDUAL PSI: 48 while flowing hydrant # 464

FLOW HYDRANT #: 464

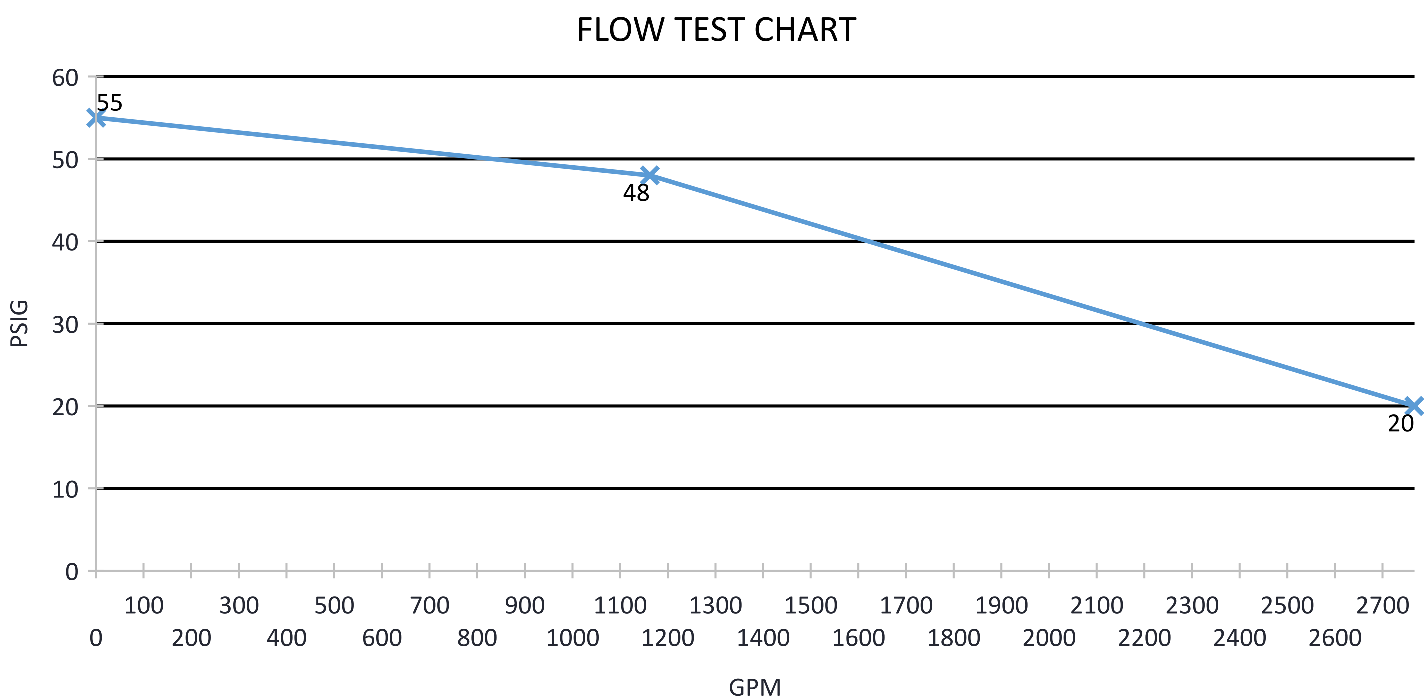
FLOW HYD LOCATION: 1117 NOTTINGHAM DR

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 12

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 12

GPM FLOWED DURING TEST: 1162 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2766 GPM



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Data Hydrant Inc. dba Hydrant.com
5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

Item 6.

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/27/2025 at 9:33 AM

RESIDUAL HYDRANT #: 552

RESIDUAL HYDRANT LOCATION: 301 E MAGNOLIA ST

STATIC PSI: 58

RESIDUAL PSI: 32 while flowing hydrant # 932

FLOW HYDRANT #: 932

FLOW HYD LOCATION: 301 E MAGNOLIA ST

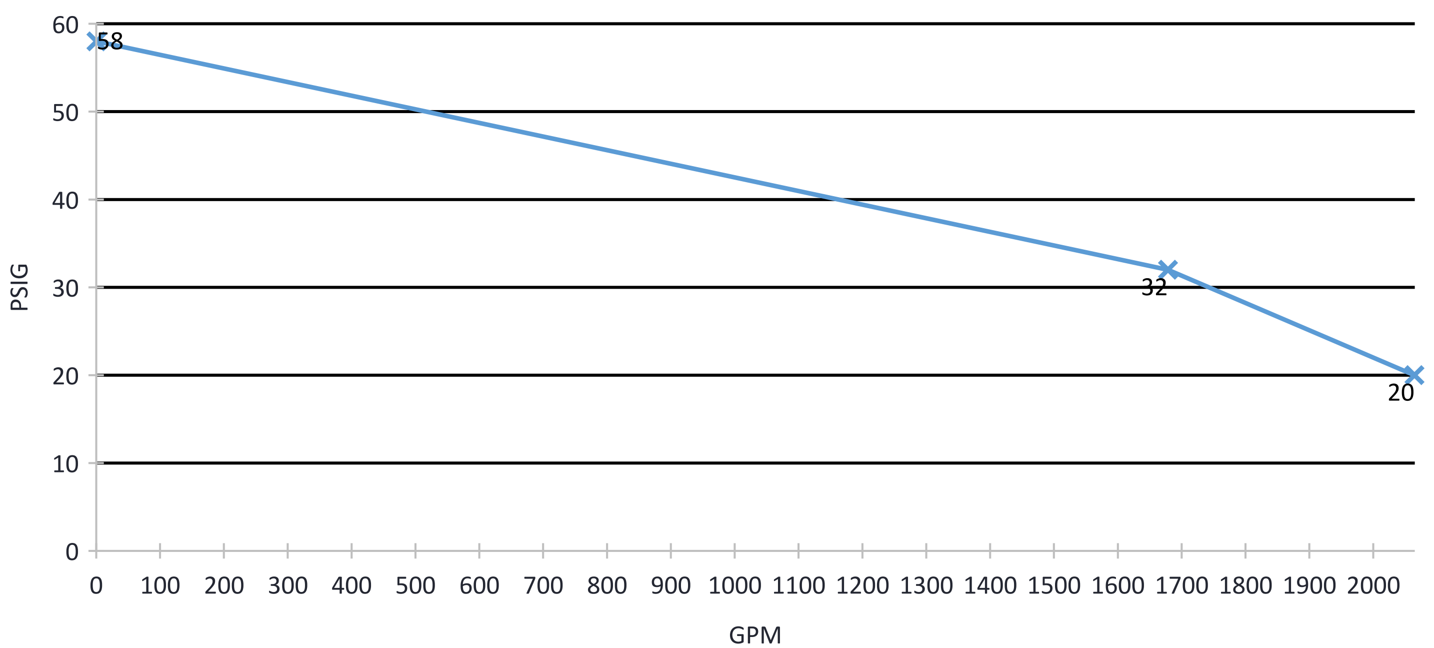
2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 25

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 25

GPM FLOWED DURING TEST: 1678 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 2064 GPM

FLOW TEST CHART



Graph data should always be independently calculated and reviewed

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Data Hydrant Inc. dba Hydrant.com
5380 West 34th Street #214 Houston, TX 77092

Testing Available Water Supply in Water Main

Contained within are fire flow test results for determining the available water supply for the design of a water based protection system using two hydrants per NFPA 4.4.
The test was conducted on 1/27/2025 at 1:58 PM

RESIDUAL HYDRANT #: 284

RESIDUAL HYDRANT LOCATION: 2760 BRAZOS PKWY - SOUTH EAST SIDE OF PROPERTY

STATIC PSI: 60

RESIDUAL PSI: 23 while flowing hydrant # 285

FLOW HYDRANT #: 285

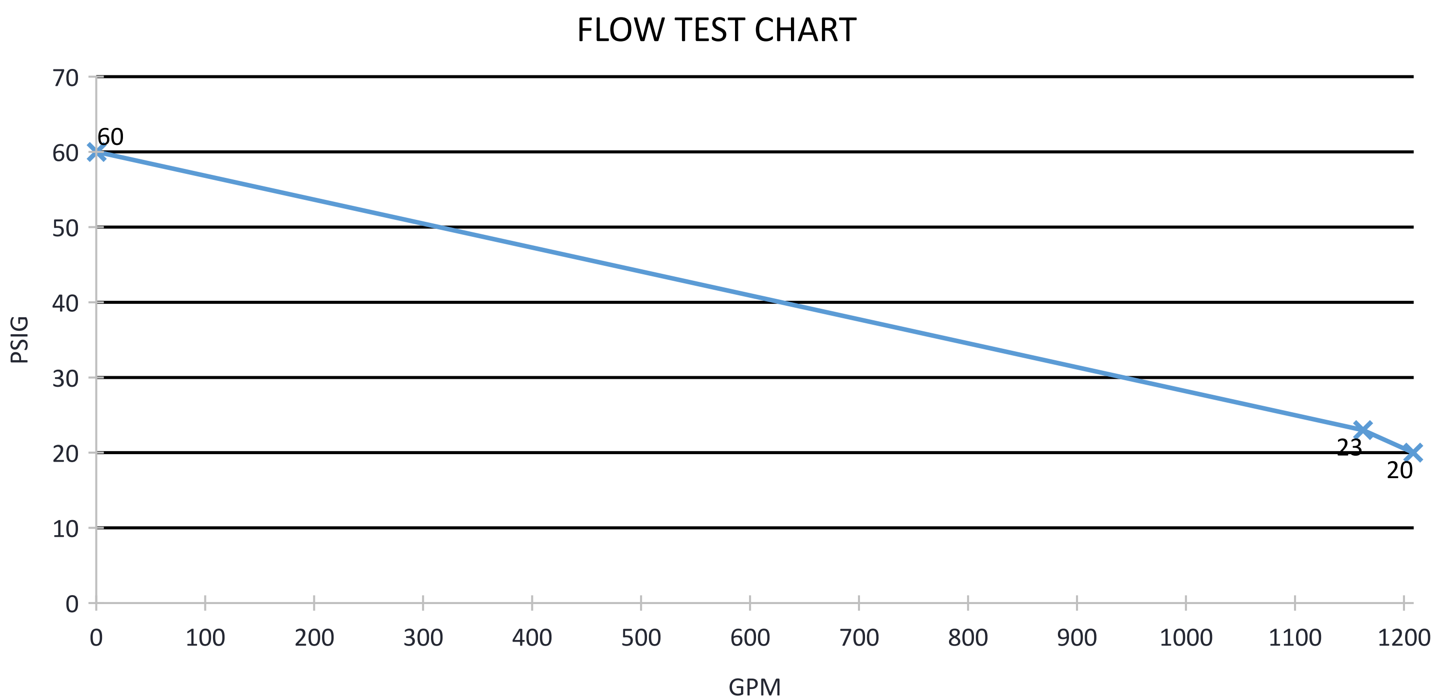
FLOW HYD LOCATION: 2760 BRAZOS PKWY - NORTH SIDE OF PROPERTY

2.5IN PRIMARY HOSE NOZZLE FLOW PSI #: 12

2.5IN SECONDARY HOSE NOZZLE FLOW PSI #: 12

GPM FLOWED DURING TEST: 1162 GPM

FIRE FLOW CALCULATION (AVAILABLE GPM @ 20 PSI): 1208 GPM



Graph data should always be independently calculated and reviewed

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Data Hydrant Inc. dba Hydrant.com

5380 West 34th Street #214 Houston, TX 77092

21. MAKE, MODEL, & YEAR

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
224	MUELLER	CENTURION	2024	237 PRAIRIE LEA DR
43	MUELLER	CENTURION	2024	ACROSS FROM 103 W MUNSON ST
202	MUELLER	CENTURION	2023	1024 HOELEWYN DR
14	MUELLER	CENTURION	2023	820 W MULBERRY ST
925	MUELLER	CENTURION	2023	1901 ALAMO DR
924	MUELLER	CENTURION	2023	241 DALLAS ST
172	MUELLER	CENTURION	2023	ACROSS FROM 105 CEMETERY RD
926	MUELLER	CENTURION	2023	1925 ALAMO DR
923	MUELLER	CENTURION	2023	213 DALLAS ST
927	MUELLER	CENTURION	2023	240 HOUSTON ST
558	MUELLER	CENTURION	2023	NORTHWEST CORNER OF N CHENANGO ST AND E MAGNOLIA ST
929	MUELLER	CENTURION	2023	1320 E KIBER ST
510	MUELLER	CENTURION	2023	603 N TINSLEY
921	MUELLER	CENTURION	2023	1117 CHEVY CHASE DR
920	MUELLER	CENTURION	2023	1013 CHEVY CHASE DR
126	MUELLER	CENTURION	2023	330 S ANDERSON ST
25	MUELLER	CENTURION	2023	474 COUTY RD 609 - WATER TREATMENT PLANT
310	MUELLER	CENTURION	2023	6 DALLAS CT
191	MUELLER	CENTURION	2023	SOUTH END OF OF SHANKS RD
274	MUELLER	CENTURION	2022	NORTHWEST INTERSECTION OF S FRONT ST AND KETCHUM DR
142	MUELLER	CENTURION	2022	1258 PYBURN ST
275	MUELLER	CENTURION	2022	SOUTHWEST INTERSECTION OF S FRONT ST AND JOHN DR
557	MUELLER	IMPROVED	2022	136 E LOCUS ST
706	MUELLER	CENTURION	2022	COALE RD FEEDER BETWEEN 288 AND S FRONT ST - EASTERN ENTRANCE TO WAREHOUSE DEVELOPMENT
772	MUELLER	CENTURION	2022	NORTHWEST INTERSECTION OF GREENBRIAR LP AND BRYAN WAY
644	MUELLER	CENTURION	2022	821 MILLER ST
928	MUELLER	CENTURION	2022	212 HOUSTON ST

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
152	MUELLER	CENTURION	2022	2404 S VELASCO ST
273	MUELLER	CENTURION	2022	SOUTHWEST CORNER OF S FRONT ST AND YANCY RD
919	MUELLER	CENTURION	2022	901 CHEVY CHASE DR
192	MUELLER	CENTURION	2022	1503 ALENA RD
136	MUELLER	CENTURION	2022	1716 COUNTY RD 428 - NORTH WEST SIDE OF PROPERTY
932	MUELLER	CENTURION	2022	301 E MAGNOLIA ST
934	MUELLER	CENTURION	2022	303 E LOCUST ST
171	MUELLER	CENTURION	2022	SOUTHEAST CORNER OF S VELASCO ST AND CEMETERY RD
933	MUELLER	CENTURION	2022	SOUTHWEST CORNER OF N ARCOLA ST AND E LOCUST ST
935	MUELLER	CENTURION	2022	304 E LIVE OAK
930	MUELLER	CENTURION	2022	1040 S ANDERSON ST
774	MUELLER	CENTURION	2021	216 BRYAN WAY
775	MUELLER	CENTURION	2021	3 LAGO CT
903	MUELLER	CENTURION	2021	NORTHEAST CORNER OF GREENBRIAR LOOP
902	MUELLER	CENTURION	2021	42 YARDS EAST FROM THE SOUTHEAST CORNER OF GREENBRIAR LP AND BRYAN WAY
133	MUELLER	CENTURION	2021	408 EVANS ST
773	MUELLER	CENTURION	2021	308 BRYAN WAY
281	MUELLER	CENTURION	2021	ACROSS FROM 2221 S FRONT ST
908	MUELLER	CENTURION	2021	201 LAURA LEIGH LN
907	MUELLER	CENTURION	2021	237 LAURA LEIGH LN
770	MUELLER	CENTURION	2021	ACROSS FROM 272 LAURA LEIGH LN
906	MUELLER	CENTURION	2021	235 LISA MARIE DR
771	MUELLER	CENTURION	2021	77 YARDS EAST FROM THE NORTHEAST CORNER OF LISA MARIE DR AND GIFFORD RD
749	MUELLER	CENTURION	2021	883 OAK RIDGE DR
748	MUELLER	CENTURION	2021	303 OAK RIDGE DR
752	MUELLER	CENTURION	2021	854 OAK RIDGE DR
750,751	MUELLER	CENTURION	2021	870 OAK RIDGE DR

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
753	MUELLER	CENTURION	2021	838 OAK RIDGE DR
901	MUELLER	CENTURION	2020	106 AUSTIN RD
900	MUELLER	CENTURION	2019	130 AUSTIN RD
745	MUELLER	CENTURION	2019	1000 SOUTHSIDE DR
747	MUELLER	CENTURION	2019	ACROSS FROM 825 SOUTHSIDE DR
746	MUELLER	CENTURION	2019	1009 SOUTHSIDE DR
225	MUELLER	CENTURION	2019	NORTHWEST CORNER OF SOUTHSIDE DR AND E CEMETERY RD
121	MUELLER	CENTURION	2019	1020 PARK LN
931	MUELLER	CENTURION	2018	1393 S VELASCO ST
299	MUELLER	CENTURION	2018	21039 COUNTY RD 171
233	MUELLER	CENTURION	2018	1009 S VELASCO ST - NEXT TO DRAINAGE DITCH
831	MUELLER	CENTURION	2017	500 WARD RD
830	MUELLER	CENTURION	2017	800 PATTEN RD
914	DARLING	B84B-5	2016	ACROSS FROM 1302 LAUREL LOOP
913	DARLING	B84B-5	2016	1281 LAUREL LOOP
234	MUELLER	CENTURION	2016	901 S VELASCO ST - SOUTH OF PROPERTY
910	MUELLER	CENTURION	2016	2113 C.R. 220
712	MUELLER	CENTURION	2016	206 N PARISH ST
714	MUELLER	CENTURION	2016	ACROSS FROM 409 N PARISH ST
705	MUELLER	CENTURION	2016	110 YARDS WEST FROM THE NORTHWEST CORNER OF 288 BUSINESS AND CO RD 220
625	MUELLER	CENTURION	2015	ACROSS FROM 899 SPREADING OAKS DR
909	MUELLER	CENTURION	2015	COALE RD FEEDER BETWEEN 288 AND S FRONT ST - SOUTHWEST CORNER OF WAREHOUSE DEVELOPMENT PROPERTY
646	MUELLER	CENTURION	2015	721 RUSTIC OAKS DR
36	MUELLER	CENTURION	2015	ACROSS FROM 1005 HERITAGE OAKS DR
713	MUELLER	CENTURION	2015	ACROSS FROM 221 N PARISH ST
626	MUELLER	CENTURION	2015	883 SPREADING OAKS DR
911	MUELLER	CENTURION	2015	904 SPREADING OAKS DR

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
912	MUELLER	CENTURION	2015	709 RUSTIC OAKS DR
633	MUELLER	CENTURION	2014	1233 LAUREL LOOP
635	MUELLER	CENTURION	2014	1333 LAUREL LOOP
634	MUELLER	CENTURION	2014	1317 LAUREL LOOP
624	MUELLER	CENTURION	2014	810 OAK RIDGE DR
631	MUELLER	CENTURION	2014	1249 LAUREL LOOP
647	MUELLER	CENTURION	2014	1009 ROBINHOOD LN
302	MUELLER	CENTURION	2014	240 AUSTIN ST
648	MUELLER	CENTURION	2014	1117 ROBINHOOD LN
636	MUELLER	CENTURION	2014	1349 LAUREL LOOP
632	MUELLER	CENTURION	2014	1217 LAUREL LOOP
640	MUELLER	CENTURION	2014	901 ROBINHOOD LN
630	MUELLER	CENTURION	2014	ACROSS FROM 1260 LAUREL LOOP
622	MUELLER	CENTURION	2014	1233 CALDWELL RD
645	CLOW	MEDALLION	2013	976 ANCHOR RD - SOUTH EAST CORNER OF PROPERTY NEXT TO ENTRANCE - HYD ON ENCHANTED OAKS
904	MUELLER	CENTURION	2013	444 E MULBERRY ST
263	MUELLER	CENTURION	2013	1050 CRYSTAL ST
476	MUELLER	CENTURION	2012	SOUTHWEST CORNER OF WALCIK LN AND E MULBERRY ST
553	MUELLER	CENTURION	2012	SOUTHEAST CORNER OF E CEDAR ST AND N VALDERAS ST
18	MUELLER	CENTURION	2010	ACROSS FROM 724 W MULBERRY ST
183	MUELLER	CENTURION	2008	1712 SHANKS RD
543	WATERMASTER	5CD250	2008	105 N ROCK ISLAND ST
33	MUELLER	CENTURION	2007	1100 SOUTHERN OAKS DR
32	MUELLER	CENTURION	2007	1112 SHADY OAK DR
31	MUELLER	CENTURION	2007	1016 SHADY OAK DR
28	MUELLER	CENTURION	2007	2400 W MULBERRY ST
550	MUELLER	CENTURION	2006	1208 N VELASCO ST

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
545	MUELLER	CENTURION	2006	601 E MYRTLE ST
546	MUELLER	CENTURION	2006	503 E MYRTLE ST
76	MUELLER	CENTURION	2006	705 N COLUMBIA ST
47	MUELLER	CENTURION	2005	716 MUNSON PL
285	MUELLER	CENTURION	2005	2760 BRAZOS PKWY - NORTH SIDE OF PROPERTY
582	MUELLER	CENTURION	2005	NORTHEAST CORNER OF E ORANGE ST AND S ANDERSON ST
48	MUELLER	CENTURION	2005	41885 HWY 288 - STEPHEN F AUSTIN MEMORIAL PARK
35	MUELLER	CENTURION	2005	1020 HERITAGE OAKS DR
82	MUELLER	CENTURION	2004	WEST END OF W MILLER ST
287	MUELLER	CENTURION	2004	1034 S VELASCO ST
313	MUELLER	CENTURION	2004	1980 E MULBERRY ST
284	MUELLER	CENTURION	2004	2760 BRAZOS PKWY - SOUTH EAST SIDE OF PROPERTY
286	MUELLER	CENTURION	2004	NORTH END OF BRAZOS PKWY
13	MUELLER	CENTURION	2003	1 OAK PARK DR
81	MUELLER	CENTURION	2003	SOUTHEAST CORNER OF W MILLER ST AND N WALKER ST
548	MUELLER	CENTURION	2003	SOUTHEAST CORNER OF N MORGAN ST AND E LOCUS ST
536	MUELLER	CENTURION	2003	604 E LIVE OAK
30	MUELLER	CENTURION	2003	1000 SHADY OAK DR
27	MUELLER	CENTURION	2003	2304 W MULBERRY ST
29	MUELLER	CENTURION	2003	SOUTH CORNER OF OAK RIDGE DR AND ENCHANTED OAKS DR
34	MUELLER	CENTURION	2003	1009 ENCHANTED OAKS DR
70	MUELLER	CENTURION	2003	SOUTHEAST CORNER OF W MILLER ST AND N PARISH ST
562	MUELLER	CENTURION	2002	100 N VELASCO ST
544	MUELLER	CENTURION	2002	445 E MULBERRY ST
577	MUELLER	CENTURION	2002	SOUTHWEST CORNER OF E MULBERRY ST AND S CHENANGO ST
551	MUELLER	CENTURION	2002	305 E MULBERRY ST
465	CLOW	MEDALLION	2000	901 NOTTINGHAM DR

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
9	CLOW	MEDALLION	2000	ACROSS FROM 1007 SPREADING OAKS DR
10	CLOW	MEDALLION	2000	1 SPREADING OAKS CT
211	CLOW	MEDALLION	2000	1301 GIFFORD LN
212	CLOW	MEDALLION	2000	1325 GIFFORD LN
213	CLOW	MEDALLION	2000	1408 GIFFORD LN
214	CLOW	MEDALLION	2000	1516 GIFFORD LN
12	CLOW	MEDALLION	2000	904 ENCHANTED OAKS DR
11	CLOW	MEDALLION	2000	800 ENCHANTED OAKS DR
312	CLOW	MEDALLION	1999	SOUTHEAST CORNER OF JAMISON RD AND E MULBERRY ST
649	MUELLER	CENTURION	1999	608 HERITAGE OAKS DR
323	MUELLER	CENTURION	1999	140 E HOSPITAL DR
564	MUELLER	CENTURION	1998	NORTHEAST CORNER OF W MYRTLE ST AND N FRONT ST
8	MUELLER	CENTURION	1998	805 HERITAGE OAKS DR
473	MUELLER	CENTURION	1998	SOUTHWEST CORNER OF E MULBERRY ST AND SAN FELIPE ST
60	MUELLER	CENTURION	1998	NORTHWEST CORNER OF N HANCOCK ST AND W MYRTLE ST
565	MUELLER	CENTURION	1998	SOUTHEAST CORNER OF W MAGNOLIA ST AND N FRONT ST
6	MUELLER	CENTURION	1998	305 HERITAGE OAKS DR
5	MUELLER	CENTURION	1998	400 HERITAGE OAKS DR
4	MUELLER	CENTURION	1998	NORTHWEST CORNER OF HERITAGE OAKS DR AND WESTERN AVE
7	MUELLER	CENTURION	1998	ACROSS FROM 904 HERITAGE OAKS DR
479	MUELLER	CENTURION	1997	NORTHWEST CORNER OF MORNINGSIDE ST AND DANBURY ST
235	MUELLER	CENTURION	1996	SOUTHWEST CORNER OF E KIBER ST AND S VELASCO
46	MUELLER	CENTURION	1995	727 S WALKER ST
116	MUELLER	CENTURION	1995	501 S MORGAN ST
534	MUELLER	CENTURION	1994	804 CINCINNATI
328	MUELLER	CENTURION	1994	2700 TX-35
26	MUELLER	CENTURION	1993	217 SEBESTA RD

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
114	MUELLER	CENTURION	1992	301 LAURIE LN
277	MUELLER	CENTURION	1992	344 W PHILLIPS RD
278	MUELLER	CENTURION	1992	111 WALLER LOOP
279	MUELLER	CENTURION	1992	217 WALLER LOOP
120	MUELLER	CENTURION	1990	1011 S ANDERSON ST
227	MUELLER	CENTURION	1989	NORTHWEST CORNER OF CEMETERY RD AND PARK LN
300	MUELLER	CENTURION	1989	20799 COUNTY RD 171 - NEXT TO SIGN
641	MUELLER	CENTURION	1987	132 E HOSPITAL DR - SOUTHWEST CORNER OF PROPERTY NEXT TO TREE
176	MUELLER	CENTURION	1987	ACROSS FROM 725 CAHILL RD
197	MUELLER	CENTURION	1987	SOUTHEAST CORNER OF KADERA RD AND WILBERT ST
322	MUELLER	CENTURION	1987	132 E HOSPITAL DR -
135	MUELLER	CENTURION	1986	1380 E KIBER ST
315	MUELLER	CENTURION	1985	116 KNIGHT ST
314	MUELLER	CENTURION	1985	108 KNIGHT DR
326	MUELLER	CENTURION	1984	220 E HOSPITAL DR
216	MUELLER	CENTURION	1984	1304 FAIR DR
57	MUELLER	CENTURION	1984	601 W ORANGE ST
319	MUELLER	CENTURION	1984	112 DEBORAH DR
318	MUELLER	CENTURION	1984	108 DEBORAH DR
223	MUELLER	CENTURION	1983	205 PRAIRIE LEA DR
218	MUELLER	CENTURION	1983	137 BALD PRAIRIE DR
219	MUELLER	CENTURION	1983	205 BALD PRAIRIE DR
20	MUELLER	CENTURION	1983	202 S WALKER ST
220	MUELLER	CENTURION	1983	245 BALD PRARIE DR
123	MUELLER	CENTURION	1983	NORTHEAST CORNER OF E KIBER ST AND S ANDERSON ST
217	MUELLER	CENTURION	1983	101 BALD PRAIRIE DR
118	MUELLER	CENTURION	1983	712 S ANDERSON ST

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
119	MUELLER	CENTURION	1983	SW CORNER OF S ANDERSON ST AND RICE ST
222	MUELLER	CENTURION	1983	137 PRAIRIE LEA DR
316	MUELLER	CENTURION	1983	124 KNIGHT ST
905	MUELLER	CENTURION	1983	820 S ANDERSON ST
21	MUELLER	CENTURION	1983	305 W PEACH ST
230	MUELLER	CENTURION	1983	328 CEMETERY RD - ACROSS FROM FLAG DISPOSAL BOX
231	MUELLER	CENTURION	1983	SOUTHWEST CORNER OF DWYER ST AND S ANDERSON ST
45	MUELLER	CENTURION	1983	ACROSS FROM 700 S WALKER ST
199	MUELLER	CENTURION	1983	1100 CEMETERY RD - HYDRANT ON GIFFORD RD
22	MUELLER	CENTURION	1983	ACROSS FROM 300 S WALKER ST
56	MUELLER	CENTURION	1983	600 W PEACH ST
221	MUELLER	CENTURION	1983	101 PRAIRIE LEA DR
229	MUELLER	CENTURION	1983	1060 GROVE DR
184	MUELLER	CENTURION	1982	2218 SHANKS RD
182	MUELLER	CENTURION	1982	1820 SHANKS RD
208	MUELLER	CENTURION	1982	1811 GIFFORD RD - SOUTH OF PROPERTY
209	MUELLER	CENTURION	1982	SOUTHEAST CORNER OF ROBERT ST AND GIFFORD RD
110	MUELLER	CENTURION	1982	109 E KIBER ST
17	MUELLER	CENTURION	1982	721 W MULBERRY ST
146	MUELLER	CENTURION	1982	134 WALNUT ST
181	MUELLER	CENTURION	1982	1916 SHANKS RD
158	MUELLER	CENTURION	1981	2425 S VELASCO ST
195	MUELLER	CENTURION	1981	1629 ALENA RD
210	MUELLER	CENTURION	1981	NORTHEAST CORNER OF SUNNY MEADOWS AND GIFFORD RD
317	MUELLER	CENTURION	1981	108 DEBORAH DR
175	MUELLER	CENTURION	1981	614 CAHILL RD
207	MUELLER	CENTURION	1981	403 MEADOW ACRES DR

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
206	MUELLER	CENTURION	1981	ACROSS FROM 321 E PHILLIPS RD
205	MUELLER	CENTURION	1981	282 E PHILLIPS RD
204	MUELLER	CENTURION	1981	238 E PHILLIPS RD
226	MUELLER	CENTURION	1981	ACROSS FROM 928 CEMETERY RD
198	MUELLER	CENTURION	1981	1621 WILBERT RD
269	MUELLER	CENTURION	1981	1203 S FRONT ST
290	MUELLER	CENTURION	1981	1128 S VELASCO
280	MUELLER	CENTURION	1981	NORTHEAST CORNER OF LOSTRACCO ST AND S FRONT ST
145	MUELLER	CENTURION	1981	100 WALNUT ST
148	MUELLER	CENTURION	1981	113 LOSTRACCO ST
149	MUELLER	CENTURION	1981	SOUTH INTERSECTION OF BEECHNUT ST AND CHESTNUT ST
147	MUELLER	CENTURION	1981	217 BEECHNUT ST
272	MUELLER	CENTURION	1981	ACROSS FROM 1501 S FRONT ST
283	MUELLER	CENTURION	1981	ACROSS FROM 2609 S FRONT ST
270	MUELLER	CENTURION	1981	1421 S FRONT ST - ACROSS FROM NW CORNER OF PROPERTY
38	MUELLER	CENTURION	1981	504 BRYAN ST
266	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF S FRONT ST AND WAYNE DR
268	MUELLER	CENTURION	1981	1306 WAYNE ST
267	MUELLER	CENTURION	1981	1116 WAYNE ST
265	MUELLER	CENTURION	1981	ACROSS FROM 1099 S FRONT ST
293	MUELLER	CENTURION	1981	288 S VELASCO ST - UNIT B
292	MUELLER	CENTURION	1981	1404 S VELASCO ST
291	MUELLER	CENTURION	1981	1212 S VELASCO ST
271	MUELLER	CENTURION	1981	ACROSS FROM 1429 S FRONT ST
180	MUELLER	CENTURION	1981	NORTHWEST CORNER OF SHANKS RD AND E PHILLIPS RD
69	MUELLER	CENTURION	1981	523 N PARISH ST
68	MUELLER	CENTURION	1981	NORTHWEST CORNER OF N PARISH ST AND W LIVE OAK

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
67	MUELLER	CENTURION	1981	612 T J WRIGHT ST
66	MUELLER	CENTURION	1981	18 T J WRIGHT ST
64	MUELLER	CENTURION	1981	NORTHEAST CORNER OF T J WRIGHT ST AND W LOCUS ST
63	MUELLER	CENTURION	1981	324 W MAGNOLIA ST
77	MUELLER	CENTURION	1981	NORTHEAST CORNER OF CEDAR AND W COLUMBIA
282	MUELLER	CENTURION	1981	ACROSS FROM 2329 S FRONT ST
156	MUELLER	CENTURION	1981	2609 S VELASCO ST
276	MUELLER	CENTURION	1981	173 WEST PHILLIPS
73	MUELLER	CENTURION	1981	220 N WALKER ST
75	MUELLER	CENTURION	1981	629 W LOCUS ST
49	MUELLER	CENTURION	1981	937 S WALKER ST
55	MUELLER	CENTURION	1981	504 W PEACH ST
40	MUELLER	CENTURION	1981	624 S HANCOCK ST
297	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF W PHILLIPS AND S VELASCO ST
296	MUELLER	CENTURION	1981	145 W PHILLIPS ST
59	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF W MULBERRY ST AND S PARISH ST
160	MUELLER	CENTURION	1981	2213 S VELASCO ST
185	MUELLER	CENTURION	1981	2328 SHANKS RD
289	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF S VELASCO AND CEMETERY RD
155	MUELLER	CENTURION	1981	2713 S VELASCO
153	MUELLER	CENTURION	1981	2816 S VELASCO ST
154	MUELLER	CENTURION	1981	2825 S VELASCO
187	MUELLER	CENTURION	1981	2801 SHANKS RD
188	MUELLER	CENTURION	1981	2600 SHANKS RD
159	MUELLER	CENTURION	1981	2317 S VELASCO ST
157	MUELLER	CENTURION	1981	2521 S VELASCO
189	MUELLER	CENTURION	1981	ACROSS FROM 2615 SHANKS RD

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
162	MUELLER	CENTURION	1981	SOUTHWEST CORNER OF SHANKS RD AND IDEN RD
161	MUELLER	CENTURION	1981	2123 S VELASCO ST
163	MUELLER	CENTURION	1981	2113 S VELASCO ST
150	MUELLER	CENTURION	1981	97 LOSTROCCO ST
190	MUELLER	CENTURION	1981	2412 SHANKS RD
151	MUELLER	CENTURION	1981	2288 S VELASCO ST
186	MUELLER	CENTURION	1981	2218 SHANKS RD - SOUTH OF PROPERTY
168	MUELLER	CENTURION	1981	1417 S VELASCO ST
295	MUELLER	CENTURION	1981	1600 S VELASCO ST
170	MUELLER	CENTURION	1981	1401 S VELASCO ST
169	MUELLER	CENTURION	1981	1423 S VELASCO ST
164	MUELLER	CENTURION	1981	120 E PHILLIPS RD
294	MUELLER	CENTURION	1981	1500 S VELASCO ST
167	MUELLER	CENTURION	1981	1725 S VELASCO ST
166	MUELLER	CENTURION	1981	2005 S VELASCO ST
165	MUELLER	CENTURION	1981	2021 S VELASCO ST
321	MUELLER	CENTURION	1980	132 E HOSPITAL DR
37	MUELLER	CENTURION	1980	520 BRYAN ST
42	MUELLER	CENTURION	1980	NORTHEAST CORNER OF S FRONT ST AND W MUNSON ST
203	MUELLER	CENTURION	1980	16 GRACE ST
24	MUELLER	CENTURION	1980	713 BETTY ST
196	MUELLER	CENTURION	1980	824 KADERA
79	MUELLER	CENTURION	1980	819 MARSHALL RD
200	MUELLER	CENTURION	1980	1361 GIFFORD RD
215	MUELLER	CENTURION	1980	1505 GIFFORD RD
179	MUELLER	CENTURION	1980	SOUTHEAST CORNER OF SHANKS RD AND KADERA RD
178	MUELLER	CENTURION	1980	1500 SHANKS RD

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
177	MUELLER	CENTURION	1980	328 CEMETERY RD - HYDRANT ON SHANKS RD - NEXT TO SOUTH EAST ENTRANCE TO CEMETERY
174	MUELLER	CENTURION	1980	WEST INTERSECTION OF SHANKS RD AND CAHILL RD
44	MUELLER	CENTURION	1980	600 S HANCOCK ST
572	MUELLER	CENTURION	1979	216 E PLUM ST
124	MUELLER	CENTURION	1979	SOUTHEAST CORNER OF S DOWNING RD AND FAIRGROUND LN
555	MUELLER	IMPROVED	1978	ACROSS FROM 500 N CHENANGO
561	MUELLER	IMPROVED	1978	136 E MYRTLE ST
575	MUELLER	IMPROVED	1978	NORTHWEST CORNER OF E ORANGE ST AND S CHENANGO ST
193	MUELLER	CENTURION	1978	SOUTHWEST CORNER OF KADERA DR AND GIFFORD RD
194	MUELLER	CENTURION	1978	1000 KADERA RD
298	MUELLER	IMPROVED	1978	SOUTH CORNER OF FM 210 AND ANGLETON DANBURY RD
74	MUELLER	CENTURION	1976	110 N WALKER ST
303	MUELLER	CENTURION	1976	276 AUSTIN ST
306	MUELLER	CENTURION	1976	157 HOUSTON ST
129	MUELLER	IMPROVED	1976	600 EARLS CT
53	MUELLER	IMPROVED	1976	NORTHEAST CORNER OF W PLUM ST AND S ERSKINE ST
201	MUELLER	CENTURION	1976	1200 GIFFORD RD
556	MUELLER	CENTURION	1976	111 E LOCUS ST - NEXT TO NO PARKING SIGN
39	MUELLER	CENTURION	1976	726 S ERSKINE ST
117	MUELLER	CENTURION	1976	853 S VALDERAS ST
307	MUELLER	CENTURION	1976	109 BASTROP ST
41	MUELLER	CENTURION	1976	222 W MUNSON ST
80	MUELLER	CENTURION	1976	828 W LIVE OAK ST
474	MUELLER	IMPROVED	1975	1200 CHEVY CHASE DR
480	MUELLER	IMPROVED	1975	NORTHWEST CORNER OF N DOWNING AN E MILLER
404	MUELLER	IMPROVED	1974	SOUTH INTERSECTION OF E CEDAR ST AND E MIMOSA ST
403	MUELLER	IMPROVED	1974	SOUTHWEST CORNER OF CEDAR ST AND E MULBERRY ST

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
407	MUELLER	IMPROVED	1974	1524 E MULBERRY ST - NORTH SIDE OF BUILDING
406	MUELLER	IMPROVED	1974	1524 E MULBERRY ST - ACROSS FROM SOUTHEAST CORNER OF BUILDING
464	MUELLER	IMPROVED	1974	1117 NOTTINGHAM DR
54	MUELLER	IMPROVED	1973	220 W ORANGE ST
304	MUELLER	CENTURION	1973	EAST END OF BASTROP ST
288	MUELLER	CENTURION	1973	NORTHWEST CORNER OF S VELASCO AND CEMETERY RD
513	MUELLER	IMPROVED	1972	NORTHWEST CORNER OF N VALDERAS ST AND MILLER ST
125	MUELLER	IMPROVED	1972	338 MUNSON CT
61	MUELLER	IMPROVED	1971	SOUTHEAST CORNER OF W MYRTLE ST AND T J WRIGHT ST
264	MUELLER	CENTURION	1970	NORTHEAST CORNER OF S FRONT AND CEMETERY RD
512	MUELLER	IMPROVED	1970	510 MILLER ST
511	MUELLER	IMPROVED	1970	723 N ROCK ISLAND
311	MUELLER	IMPROVED	1969	133 DALLAS ST
173	MUELLER	IMPROVED	1967	328 CEMETERY RD - ENTRANCE TO CEMETERY
320	MUELLER	IMPROVED	1967	120 E HOSPITAL DR (NORTHEAST CORNER OF PROPERTY)
324	MUELLER	IMPROVED	1967	ACROSS FROM 170 E HOSPITAL DR
15	MUELLER	IMPROVED	1967	1008 W MULBERRY
83	MUELLER	IMPROVED	1967	700 W ASH ST
308	MUELLER	IMPROVED	1966	128 HOUSTON ST
327	MUELLER	IMPROVED	1966	224 E HOSPITAL DR
16	MUELLER	IMPROVED	1966	1116 W MULBERRY ST
232	MUELLER	IMPROVED	1966	502 DWYER ST
409	MUELLER	IMPROVED	1966	1739 E MULBERRY ST
461	MUELLER	IMPROVED	1966	SOUTHWEST CORNER OF E MULBERRY AND WILDCAT DR
309	MUELLER	IMPROVED	1966	172 HOUSTON ST
325	MUELLER	IMPROVED	1966	7 RAYBURN RIDGE
112	MUELLER	IMPROVED	1964	321 SANDS ST

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
111	MUELLER	IMPROVED	1963	321 E KIBER ST
141	MUELLER	IMPROVED	1962	NORTHWEST CORNER OF RAMONA AND SIMS
115	MUELLER	IMPROVED	1962	301 RICE ST
1	MUELLER	IMPROVED	1962	1105 WESTERN AVE
134	MUELLER	IMPROVED	1962	901 S DOWNING RD
568	MUELLER	IMPROVED	1960	SOUTHEAST CORNER OF W ORANGE ST AND S FRONT ST
579	MUELLER	IMPROVED	1960	504 E PEACH ST
566	MUELLER	IMPROVED	1960	SOUTHWEST CORNER OF W LOCUS ST AND N VELASCO ST
569	MUELLER	IMPROVED	1960	NORTHEAST CORNER OF W PEACH ST AND S FRONT ST
127	MUELLER	IMPROVED	1960	620 E PLUM ST
128	MUELLER	IMPROVED	1960	621E MURRAY ST
535	MUELLER	IMPROVED	1960	600 E CEDAR ST
537	MUELLER	IMPROVED	1960	603 E LOCUS ST
549	MUELLER	IMPROVED	1959	427 E MAGNOLIA ST
532	MUELLER	IMPROVED	1957	501 N PECAN ST
2	MUELLER	IMPROVED	1957	913 WESTERN AVE
3	MUELLER	IMPROVED	1957	801 WESTERN AVE
78	MUELLER	STANDARD	1957	700 W LIVE OAK ST
573	MUELLER	IMPROVED	1956	103 E PEACH ST
52	MUELLER	IMPROVED	1955	641 W MIMOSA ST
50	MUELLER	STANDARD	1955	500 CATALPA ST
547	MUELLER	IMPROVED	1953	NORTHWEST CORNER OF E MAGNOLIA ST AND N ANDERSON ST
552	MUELLER	IMPROVED	1953	301 E MAGNOLIA ST
540	MUELLER	IMPROVED	1953	909 E MYRTLE ST
541	MUELLER	IMPROVED	1953	901 E MULBERRY ST
539	MUELLER	IMPROVED	1953	937 E MULBERRY ST
477	MUELLER	IMPROVED	1953	SOUTHWEST CORNER OF E PECAN ST AND E MULBERRY ST

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
559	MUELLER	IMPROVED	1953	300 N VELASCO ST
62	MUELLER	IMPROVED	1953	NORTHEAST CORNER OF W MULBERRY ST AND T J WRIGHT ST
571	MUELLER	IMPROVED	1953	421 S VELASCO ST
113	MUELLER	IMPROVED	1953	305 BERT ST
143	MUELLER	IMPROVED	1953	509 S DOWNING RD
144	MUELLER	IMPROVED	1953	NORTHEAST CORNER OF E KIBER ST AND DOWNING RD
23	MUELLER	IMPROVED	1953	629 HOLLY ST
19	MUELLER	IMPROVED	1953	SOUTHEAST CORNER OF S WALKER ST AND W MULBERRY
139	MUELLER	IMPROVED	1953	NORTHEAST INTERSECTION OF S DOWNING ST AND E ORANGE ST
58	MUELLER	IMPROVED	1953	SOUTHWEST CORNER OF W MULBERRY AND S COLUMBIA ST
581	MUELLER	IMPROVED	1953	445 E ORANGE ST
578	MUELLER	IMPROVED	1953	234 S ARCOLA ST
576	MUELLER	IMPROVED	1953	NORTHEAST CORNER OF HWY 288 BUSINESS AND E ORANGE ST
132	MUELLER	IMPROVED	1951	NORTHEAST INTERSECTION OF E KIBER ST AND FARRER ST
138	MUELLER	IMPROVED	1950	901 S DOWNING ST - NORTH SIDE OF LIVESTOCK JUDGE SEATING AREA
130	MUELLER	IMPROVED	1950	201 FARRER ST
131	MUELLER	IMPROVED	1950	409 FARRER ST
72	MUELLER	IMPROVED	1946	300 N COLUMBIA ST
563	MUELLER	IMPROVED	1946	130 W MULBERRY ST
65	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF N HANCOCK ST AND W LIVE OAK ST
538	MUELLER	CENTURION	1946	624 E MAGNOLIA ST
542	MUELLER	IMPROVED	1946	911 E MULBERRY ST
71	MUELLER	IMPROVED	1946	SOUTHEAST CORNER OF N COLUMBUS ST AND W LIVE OAK ST
140	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF SIMS AND E KIBER ST
554	MUELLER	IMPROVED	1946	131 E LIVE OAK ST
574	MUELLER	IMPROVED	1946	NORTHWEST CORNER OF S CHENANGO AND E PEACH ST
481	MUELLER	IMPROVED	1946	615 DANBURY ST

Make/Model/Year Report

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	LOCATION
570	WATEROUS	PACER	1927	SOUTHWEST CORNER OF S CHENANGO ST AND MURRAY ST
560	WATEROUS		1927	126 N VELASCO ST
580	WATEROUS	PACER	1927	NORTHEAST CORNER OF S ARCOLA ST AND E ORANGE ST
228	MUELLER	IMPROVED		1060 VINE DR
533	MUELLER	IMPROVED		918 E CEDAR ST
51	MUELLER	STANDARD		608 CATALPA ST
567	MUELLER	CENTURION		SOUTHEAST CORNER OF N FRONT ST AND W LOCUS ST
305	MUELLER	CENTURION		237 BASTROP ST

Total: 413

22. ESTIMATED GALLONS USED TO FLOW TEST HYDRANTS AND FLUSH DIRTY LINES

Estimated Gallons Used To Flow Test Hydrants and Flush Dirty Lines

29-Jan-25

ESTIMATED GALLONS USED TO FLOW TEST HYDRANTS: 406,691

ESTIMATE IS BASED ON 1 MINUTE OF FLOW AT EACH HYDRANT LOCATION

REFER TO ESTIMATED GALLONS USED TO FLOW TEST REPORT

ESTIMATED GALLONS USED TO FLUSH DIRTY LINES: 80,242

ESTIMATE IS BASED ON ADDITIONAL TIME SPENT FLUSHING HYDRANTS

REFER TO ESTIMATED GALLONS USED TO FLUSH LINES REPORT

ESTIMATED GALLONS USED DURING 2025 HYDRANT PROJECT: 486,933

CITY OF ANGLETON

23. NEW LOCATIONS ADDED DURING JAN. 2025 PROJECT

New Hydrant Locations Added During Jan. 2025 Project

29-Jan-25

HYDRANT	LOCATION
923	213 DALLAS ST
924	241 DALLAS ST
925	1901 ALAMO DR
926	1925 ALAMO DR
927	240 HOUSTON ST
928	212 HOUSTON ST
929	1320 E KIBER ST
930	1040 S ANDERSON ST
931	1393 S VELASCO ST
932	301 E MAGNOLIA ST
933	SOUTHWEST CORNER OF N ARCOLA ST AND E LOCUST ST
934	303 E LOCUST ST
935	304 E LIVE OAK

Total: 13

24. HYDRANTS WITH GIS/MAP ANOMALIES AS OF JAN. 2025

View Associated Work Orders

Hydrants With GIS/Map Anomalies as of Jan. 2025 Project

29-Jan-25

HYDRANT	YEAR	NEW LOCATION	NOT IN GIS	NOTES/LOCATION
927	2023	2025	2025	240 HOUSTON ST
931	2018	2025	2025	1393 S VELASCO ST
932	2022	2025	2025	301 E MAGNOLIA ST
933	2022	2025	2025	SOUTHWEST CORNER OF N ARCOLA ST AND E LOCUST ST
934	2022	2025	2025	303 E LOCUST ST
930	2022	2025	2025	1040 S ANDERSON ST
935	2022	2025	2025	304 E LIVE OAK
923	2023	2025	2025	213 DALLAS ST
924	2023	2025	2025	241 DALLAS ST
925	2023	2025	2025	1901 ALAMO DR
926	2023	2025	2025	1925 ALAMO DR
928	2022	2025	2025	212 HOUSTON ST

View Associated Work Orders

Hydrants With GIS/Map Anomalies as of Jan. 2025 Project

29-Jan-25

HYDRANT	YEAR	NEW LOCATION	NOT IN GIS	NOTES/LOCATION
919	2022	2024	2025	901 CHEVY CHASE DR
920	2023	2024	2025	1013 CHEVY CHASE DR
909	2015	2023	2025	COALE RD FEEDER BETWEEN 288 AND S FRONT ST - SOUTHWEST CORNER OF WAREHOUSE DEVELOPMENT PROPERTY
906	2021	2023	2025	235 LISA MARIE DR
907	2021	2023	2025	237 LAURA LEIGH LN
908	2021	2023	2025	201 LAURA LEIGH LN
910	2016	2023	2025	2113 C.R. 220
911	2015	2023	2025	904 SPREADING OAKS DR
905	1983		2025	820 S ANDERSON ST
914	2016			ACROSS FROM 1302 LAUREL LOOP **DUPLICATED HYDRANT NUMBER**
644	2022			821 MILLER ST **GIS SHOWS HYDRANT ON WRONG SIDE OF ROAD - HYD ON EAST SIDE**
929	2023	2025	2025	1320 E KIBER ST **NO WATER AVAILABLE WHEN HYDRANT IS FULLY OPEN**

View Associated Work Orders

Hydrants With GIS/Map Anomalies as of Jan. 2025 Project

29-Jan-25

HYDRANT	YEAR	NEW LOCATION	NOT IN GIS	NOTES/LOCATION
900	2019	2023	2025	130 AUSTIN RD
750,751	2021			870 OAK RIDGE DR **VERIFY HYDRANT NUMBER IN GIS - HYDRANT IS NUMBERED TWICE**

Total: 26

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

25. NOTES NOT ASSOCIATED WITH OTHER REPORTS

View Associated Work Orders

Notes Not Associated with Other Reports

29-Jan-25

HYDRANT	MAKE	MODEL	YEAR	NOTES/LOCATION
199	MUELLER	CENTURION	1983	**3 INCH ROCKS FLUSHED OUT OF PUMPER** 1100 CEMETERY RD - HYDRANT ON GIFFORD RD
51	MUELLER	STANDARD		**BONNET IS PAINTED RED - SHOULD BE BLUE** 608 CATALPA ST
48	MUELLER	CENTURION	2005	**HYDRANT IS PRIVATE - NOT TESTED** 41885 HWY 288 - STEPHEN F AUSTIN MEMORIAL PARK
299	MUELLER	CENTURION	2018	**HYDRANT TAGGED OUT OF SERVICE BY THE CITY BUT TESTED FULLY FUNCTIONAL** 21039 COUNTY RD 171
135	MUELLER	CENTURION	1986	**LEAKING FLANGE - TIGHTEN 3 FLANGE BOLTS** 1380 E KIBER ST
298	MUELLER	IMPROVED	1978	**MIGHT SET OFF FIRE ALARM AT 3M** SOUTH CORNER OF FM 210 AND ANGLETON DANBURY RD
301				**NO HYDRANT PRESENT** SOUTHEAST CORNER OF ANGLETON BLVD AND AUSTIN ST
137				**NO HYDRANT PRESENT** 901 S DOWNING ST - NORTH SIDE OF COUNTY ARENA

Total: 8

GENERATE INDIVIDUAL WORK ORDERS FOR THESE HYDRANTS

AGENDA ITEM SUMMARY FORM

MEETING DATE: April 21, 2025

PREPARED BY: Chris Whittaker

AGENDA CONTENT: Update on TxDOT Downtown – TA Grant Project

AGENDA ITEM SECTION: Regular Agenda

BUDGETED AMOUNT:
NA

FUNDS REQUESTED:
NA

FUND:

EXECUTIVE SUMMARY:

Update council on first meeting with TxDOT to discuss the proposed design improvements Downtown Improvements (288B – Cedar to Orange).

AGENDA ITEM SUMMARY FORM

MEETING DATE: April 21, 2025

PREPARED BY: Chris Whittaker

AGENDA CONTENT: Update on Street Bond Package III

AGENDA ITEM SECTION: Regular Agenda

BUDGETED AMOUNT:
NA

FUNDS REQUESTED:
NA

FUND:

EXECUTIVE SUMMARY:

Update to City Council Street Bond Package III (Silver Saddle & Parrish Street)