



Dr. Christopher Harvey, Mayor  
Emily Hill, Mayor Pro Tem, Place 1  
Anne Weir, Place 2  
Maria Amezcua, Place 3  
Sonia Wallace, Place 4  
Aaron Moreno, Place 5  
Deja Hill, Place 6

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## City Council Regular Meeting

Wednesday, November 15, 2023 at 7:00 PM

Manor City Hall, Council Chambers, 105 E. Eggleston St.

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### AGENDA

This meeting will be live-streamed on Manor's YouTube Channel  
You can access the meeting at <https://www.youtube.com/@cityofmanorsocial/streams>

**CALL TO ORDER AND ANNOUNCE A QUORUM IS PRESENT**

**INVOCATION**

**PLEDGE OF ALLEGIANCE**

**PROCLAMATIONS**

**A. Declaring November 9, 2023, as “Senior Access 30th Anniversary Day”**

**EVENTS/ANNOUNCEMENTS**

**A. Texas Arbor Day Event, November 18, 2023, at Timmermann Park**  
*Submitted by: Matthew Woodard, Public Works Director*

**B. Holidays in the Park, December 2, 2023, at Timmermann Park**  
*Submitted by: Tracey Vasquez, HR Director*

**PUBLIC COMMENTS**

*Non-Agenda Item Public Comments (white card): Comments will be taken from the audience on non-agenda related topics for a length of time, not to exceed three (3) minutes per person.*

*Agenda Item Public Comments (yellow card): Comments will be taken from the audience on non-agenda and agenda items combined for a length of time, not to exceed five (5) minutes total per person on all items, except for Public Hearings. Comments on Public Hearing items must be made when the item comes before the Council and, not to exceed two (2) minutes per person. No Action or Discussion May be Taken by the City Council during Public Comments on Non-Agenda Items.*

*To address the City Council, please complete the white or yellow card and present it to the City Secretary, or designee prior to the meeting.*



## REPORTS

*Reports about items of community interest on which no action will be taken.*

### **A. Tower Road Apartments Presentation**

*Submitted by: Gregory Miller with Bickerstaff Heath Delgado Acosta LLP*

## 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.*

### **1. Consideration, discussion, and possible action to approve the City Council Minutes of the November 1, 2023, City Council Regular Meeting.**

*Submitted by: Lluvia T. Almaraz, City Secretary*

### **2. Consideration, discussion, and possible action on accepting the October 2023 Departmental Reports.**

*Submitted by: Scott Moore, City Manager*

- Finance – Scott Moore, City Manager
- Police – Ryan Phipps, Chief of Police
- Travis County ESD No. 12 – Ryan Smith, Fire Chief
- Economic Development – Scott Jones, Economic Development Director
- Development Services – Scott Dunlop, Development Services Director
- Municipal Court – Sarah Friberg, Court Clerk
- Public Works – Matt Woodard, Director of Public Works
- Manor Cemetery – Nora Sanchez, MC Manager
- Human Resources – Tracey Vasquez, HR Manager
- IT – Phil Green, IT Director
- Administration – Lluvia T. Almaraz, City Secretary

### **3. Consideration, discussion, and possible action on the Purchase Agreement with Mae M. Vrazel for a wastewater easement with a temporary construction easement.**

*Submitted by: Scott Moore, City Manager*

### **4. Consideration, discussion, and possible action on a Supplement to the Agreement for Street Lighting Service by and between Oncor Electric Delivery Company and the City of Manor for street light service within the Monarch Ranch Subdivision.**

*Submitted by: Scott Dunlop, Development Services Director*

### **5. Consideration, discussion, and possible action to place liens on properties that were abated for violations of Manor Code of Ordinance Article 6.03 for tall grass, litter, and junk on properties.**

*Submitted by: Audrey Guthrie, Associate Attorney*

## REGULAR AGENDA

- 6. Consideration, discussion, and possible action on a construction contract for the Cottonwood Creek West Tributary Wastewater Main Extension Project.**  
*Submitted by: Tyler Shows, E.I.T, City Engineer*
- 7. Consideration, discussion, and possible action on a Resolution authorizing the City Manager to enter into a Multiple-Use Agreement with the Texas Department of Transportation Allowing the Installation and Operation of Automated License Plate Recognition Cameras in Texas Department of Transportation Right-Of-Way.**  
*Submitted by: Ryan Phipps, Chief of Police*
- 8. Consideration, discussion, and possible action on a Resolution approving and adopting the Travis County's Hazard Mitigation Action Plan (HMAP) Update.**  
*Submitted by: James Allen, Lieutenant*

## EXECUTIVE SESSION

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

- *Sections 551.071 and 551.072, Texas Government Code, and Section 1.05, Texas Disciplinary Rules of Professional Conduct to consult with legal counsel and to deliberate the purchase of real property; and*
- *Section 551.074 Personnel Matters to Interview Candidates for appointment to the Planning and Zoning Commission, Alternate No. 1 and Alternate No. 2 positions.*

## OPEN SESSION

The City Council will now 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.

- 9. Consideration, discussion, and possible action on an appointment to the Planning and Zoning Commission, Alternate No. 1 position expiring in January 2025.**  
*Submitted by: Scott Dunlop, Development Services Director*
- 10. Consideration, discussion, and possible action on appointment to the Planning and Zoning Commission, Alternate No. 2 position expiring in January 2026.**  
*Submitted by: Scott Dunlop, Development Services Director*

## ADJOURNMENT

In addition to any executive session already listed above, the City Council reserves the right to adjourn into executive session at any time during the course of this meeting to discuss any of the matters listed above, as authorized by Texas Government Code Section §551.071 (Consultation with Attorney), §551.072 (Deliberations regarding Real Property), §551.073 (Deliberations regarding Gifts and Donations), §551.074 (Personnel Matters), §551.076 (Deliberations regarding Security Devices) and §551.087 (Deliberations regarding Economic Development Negotiations).

#### **CONFLICT OF INTEREST**

*In accordance with Section 12.04 (Conflict of Interest) of the City Charter, "No elected or appointed officer or employee of the city shall participate in the deliberation or decision on any issue, subject or matter before the council or any board or commission, if the officer or employee has a personal financial or property interest, direct or indirect, in the issue, subject or matter that is different from that of the public at large. An interest arising from job duties, compensation or benefits payable by the city shall not constitute a personal financial interest."*

*Further, in accordance with Chapter 171, Texas Local Government Code (Chapter 171), no City Council member and no City officer may vote or participate in discussion of a matter involving a business entity or real property in which the City Council member or City officer has a substantial interest (as defined by Chapter 171) and action on the matter will have a special economic effect on the business entity or real property that is distinguishable from the effect on the general public. An affidavit disclosing the conflict of interest must be filled out and filed with the City Secretary before the matter is discussed.*

#### **POSTING CERTIFICATION**

I, the undersigned authority do hereby certify that this Notice of Meeting was posted on the bulletin board, at the City Hall of the City of Manor, Texas, a place convenient and readily accessible to the general public at all times and said Notice was posted on the following date and time: Thursday, November 9, 2023, by 5:00 PM and remained so posted continuously for at least 72 hours preceding the scheduled time of said meeting.

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/s/ Lluvia T. Almaraz, TRMC  
City Secretary for the City of Manor, Texas

#### **NOTICE OF ASSISTANCE AT PUBLIC MEETINGS:**

The City of Manor is committed to compliance with the Americans with Disabilities Act. Manor City Hall and the Council Chambers are wheelchair accessible and accessible parking spaces are available. Requests for accommodations or interpretive services must be made 10 days prior to this meeting. Please contact the City Secretary at 512.215.8285 or e-mail [lalmaraz@manortx.gov](mailto:lalmaraz@manortx.gov)



## PROCLAMATION

In Recognition of Senior Access's 30 Years of Outstanding Service

**Whereas**, Senior Access, a steadfast nonprofit organization, has faithfully served the community of Round Rock, Hutto, Pflugerville, Manor, and East Austin for three decades; and

**Whereas**, Senior Access has been a beacon of hope, providing free transportation and essential services to our beloved seniors, enhancing their independence, quality of life, and well-being; and

**Whereas**, on November 9, 2023, Senior Access marked the significant milestone of 30 years of compassionate service, touching the lives of countless seniors and their families; and

**Whereas**, Senior Access's unwavering commitment to the betterment of our community exemplifies the highest standards of nonprofit service and community engagement.

**Now, Therefore**, I Dr. Christopher Harvey, Mayor of the City of Manor, and on behalf of the Manor City Council, do hereby proclaim November 9, 2023, as

***“Senior Access 30<sup>th</sup> Anniversary Day”***

in the City of Manor and commend Senior Access for their extraordinary dedication, outstanding achievements, and the positive impact they have had on our community.

**In Witness Whereof**, I have hereunto set my hand and caused the seal of the City of Manor to be affixed this 15<sup>th</sup> day of November 2023.

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Dr. Christopher Harvey, Mayor  
City of Manor

Join the  
City of Manor  
for the Annual  
Tree Planting  
event to  
Celebrate  
Arbor Day

# CITY OF MANOR ARBOR DAY *Event*



**SATURDAY, NOVEMBER 18TH**

**From 9 AM- 10 AM  
TIMMERMANN PARK  
12616 SKIMMER RUN**

- **DONUTS & REFRESHMENTS**
- **TREE GIVEAWAYS**
- **BRING FAMILY AND FRIENDS!**

**More Info: 512- 215-8261**

**[WWW.CITYOFMANOR.ORG](http://WWW.CITYOFMANOR.ORG)**



CITY OF MANOR

in partnership with the Manor Chamber of Commerce

PRESENTS

Item B.

# Holidays in The Park



Saturday DEC 02 - Noon to 5:00PM

TIMMERMANN PARK

7

[www.manortx.gov](http://www.manortx.gov)





## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Lluvia T. Almaraz, City Secretary  
**DEPARTMENT:** Administration

### AGENDA ITEM DESCRIPTION:

Consideration, discussion, and possible action to approve the City Council Minutes of the November 1, 2023, City Council Regular Meeting.

### BACKGROUND/SUMMARY:

**LEGAL REVIEW:** Not Applicable  
**FISCAL IMPACT:** Not Applicable  
**PRESENTATION:** No  
**ATTACHMENTS:** Yes

- November 1, 2023, City Council Regular Meeting Minutes

### STAFF RECOMMENDATION:

Staff recommends that the City Council approve the City Council Minutes of the minutes as presented.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**



**CITY COUNCIL  
REGULAR SESSION MINUTES  
NOVEMBER 1, 2023**

**This meeting was live-streamed on Manor's YouTube Channel**  
<https://www.youtube.com/@cityofmanorsocial/streams>

**PRESENT:**

Dr. Christopher Harvey, Mayor

**COUNCIL MEMBERS:**

Emily Hill, Mayor Pro Tem, Place 1  
Anne Weir, Place 2  
Maria Amezcua, Place 3  
Sonia Wallace, Place 4  
Aaron Moreno, Place 5  
Deja Hill, Place 6

**CITY STAFF:**

Scott Moore, City Manager  
Lluvia T. Almaraz, City Secretary  
Scott Dunlop, Development Services Director  
Scott Jones, Economic Development Director  
Matthew Woodard, Public Works Director  
Tracey Vasquez, HR Director  
Gracie Montano, Senior Deputy Court Clerk  
Brittany Martinez, Deputy Court Clerk  
John Yeager, Judge  
Jay Caballero, Judge  
Veronica Rivera, Assistant City Attorney  
Frank Phelan, P.E., City Engineer  
Phil Green, IT Director  
Chasem Creed, IT Technician

## **REGULAR SESSION – 7:00 P.M.**

With a quorum of the Council Members present, the regular session of the Manor City Council was called to order by Mayor Harvey at 7:02 p.m. on Wednesday, November 1, 2023, in the Council Chambers of the Manor City Hall, 105 E. Eggleston St., Manor, Texas.

### **INVOCATION**

Father Daniel Robayo with St. Mary Magdelene Episcopal Church gave the invocation.

### **PLEDGE OF ALLEGIANCE**

Mayor Harvey led the Pledge of Allegiance.

### **PROCLAMATION**

#### **A. Declaring the week of November 6 – November 10, 2023, as “Municipal Court Week”**

Mayor Harvey read and presented the proclamation to the Court Department.

#### **B. Declaring Friday, November 3, 2023, as “Texas Arbor Day”**

Mayor Harvey read and presented the proclamation to the Public Works Department.

Matthew Woodard, Public Works Director introduced Alison Baylis with Texas A&M Forest Services. Ms. Baylis congratulated the City of Manor for the recognition of being a Tree City USA for a second year and discussed the qualifications that are required for the recognition.

### **PUBLIC COMMENTS**

Robert Battaile, 502 E. Eggleston St., Manor, Texas, submitted a speaker card and expressed his concerns regarding the bond propositions. He discussed the advisory committee’s regulations for open meetings and opposition to Agenda Item No. 4 and No. 7.

No one else appeared at this time.

At the request of Council Member Deja Hill, Item No. 3 was pulled from the Consent agenda and considered separately.

## CONSENT AGENDA

### 1. Consideration, discussion, and possible action to approve the City Council Minutes.

- October 18, 2023, City Council Workshop; and
- October 18, 2023, City Council Regular Meeting

### 2. Consideration, discussion, and possible action on a Wastewater Utility Easement for Timmermann Commercial Investments, LP.

**MOTION:** Upon a motion made by Council Member Amezcua and seconded by Council Member Weir, to approve Item No. 1 and Item No. 2.

There was no further discussion.

**Motion to approve carried 7-0**

## REGULAR AGENDA

### 3. Consideration, discussion, and possible action on an amendment to the Chickenango Marketing Solutions Inc. Professional Services Agreement extending the previous agreement to December 15, 2023.

The city staff recommended that the City Council approve the amendment to the professional services agreement with Chickenango Marketing Solutions Inc. and authorize the City Manager to execute the agreement, extending the term of the agreement to December 15, 2023.

Economic Development Director Jones discussed the reasons why the agreement was being extended.

A discussion was held regarding community input.

Mayor Harvey expressed the importance of submitting the requested information to Chickenango.

A discussion was held regarding whether additional service fees would increase due to the extension of the agreement.

A discussion was held regarding the internal process that is being conducted with the consultant and city staff.

**MOTION:** Upon a motion made by Council Member Wallace and seconded by Council Member Moreno, to approve the amendment to the professional services agreement with Chickenango Marketing Solutions Inc. and authorize the City Manager to execute the agreement, extending the term of the agreement to December 15, 2023.

There was no further discussion.

**Motion to approve carried 7-0**

**4. Consideration, discussion, and possible action to approve an Ordinance adopting and establishing compensation for the Mayor and City Council and a structured policy and procedure process.**

The city staff recommended that the City Council approve Ordinance No. 724 setting compensation for the mayor and members of the City Council.

HR Director Vasquez discussed the proposed compensation ordinance.

A discussion was held regarding how the compensation plan had been brought up prior and how it led to being presented to the City Council for consideration.

Mayor Harvey discussed the Charter Amendments from prior years and explained the proposed Council Compensation Plan by Tier.

A discussion was held regarding public comments on social media.

City Secretary Almaraz explained what would be required by the City Council to submit monthly to show the participation they've completed to meet the Tier criteria.

Councilwoman Weir thanked city staff and others for preparing the Compensation Plan.

Councilwoman Deja Hill expressed her viewpoint regarding the criteria of each Tier.

Mayor Harvey expressed his viewpoint regarding the meeting criteria and compensation guidelines for each Tier.

A discussion was held regarding the criteria to meet each Tier's guidelines monthly.

Mayor Harvey requested staff to meet with the council at a later date regarding the submittal of monthly reports.

Ordinance No. 724: An Ordinance of The City of Manor, Texas Setting the Compensation for the Mayor and Members of the City Council; Providing a Severability Clause, Providing Savings, Effective Date and Open Meetings Clauses, and Providing for Related Matters.

**MOTION:** Upon a motion made by Council Member Wallace and seconded by Mayor Pro Tem Emily Hill to approve Ordinance No. 724 setting the compensation for the Mayor and Members of the City Council.

There was no further discussion.

**Motion to approve carried 6-1 (Council Member Deja Hill voted against)**

**5. Consideration, discussion, and possible action to reject all bids for the Gregg Manor Road Ground Storage Tank & Pressurization Facility Improvements project funded under the FY2021 Tax and Revenue Certificates of Obligation.**

The city staff recommended that the City Council vote to reject all bids for the Gregg Manor Groundwater Storage Tank & Pressurization Facility improvements project and have the project rebid on November 14, 2023.

City Engineer Phelan discussed the reason for the request to reject all bids submitted.

A discussion was held regarding the rebidding process.

**MOTION:** Upon a motion made by Council Member Moreno and seconded by Council Member Weir, to vote to reject all bids for the Gregg Manor Groundwater Storage Tank & Pressurization Facility improvements project and have the project rebid on November 14, 2023.

There was no further discussion.

**Motion to approve carried 7-0**

**6. Consideration, discussion, and possible action on a resolution nominating a candidate for the Board of Directors of the Travis Central Appraisal District.**

The city staff recommended that the City Council approve Resolution No. 2023-33 nominating a citizen for the Board of Directors of the Travis Central Appraisal District and authorize the City Manager to submit a nomination ballot on behalf of the city.

City Secretary Almaraz stated that she had received a nominations for P&Z Commissioner Mr. Feliz Paiz and Councilwoman Amezcua.

Mayor Harvey submitted a nomination for Jorge Flores and Feliz Paiz.

Mayor Harvey read a letter submitted by Mr. Flores to consider his nomination.

**MOTION:** Upon a motion made by Council Member Weir and seconded by Council Member Moreno, to nominate Councilwoman Maria Amezcua.

Mayor Harvey asked Councilwoman Amezcua if she accepted the nomination.

Councilwoman Amezcua accepted.



There was no further discussion.

**Motion to approve carried 7-0**

Resolution No. 2023-33: A Resolution of The City Council of The City of Manor, Texas Approving the City of Manor's Submission Nominating a Candidate for the Board of Directors of the Travis Central Appraisal District.

**MOTION:** Upon a motion made by Council Member Moreno and seconded by Council Member Weir, to approve Resolution No. 2023-33 nominating Maria Amezcua for the Board of Directors of the Travis Central Appraisal District and authorize the City Manager to submit a nomination ballot on behalf of the city.

There was no further discussion.

**Motion to approve carried 7-0**

- 7. Consideration, discussion, and possible action on Ordinance amending Manor Code of Ordinances, Appendix A Fee Schedule establishing building and development related fees, business-related fees, special services by law enforcement staff, administrative and miscellaneous fees, animal control fees, utility service charges and fees, municipal court fees, repealing conflicting ordinances, providing for penalties, and providing for savings, severability, open meetings, and effective date clauses.**

The city staff recommended that the City Council approve Ordinance No. 725 amending Manor Code of Ordinances, Appendix A Fee Schedule establishing building and development related fees, business-related fees, special services by law enforcement staff, administrative and miscellaneous fees, animal control fees, utility service charges and fees, municipal court fees, repealing conflicting ordinances, providing for penalties, and providing for savings, severability, open meetings, and effective date clauses and providing for related matters.

Development Services Director Dunlop discussed the proposed fee changes.

A discussion was held regarding the comparison with other cities regarding building fees.

Ordinance No. 725: An Ordinance of The City of Manor, Texas, Amending Manor Code of Ordinances Appendix A Fee Schedule by Establishing Building and Development Related Fees; Business Related Fees; Special Services by Law Enforcement Staff; Administrative and Miscellaneous Fees; Animal Control Fees; Utility Service Charges and Fees; Municipal Court Fees; Repealing Conflicting Ordinances; Providing For Penalties; Providing for Savings, Severability, Open Meetings and Effective Date Clauses; and Providing for Related Matters.

**MOTION:** Upon a motion made by Council Member Amezcua and seconded by Council Member Wallace, to approve Ordinance No. 725 amending Manor Code of Ordinances, Appendix A Fee Schedule establishing building and development related fees, business-related fees, special services by law enforcement staff, administrative and miscellaneous fees, animal control fees, utility service charges and fees, municipal court fees, repealing conflicting ordinances, providing for penalties, and providing for savings, severability, open meetings, and effective date clauses and providing for related matters.

There was no further discussion.

**Motion to approve carried 7-0**

**8. Consideration, discussion, and possible action on discontinuing services with Spectrum/Charter and transferring to AT&T MetroEthernet Services.**

The city staff recommended that the City Council approve the continuation of the month-to-month services with Spectrum/Charter and authorize the discontinuation of internet in an amount not to exceed \$56,000.

IT Director Green discussed the reason for the termination of internet services with Spectrum.

A discussion was held regarding additional termination fees that would be required during the transition.

IT Director Green confirmed that the switch would be transparent and there wouldn't be any internet interruptions while transitioning.

**MOTION:** Upon a motion made by Council Member Wallace and seconded by Council Member Moreno, to approve the continuation of the month-to-month services with Spectrum/Charter and authorize the discontinuation of internet in an amount not to exceed \$56,000.

There was no further discussion.

**Motion to approve carried 7-0**

**9. Consideration, discussion, and possible action on the Bristol Myers Squibb Foundation Grant Agreement.**

The city staff recommended that the City Council direct city staff to work with the Health Committee and Black Men's Health Clinic in establishing a partnership to utilize the Bristol Myers Squibb Foundation Grant funds for the City of Manor health initiatives.

Council Member Weir stated that she invited previous Mayor Larry Wallace to discuss the Bristol Myers Squibb Foundation Grant Agreement.

A discussion was held regarding the city's collaboration with Bristol Myers Squibb Foundation.

A discussion was held regarding the age requirements for participation in the program.

A discussion was held regarding the aspect of the project.

**MOTION:** Upon a motion made by Council Member Wallace and seconded by Council Member Amezcua, to direct city staff to work with the Health Committee and Black Men's Health Clinic in establishing a partnership to utilize the Bristol Myers Squibb Foundation Grant funds for the City of Manor health initiatives.

There was no further discussion.

**Motion to approve carried 7-0**

Mayor Harvey adjourned the regular session of the Manor City Council into Executive Session at 8:43 p.m. on Wednesday, November 1, 2023, in accordance with the requirements of the Open Meetings Law.

**EXECUTIVE SESSION**

The Manor City Council convened into executive session pursuant to the provisions of Chapter 551 Texas Government Code, in accordance with the authority contained in *Sections 551.071 and 551.072, Texas Government Code, and Section 1.05, Texas Disciplinary Rules of Professional Conduct to consult with legal counsel and to deliberate the purchase of real property; and Sections 551.071, and 551.087, Texas Government Code, and Section 1.05, Texas Disciplinary Rules of Professional Conduct to consult with legal counsel regarding the Manor Spring project* at 8:43 p.m. on Wednesday, November 1, 2023.

The Executive Session was adjourned at 9:29 p.m. on Wednesday, November 1, 2023.

**OPEN SESSION**

The City Council reconvened into Open Session pursuant to the provisions of Chapter 551 Texas Government Code and took action on item(s) discussed during the Closed Executive Session at 9:29 p.m. on Wednesday, November 1, 2023.

There was no further discussion, and no action was taken.

## ADJOURNMENT

The Regular Session of the Manor City Council was Adjourned at 9:29 p.m. on Wednesday, November 1, 2023.

These minutes were approved by the Manor City Council on the 15<sup>th</sup> day of November 2023.

## APPROVED:

\_\_\_\_\_  
Dr. Christopher Harvey,  
Mayor

## ATTEST:

\_\_\_\_\_  
Lluvia T. Almaraz, TRMC  
City Secretary



## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Scott Moore, City Manager  
**DEPARTMENT:** Administration

### AGENDA ITEM DESCRIPTION:

Consideration, discussion, and possible action on accepting the October 2023 Departmental Reports.

### BACKGROUND/SUMMARY:

- Finance – Scott Moore, City Manager
- Police – Ryan Phipps, Chief of Police
- Travis County ESD No. 12 – Ryan Smith, Fire Chief
- Economic Development – Scott Jones, Economic Development Director
- Development Services – Scott Dunlop, Development Services Director
- Municipal Court – Sarah Friberg, Court Clerk
- Public Works – Matt Woodard, Director of Public Works
- Manor Cemetery – Nora Sanchez, MC Manager
- Human Resources – Tracey Vasquez, HR Manager
- IT – Phil Green, IT Director
- Administration – Lluvia T. Almaraz, City Secretary

**LEGAL REVIEW:** Not Applicable

**FISCAL IMPACT:** Not Applicable

**PRESENTATION:** No

**ATTACHMENTS:** Yes

- October 2023 Department Monthly Reports

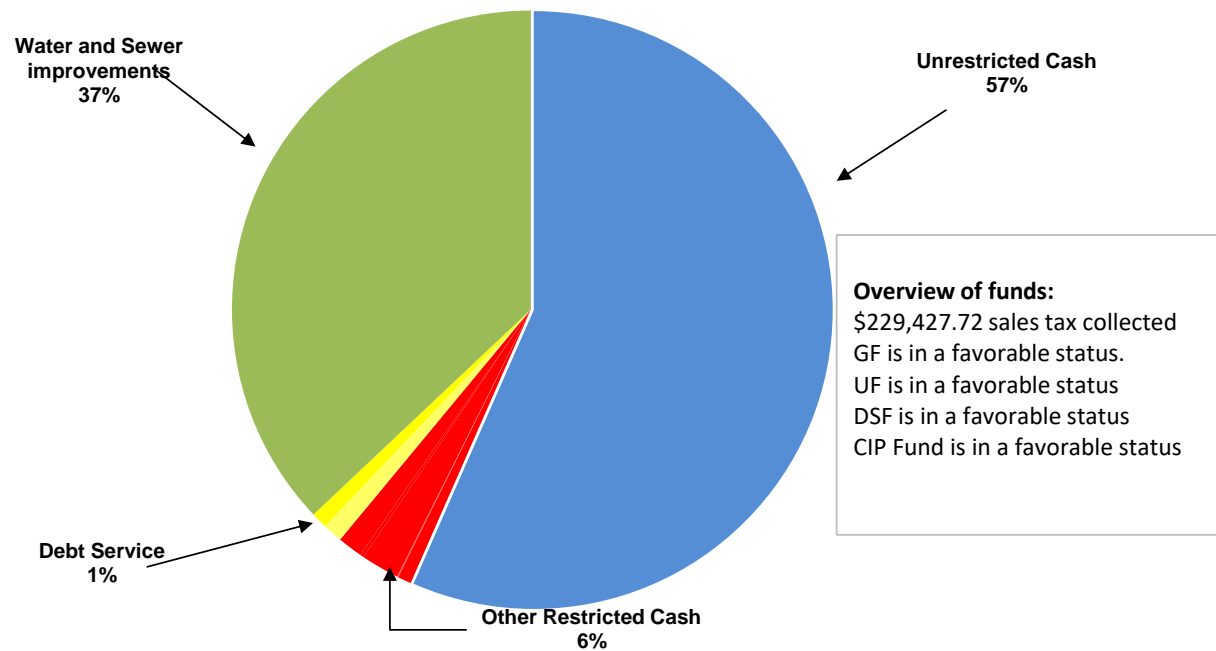
### STAFF RECOMMENDATION:

It is the city staff's recommendation that the City Council approve and accept the October 2023 Departmental Reports.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**

**CITY OF MANOR, TEXAS  
CASH AND INVESTMENTS  
As Of October, 2023**

	GENERAL FUND	UTILITY FUND	DEBT SERVICE FUND	SPECIAL REVENUE FUNDS	CAPITAL PROJECTS FUND	TOTAL
<b>CASH AND INVESTMENTS</b>						
Unrestricted:						
<b>Cash for operations</b>	21,751,620	13,871,214				35,622,834
Restricted:						
<b>Tourism</b>				460,447		460,447
<b>Court security and technology</b>	45,230					45,230
<b>Rose Hill PID</b>				1,300,678		1,300,678
<b>Manor Heights TIRZ</b>				128,584		128,584
<b>Customer Deposits</b>				852,999		852,999
<b>Park</b>	672,164					672,164
<b>Debt service</b>			551,522			551,522
<b>Capital Projects</b>						
<b>Water and sewer improvements</b>				8,749,079	14,567,086	23,316,165
<b>TOTAL CASH AND INVESTMENTS</b>	<b>\$ 22,469,014</b>	<b>\$13,871,214</b>	<b>\$ 551,522</b>	<b>\$ 11,491,788</b>	<b>\$ 14,567,086</b>	<b>\$ 62,950,623</b>







# Manor Police Department

## Monthly Report October 2023



# Manor Police Department By The Numbers



2130

Number of calls for service

68

Average calls per day



Total Training Hours

483



Mental Health Calls

10



Juvenile Detentions

0

## Interactions



3

Community Events

0

Hosted Events

3

External Events



0:01:47

Average response time



2.5

The average number of people an officer interacts with per call

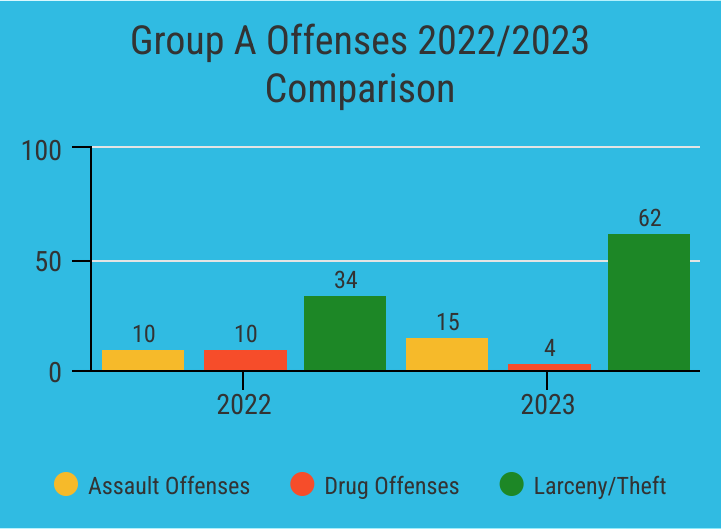


5,325

The estimated number people officers interact with on calls alone

# Criminal Offenses

## National Incident Based Reporting System



Offense Group	2022	2023
Group A	67	107
Group B	113	115

Crime Type	2022	2023
Persons	20	25
Property	41	51
Fraud	1	6
Crimes against Children	1	1

## Incident Reports, Total Offenses, and Arrests



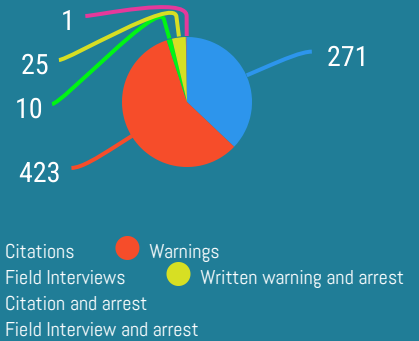
\*Group A offenses are 22 offense categories, including but not limited to assaultive offenses, sex offenses, larceny, arson, and prostitution, where extensive data is collected.  
 Group B offenses consist of 11 offense categories, including but not limited to bad checks, DWI, non-violent family offenses, and all other offenses, where only arrest data is collected.

# Traffic Enforcement Analysis



## 731

Total traffic stops  
conducted



## 27

Traffic stops resulting in a citation with an arrest, traffic stops resulting in a warning with an arrest, and field interviews that resulted in an arrest.



## 44 searches out of 731 stops

Officers conducted a search of the vehicle based on consent, contraband in plain view, incident to arrest, inventory, or probable cause.

**CONTRABAND**

## 15

Contraband, such as alcohol and drugs, was discovered as a result of the stop.

# Traffic Enforcement Analysis



**25**  
Crashes

**1**  
Involving Alcohol  
or Drugs

**26**  
DWI  
Arrests

## DWI Arrests by the numbers\*

**LEADRS**  
Law Enforcement Advanced  
Data Reporting System

### Manor Police Department DWI Profile - October 2023



\*The current LEADRS report has not been received. The monthly will be updated upon receipt.





# Travis County Emergency Services District No.12

Item 2.

## Office of the Fire Chief

11200 Gregg Lane. • PO Box 846

Manor, Texas 78653

O: 512-272-4502

## Operational/Prevention Summary – October 2023

### Calls - Month

2023 - 421 (-7.4%)

2022 - 455 (+36.2%)

2021 - 334

### Calls by Unit

Eng1201 - 116

Eng1202 - 103

Bat1201 - 44

SQ1203 - 124

SQ1201 - 145

Eng1203 - 102

FMO1201 - 7,

163 call reviews

### Calls - CYTD

2023 - 4236 (+2.2%)

2022 - 4141 (+9.3%)

2021 - 3786

### AVG Response Time - Month

8 min, 31 sec

### AVG Response Time - CYTD

8 min, 40 sec

Aiding Departments	Month Received	Month Given	CYTD Received	CYTD Given
Austin FD	5	4	61	37
Bastrop Co. ESDs	0	2	0	4
BT1/ESD 13	0	0	0	0
Elgin VFD	0	0	1	13
TC ESD 2	4	14	73	123
TC ESD 11	7	0	40	3
TC ESD 9/6/3	0	0	15	0
WILCO Dept's	0	2	6	10
-----	-----	-----	-----	-----
<b>TOTAL</b>	<b>16</b>	<b>22</b>	<b>196</b>	<b>190</b>

### Incident by Type

100 Fire.....	96	200 Rupture/Explosion...	0	300 EMS/Rescue	272
400 Hazardous Condition.	8	500 Service Call.....	18	600 Good Intent.	6
700 False Calls.....	21	900 Other.....	0	800 Nat. Disaster	0

### Training and Events

- ShadowGlen NNO
- Neighborhood NNO
- Manor City Limits Talent Show
- Manor Elem. Fire Prev. Week
- Board Up Luncheon (3 shifts)
- Bluebonnet Elec. Presents Check
- BME Fall Festival
- Manor Night at the Park
- DCPE 1<sup>st</sup> Quarter Training

### Awards and Recognition

- No October hires



# Travis County Emergency Services District No.12

Item 2.

## Office of the Fire Chief

11200 Gregg Lane. • PO Box 846  
Manor, Texas 78653  
O: 512-272-4502

## Operational/Prevention Summary – October 2023

### Prevention Division Activities (ESD/CoM)

Builder   Developer Mtgs.....0 (0/0)	Site Visits.....71
Reviews.....58 (38/20)	Initial Inspections .....39 (23/16)
Under Review.....11 (8/3)	Reinspection.....8 (3/5)
Re-submittals.....29 (18/11)	Residential Inspections.....0
Approvals / Permits Issued.....39 (23/16)	Investigation Responses.....5 (2/3)
Awaiting Response from Applicant.....11 (9/2)	Hydrant Inspections/Tests.....8
Review Turn-Around (AVG last 30 days) 7 days	

###



# MEMO

To: Mayor and City Council Members

From: Scott Jones, Economic Development Director

Date: November 15, 2023

RE: **October 12 to November 6 Economic Development Department activity**

- 
- Qually status update meeting; 2 GBA project status meetings;
  - Prospect meeting with large retailer regional broker to set up tour for 11/15/23; met with prospective music/entertainment venue operator and film industry representative interested in Manor sites;
  - Pre-application Zoom meeting Manor 263 (Han's Laser Technology); Pre-development virtual meeting with BuildBlock; Cottonwood WWTP and regional facility proforma/budgeting virtual meeting with Manor Springs developers/counsel;
  - Met with Wonik Materials representatives from Korea and US re: 23 acre purchase on Old Kimbro and plans to annex, zone plus water, WW, incentives;
  - Lunch w/Zoe Zhang of BBG Real Estate Services (appraisal/environmental) regarding CAYSA property; Kitchell Project Management Group regarding future PM work;
  - 5 legal calls w/Gregory Miller and Deron Henry on multiple subjects; Dalfen/Manor Downs discussion; Moody's bond rating call w/Jeff Norred;
  - Attended Opportunity Austin Business Retention/Expansion Blitz Delegate Orientation and Dinner and meetings/virtual meetings downtown and for 3 days in/around Austin area with local businesses to obtain business locational and operational data for the organization (Samsung, Indeed, Adthena, Bay Advanced Technologies, Restaurant365, Cypress Industries, Favor Delivery, Fabworx) to assist in future BRE follow-up and partnership data maintenance;
  - Attended 2 City Council Meetings; 1 City Council Workshop w/Chickenango; 4 Staff meetings; Manor Chamber of Commerce monthly meeting; Manor Chamber of Commerce Annual Golf Tournament; Bond Initiative Open House;
  - Attended Opportunity Austin November Regional Partners Meeting at TSU Round Rock campus with biotech speaker panel and CHIPS DC team meeting downtown Austin 11/6
  - Toured developer-owned site of anticipated city facility with local historian for due diligence purposes;
  - Due diligence on potential land purchases: CAYSA, Las Entradas; Wilbarger Creek WWTP virtual meeting;
  - Branding contract extension and due diligence with Chickenango; downtown strategic plan due diligence and negotiations with Catalyst.

**DEVELOPMENT SERVICES DEPARTMENT REPORT  
PROJECT VALUATION AND FEE REPORT**

**October 1-31, 2023**

Description	Projects	Valuation	Fees	Detail
Commercial Demolition	2	\$143,669.00	\$384.00	
Commercial Electrical	2	\$10,500.00	\$664.00	
Commercial Foundation	2	\$0.00	\$1,076.00	
Commercial Remodel/Repair	2	\$14,630.00	\$5,680.60	
Commercial Sign	1	\$1,500.00	\$142.00	
Commercial Swimming Pool/Spa	1	\$100,000.00	\$962.00	
Residential Accessory	2	\$8,800.00	\$214.00	
Residential Electrical	4	\$46,678.00	\$428.00	
Residential Fence	1	\$995.00	\$107.00	
Residential Foundation Repair	9	\$88,257.19	\$873.00	
Residential Irrigation	62	\$137,400.00	\$6,809.00	
Residential Mechanical-HVAC	3	\$18,650.00	\$321.00	
Residential New	47	\$14,519,767.23	\$372,083.20	
Residential Plumbing	1	\$10,500.00	\$167.00	
Residential Remodel/Repair	1	\$3,000.00	\$746.40	
Residential Swimming Pool/Spa	1	\$110,000.00	\$332.00	
Right of Way	1	\$0.00		
<b>Totals</b>	<b>142</b>	<b>\$15,214,346.42</b>	<b>\$390,989.20</b>	

Total Certificate of Occupancies Issued: 52

Total Inspections(Comm & Res): 1,655

*Scott Dunlop, Development Services Director*

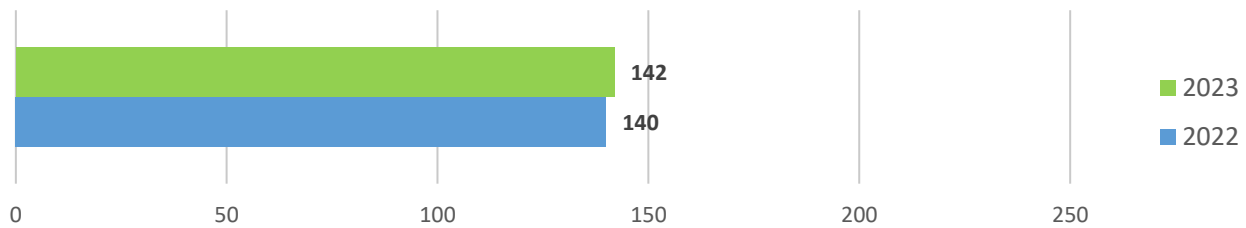




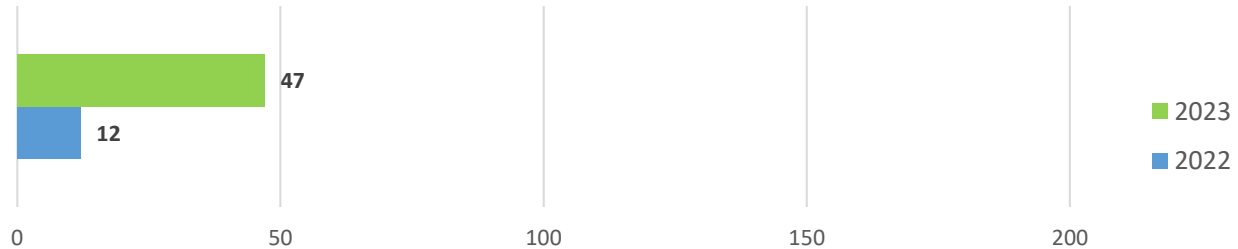
# October 2023

DEPARTMENT OF DEVELOPMENT SERVICES  
SCOTT DUNLOP, DIRECTOR

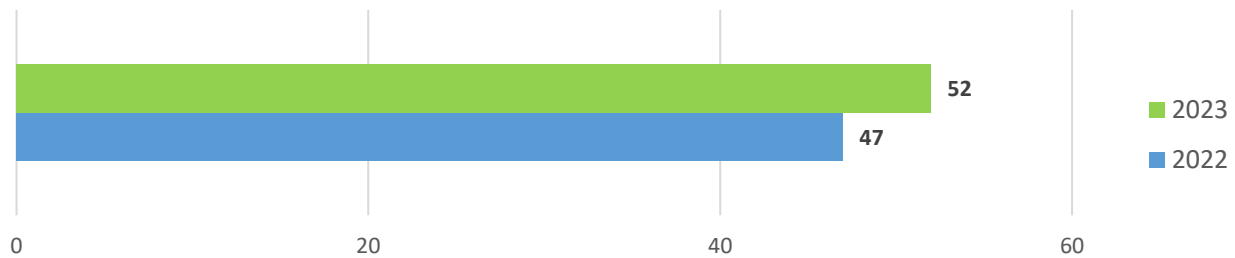
## ALL PERMITS ISSUED



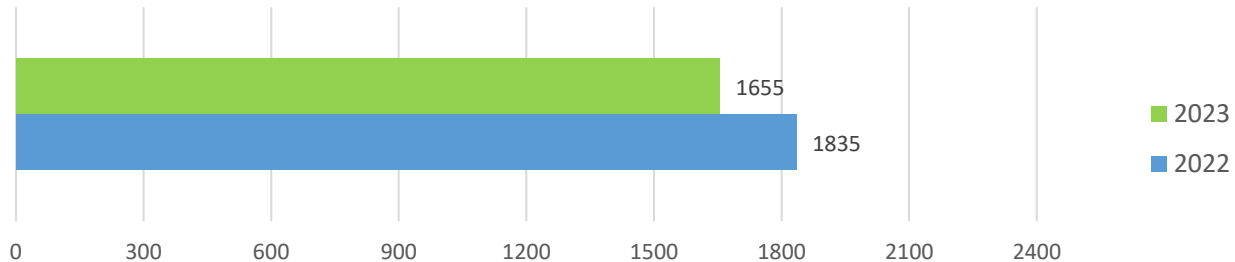
## RESIDENTIAL NEW PERMITS



## COs ISSUED



## INSPECTIONS

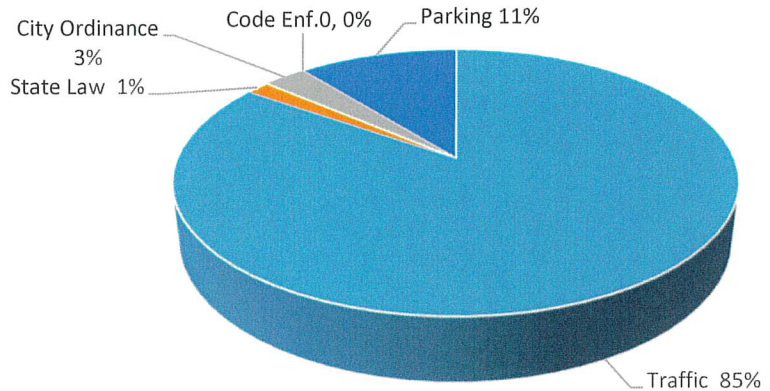


\*Charts displayed at different scales

## City of Manor Municipal Court OCTOBER 2023

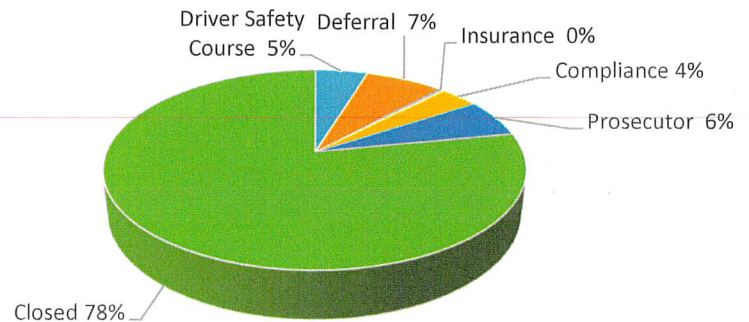
Violations Filed	Oct-23	Oct-22
Traffic	374	134
State Law	7	20
City Ordinance	13	4
Code Enforcement	0	0
Parking	48	0
<b>Total</b>	<b>442</b>	<b>158</b>

### PERCENTAGE OF VIOLATIONS



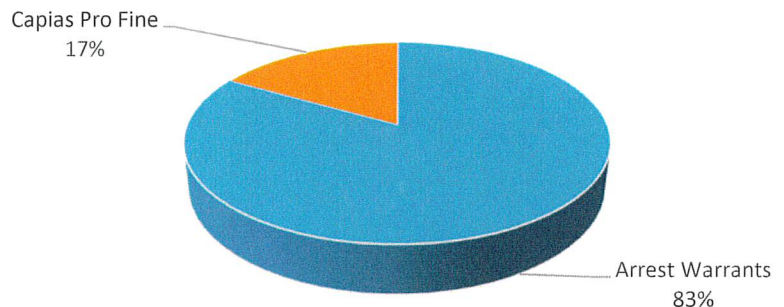
Dismissals	Oct-23	Oct-22
Driver Safety Course	20	3
Deferral	30	16
Insurance	2	2
Compliance	15	2
Prosecutor	26	20
Closed	330	152
<b>Total</b>	<b>423</b>	<b>195</b>

### PERCENTAGE OF DISMISSALS



Warrants	Oct-23	Oct-22
Arrest Warrants	84	100
Capias Pro Fine	17	10
<b>Total</b>	<b>101</b>	<b>110</b>

### PERCENTAGE OF WARRANTS



### Money Collected in October 2023

Kept By City	\$48,176.99
kept By State	\$22,740.81
<b>Total</b>	<b>\$70,917.80</b>

### Money Collected in October 2022

Kept By City	\$22,981.35
Kept By State	\$7,128.61
<b>Total</b>	<b>\$30,109.96</b>





# MEMO

To: Mayor and City Council Members  
From: Matt Woodard, Director of Public Works  
Date: November 6, 2023  
RE: **October Monthly Report**

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## Public Works Department

### ***Street and Public, Parks, and Maintenance Department***

In October, the Public Parks and Maintenance Department mowed all city facilities, alleys, and right of ways. They cleaned and maintained all city facilities and parks. They performed all maintenance on city vehicles and heavy equipment and the Street Department repaired streets, curbs, and signs.

### ***Water and Wastewater Department***

In October, the Water Department performed daily maintenance on the water system, repaired water mains, set water meters and tested the water daily. The Wastewater Department performed daily maintenance on the wastewater plant. They cleaned and unstopped wastewater mains. Construction started on Clearwell and intermediate tanks.

### ***Water Production & Purchase***

In October, 23 % of the water we supplied to our residents was from our wells, and purchased 77 % from EPCOR and Manville WSC.

### ***Population***

City of Manor- 20,639

Shadowglen- 7,581

City of Manor  
Capital Project Status Report  
Public Works Department

PROJECT NAME	PROJECT DESCRIPTION	MONTHLY ACTIVITY	PERCENT CONSTRUCTION COMPLETE/PHASE
Cottonwood Creek Wastewater Collection System Improvements Project 14621 – Addendum #49	Gravity wastewater lines and lift station to serve Cottonwood Creek Basin and Cottonwood Creek Tributary Basin	Punch list walkthrough conducted 9/13. All punch list items have been addressed (per the contractor) except for the removal and disposal of the contaminated soils. They are working to get a sub to haul off the soil. Update on establishing property pins on the Gabriel tract.	99%
Bastrop/Parsons Gravity Main 14627 – Addendum #56	12” gravity wastewater main	Received geotech report; tentative onsite meeting to mark areas in need of repair is set for October 25.	99%
Cottonwood Creek Phase 2 Wastewater Line Extension 14693 - SOW No. 5	The northern extension of the gravity wastewater line in Cottonwood Creek Basin	Final punch list inspection conducted 10/25. The contractor on site 11/6 to finish punch list.	99%
Manor Commercial Park WW Collection System 15072 – SOW No. 7	Phased wastewater collection system improvements for the Beltex area	Finishing surveying and conducting field notes for easements. Submitting documents for TCEQ review and approval.	Construction Documents
Gregg Manor Road GST and Pressurization Facilities 15110 - SOW No. 10	Ground storage tank and water pressurization facilities for the EPCOR water delivery point	The project will be rebid. Notice will be in the October 27 paper.	Rebid scheduled for 11/14/2023
FM 973 and US 290 Water Lines, CIP W-15 & W-16 15110.01 - SOW No. 10	Water line extensions along FM973 and US 290	Working on easements. Waiting on Manville's response to the email regarding easement approval. Written approval through email, waiting on formal documentation. Easement document sent.	Working on easement acquisition and addressing issues/concerns about easements from property owners.

Bell Farms and Presidential Glen LS Imp, CIP-2 & CIP-3 15110.02 - SOW No. 10	Upgrades to the Bell Farms and Presidential Glen lift stations to provide capacity for new growth	Change order #1 was approved before council on September 6 <sup>th</sup> . Received new schedule from contractor. Bypass will be in December. Working on access easement for West Elgin property. ECMi on site this week for coating. New wet wells have been installed at both lift stations. On-site meeting 11/6.	Under construction.
Cottonwood Creek West Tributary WW Improvements 15128 - SOW No. 12	Wastewater CIP Line in Cottonwood Creek West Tributary Basin	Low bidder – Santa Clara. \$2,533,379 (OPC \$2,749,572)	Construction documents 100%. Bid phase 75%
Cottonwood Creek WWTP Phase II Expansion 15283 - SOW No. 9	Developer-funded expansion of the plant	Internal QC. Final documents to City Nov. 3.	Construction Documents 99%
Cottonwood Creek WWTP Phase III Grant Project 15130 - SOW No. 9A	Grant-funded expansion of the Cottonwood Wastewater Treatment Plant	Preliminary engineering work being updated for submittal to EDA.	Design Phase Engineering
Wastewater Collection and Treatment Master Plan 15320 - SOW No. 14	Major Goals: Develop & calibrate sewer model; Use model to estimate timing & location of capacity needs; Develop & choose improvement alternatives to address capacity needs	In progress: Model Calibration Report Development	Study Phase
Water Distribution System Master Plan 15317 - SOW No. 15	Contract approved at September 7 Council Meeting.	Continue working on the Water master plan draft report.  In progress: Draft report to be completed by the end of October for review with City Staff. Alternative water sources	Report Phase
2022 Community Impact Fee (CIF) Program Update 15312 - SOW No. 18	Update to the impact fee program	Roadway Impact Fee - Working on finalizing the service unit calculations and project list in order to calculate the impact fees for each service area. October meeting postponed by City Staff.	The next meeting will be on November 8

Gregg Lane Ground Storage Tank and Pressurization Facility 15318 - SOW No. 20	Contract approved at September 7 Council Meeting.	Preliminary layout complete. Received ROE. Working on construction documents. Coordinating with developer's engineer on lot grading and wastewater line that runs through lot.	Construction documents at 50%
FY2022 Bond-Funded Water, Wastewater, and Roadway Improvement Project XXXXX - SOW No. 23	Contract approved at September 7 Council Meeting.	The project includes 973 Water Line, Cottonwood Creek Phase 3, and Hill Lane Improvements. Hill lane – construct Entrada entrance first, update on a drainage easement location for outfall. Currently working on FM 973 N waterline alignment and obtaining easements.	Construction plans are being worked on. Waiting on easements.
Cottonwood Creek WWTP Permit Amendment 15402.00 - SOW No. 24	Permit Amendment to expand permit from 0.5 MGD to 0.8 MGD	Submitted response to Notice of Deficiencies Sept 29 <sup>th</sup> . Received Response from TCEQ Oct 10 <sup>th</sup> . Need Letters from adjacent permit holders. Requests sent.	Permit Submittal
FY2022 Cap Metro Paving Project 15451 – SOW No. 25	Paving project improvements using allocated Cap Metro Funding	Bid opening held on July 7, 2023. Contract approved by Council at August 2, 2023 meeting.	Contractor started work on 9/11/2023. Working on Lampasas Street and cemetery road.
One-Time BCT Cap Metro Funding Paving Project 15452 – SOW No.26	Paving project improvements using allocated one-time funding from Cap Metro	Gregg Manor will be removed from the project and it will be put out for bids for Lexington and Shadowglen Blvd. Only. Remaining funds will be used at a later date.	Plans are 90% complete.

## **Streets and Parks Monthly Report October 2023**

### **Daily Duties and Projects 10-1-2023 / 10-31-2023**

#### ***Streets Maintenance***

Sanded and crack sealed W. Townes, between Lexington and Bastrop St.

Sanded and crack sealed W. Lane between Lexington and Bastrop St.

Sanded and crack sealed W. Wheeler between N. Caldwell and N. Bastrop St.

Prepped shoulder on Gregg Manor near HWY 290 for asphalt repair.

Prepped water cut with base for asphalt repair on Lockhart St. and Browning St.

Repaired sidewalk at Cummings Way.

Sidewalk repairs at 12700,12704,12716,12720,12724,12728 Doorbell.

Placed banners for National Night Out.

Pothole repairs on N. Gregg Manor Rd, E. Carrie Manor, Lockhart, W. Boyce, W. Brenham, Bastrop St., W. Burton St, Bois D Arc, Tower,

Prepped large cracks in roadway with sand for asphalt repair on Blake Manor Rd. between guard railing.

Cap Metro Paving contract. Prepped roads for paving on N. Lampasas St.

Cap Metro Paving contract. Prepped roads for paving at the Cemetery Road.

Cap Metro Paving contract. Prepped roads for paving on Lockhart St.

Cap Metro Paving contract. Prepped roads for paving on Wheeler St.

#### ***Parks Maintenance***

Irrigation repair at Jennie Ln Park.

Picked up illegal dumping at Bell Farms Park.

Replaced mulch at Timmermann Park flower beds.

Irrigation repair at Timmermann Park.

Table setups and take downs at city hall as requested.

Power washed city hall twice. South and east side of the building.

Weekly irrigation checks.

Playground and playscape monthly safety checks.

Scheduled weekly Park mowing maintenance completed.

Friday Afternoons Bulk Drop Off for city residence.

Scheduled weekly Park rounds at park facilities completed.

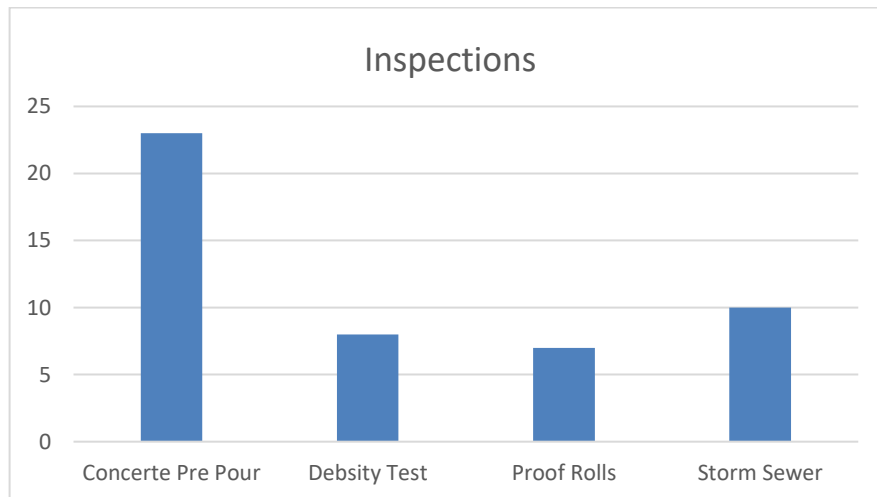
Scheduled weekly (ROW) Right of Way mowing completed.

Weekly vehicle equipment checks and maintenance.

### **MS4 Storm drain inspections monitored New/Construction under warranty**

660 - inspections done this month.

3 - MS4 reports submitted this month as required by TCEQ.



### ***Inspections/Warranties/New subdivision Walkthroughs and Pre-Construction meetings.***

Presidential Heights Phase 3- 2-year walkthrough has been done. Contractor in process of repairs. October 2021 still waiting.

Presidential Heights Phase 5 – 2 -year walkthrough has been done, contractor in process of repairs. September 2022.

Presidential Heights Phase 4 – 2 years walkthrough has been done, contractor in process of repairs. November 2021 still waiting.

Manor Heights – Phase II Sec. 1- Homes are being built.



Manor Heights – Phase II Sec. 1B & 2B  
Contractor in building process.

Manor Heights – Phase II Sec.2 Contractor in  
building process.

Manor Heights – Phase III Sec. 1- Homes are  
being built.

Manor Heights Phase III Sec. 2 – Homes are  
being built.

Manor Heights Phase 4 – Development in  
process.

LA Mexicana – In the Development process.

North Forest Office Building – Building  
process.

Manor New Tech – Building process.

Manor Crossing (Butler Tract) Development  
process.

Logos Phase 3- Waiting on homes to be built.

Logos Phase 4- Homes are being built.

Logos Phase 5- Waiting to build homes.

Logos Phase 5- Walkthrough has been  
completed.

Lagos Phase 2- Homes are being built.

Shadowglen Phase 2 Sec 22 & 23A-  
Walkthrough punch list. September 2021 still  
waiting.

Shadowglen Phase 2 Sec 25 & 26 1-year  
walkthrough punch list September 2022.

Shadowglen Phase 2 Sec 27A & 27B-  
Walkthrough punch list September 2021 still  
waiting.

Shadowglen Phase 2 Sec 17- 2-year  
walkthrough has been done, contractor in

process of repairs. November 2021 still  
waiting.

Shadowglen Phase 2 Sec 21A & 21B  
walkthrough punch list. January 2022 still  
waiting.

Palomino Subdivision – Waiting to be built.

Presidential Glen Commercial WW – In  
building process.

Manor Heights Medium Density -Not started.

9910 Hill Lane Apartments - Building process

Presidential Glen Townhomes – Not started.

Sherwin Williams - Building process.

Las Entradas Section 3- Building process.

Las Entradas Section 4 – Building process.

109 Lexington Apartments – Building process.

Manor Town Apartments Phase 2 –  
Development process.

The LEX at FM 973 and Murchison – Not  
started.

Valvoline – Development process.

Holley smith Phase 1A – Not started.

Eggleston Extension – Development process.

The View at Manor apartments – Not started.

Eggleston Extension – Development process.

Cap Metro Contracted roads in process of being  
prepped for paving.

### ***Cemetery Report***

October 4, 2023 - Checked and walked through the cemetery.

October 10, 2023 – Checked and walked through the cemetery.

October 19, 2023 - Met with Mr. and Mrs. Edward and Francella Wyndham regarding on headstone measurements for their parents.

October 20, 2023 – Picked up old wreaths, glass bottles, and trash. Inspected several graves that will require dirt fill. Will collect names and email Lance Zeplin for fill dirt.

October 30, 2023 – Contacted Kacey Smith, the street contractor for the asphalt installation. Father Henry scheduled All Souls Day Service on Thursday, November 2<sup>nd</sup> at the cemetery. Per Mr. Smith, the asphalt installation will be either Friday, November 3 or Monday, November 6<sup>th</sup>.

October 30, 2023 – Visited with Lance Zeplin on scheduling the cemetery weed eating for All Soul's Day Service.

October 31, 2023 – All Soul's Day Service cancelled per Father Henry due to the streets being too muddy.

As soon as the asphalt installation is completed will resume monitoring the cemetery on a regular basis.

# WATER/ WASTEWATER MONTHLY REPORT OCTOBER

<b>WASTEWATER</b>	<b>TASK COMPLETED</b>
SERVICE CALLS	15
MANHOLES REPAIRED	
SEWER BACKUPS	6
CUSTOMER BACKUP	4
CAMERA LINE	2
LINES REPAIRED	
LINES LOCATED	
LINES CLEANED	1
MANHOLES CLEANED	
CLEANOUTS REPAIRED	2
SEWER SMELL	
<b>WATER</b>	<b>TASK COMPLETED</b>
SERVICE CALLS	112
WATER LEAKS SERVICE LEAKS	3
CUSTOMER LEAKS	14
WATER MAIN REPAIRS	1
HYDRANT REPAIR/REPLACED	43
ISOLATION VALVE MAINTENANCE	
ANGLE STOPS REPLACED	
LINES LOCATED	1
MANVILLE BROWN WATER	
BROWN WATER	2
WATER PRESSURE	5
WATER TURN ON/OFF	
BAC T SAMPLES	30
COVER UP	2
HIGH OR NO WATER USAGE	11
<b>INSPECTIONS</b>	
SITES	240
MANHOLES	15
WASTEWATER LINES	22/1392 FT
MANDRELS	6/1131
CONSTRUCTION METER SET	3
CONSTRUCTION BAC T/FLUSHING	
DENSITIES	90



# MEMO

To: Mayor and City Council Members

From: Tracey Vasquez, Human Resources Director

Meeting Date: November 15, 2023

RE: October 2023

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## Meetings and Events:

### *HR Workshop Roundtable Meeting*

October 12, 2023

### *Staff Meetings*

October 10, 2023

October 17, 2023

October 24, 2023

October 31, 2023

### *Holidays in the Park Committee*

### *Manor Night at the Park Committee*

October 19, 2023

### *City Council Meetings*

October 2, 2023, Called Special Session

October 18, 2023, Executive Session

## October 2023

- October 3- Mr. Moore's ICMA service award
- October 4- ZOOM with Jonathon Stein regarding Timeclock options for the City.
- October 10- ZOOM with Hanah Michelle with Express Evaluations.
- October 12- Kickoff meeting with NEO GOV
- October 16- Skilled Trades Consortium at EPCOR.
- October 19- Open enrollment training for benefits coordinators.



# MEMO

- October 24- TMRS annual training conference for participating Cities.
- October 26 & 27- interviews with qualified Heritage and Tourism Manager applicants.
- Day-to-day operations of the Human Resources and Finance departments regarding accounts payable, bank recs, payroll, departmental projects and reports, property, liability, and worker's comp insurance. Assisted employees with specific needs regarding benefits claims, FMLA, and training schedules.



# MEMO

To: Mayor and City Council Members

From: Phil Green, IT Director

Date: November 15, 2023

RE: **October Monthly Report**

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The following are accomplishments from September.

1. Waiting for branding to be completed to finish the move to manortx.gov
2. Move to AT&T Fiber TBD. Waiting for fiber installation at Public Works – Continuing.
3. Evaluation move to AT&T for phones and cellular. Lawyers have reviewed. Waiting for the Internet services project to be completed. – Still waiting
4. NexGen Storm alerts will be rolled out to PD once we get more information. – Gathered needed info for the vendor.
5. We got quotes on switch replacements.
6. Inventories data jacks to update the City Hall Map
7. Assisted PD in getting a printer for Admin.
8. Assisted PD in evaluating Axon for an interview room.



# MEMO

To: Mayor and City Council Members

From: Lluvia T. Almaraz, City Secretary

Date: November 15, 2023

Re: **October 2023**

## City Records Obtained and Processed:

ACTIVITY	DESCRIPTION	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct
City Council Agendas	City Council meetings and workshop agendas prepared and posted in accordance with Local Government Code.	4	5	3	4	4	3	3	4	4	3
Council Minutes	Minutes recorded, prepared, approved, archived	4	5	3	4	3	3	4	3	5	2
Ordinances	Ordinances written, processed, &/or published and forwarded to Municode for Code Supplement	0	6	4	3	5	5	1	6	3	5
Resolutions	Resolutions written and processed	0	3	5	3	7	7	1	2	1	3
Proclamations/ Recognitions	Proclamations & Recognitions, written & presented	0	2	2	1	4	0	1	0	4	2
Bids	Bids advertised, received, tabulated, awarded, recorded	1	0	0	0	0	0	1	1	0	1
Boards & Commissions appointments	Board appointments implemented and completed; appointments recorded	4	0	0	1	0	0	0	0	0	0
Contracts & Agreements	Contracts and agreements approved and executed	2	1	14	10	8	17	10	6	9	9
Open Records Requests	Number of Open Records Requests processed (within 10 days as required)	64	32	47	38	41	66	60	73	58	79





# MEMO

## **COUNCIL MEETINGS**

- Council Special Sessions – October 2nd
- Council Regular Meetings – October 18<sup>th</sup>
- Council Workshop – October 18<sup>th</sup>
- Manor Housing Public Facility Corporation Meeting – October 2<sup>nd</sup>

## **TRAINING/OTHER MEETINGS**

- Texas Municipal League Conference – October 4-6, 2023
- Manor Chamber of Commerce Luncheon – October 12<sup>th</sup>
- Cities Digital Inc. (CDI) – Laserfiche /Records Management Meeting – October 13<sup>th</sup>
- PD Records Management Meeting – October 30<sup>th</sup>

## **COMMUNITY EVENTS**

- Open House for Bond Propositions– October 16<sup>th</sup>

## **OTHER**

- Ongoing daily responsibilities include Election Administration, Records Management Administration, Public Information Processes, Open Meetings Compliance, Boards and Commission processes, City Council Committees processes, Alcohol Beverage City Permits processes, Mayor and City Council administrative support, Administrative and Official duties and Customer Service.



## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Scott Moore, City Manager  
**DEPARTMENT:** Administration

### AGENDA ITEM DESCRIPTION:

Consideration, discussion, and possible action on the Purchase Agreement with Mae M. Vrazel for a wastewater easement with a temporary construction easement.

### BACKGROUND/SUMMARY:

Since 2022, the City of Manor has been engaged with George Butler & Associates and their consulting team to secure the required utility easements to complete the Manor Commercial Park Wastewater Line Expansion Project. The city received \$3.3 million from the COVID State and Local Fiscal Recovery Fund allocation. This project is scheduled to be completed in the Fall of 2024. Mrs. Mae Vrazel has a parcel tract that the city is seeking a 20' permanent wastewater utility easement and 25' temporary construction easement along the designated route for the future wastewater line to be installed. The registered appraiser completed their fieldwork and comparable analysis and provided the City of Manor with a monetary compensation analysis for the easements for tract 7 at \$115,194.

**LEGAL REVIEW:** Yes, Veronica Rivera, Assistant City Attorney  
**FISCAL IMPACT:** No  
**PRESENTATION:** No  
**ATTACHMENTS:** Yes

- Purchase Agreement Parcel No. 7

### STAFF RECOMMENDATION:

It is the city staff's recommendation that the City Council approve the Purchase Agreement with Mae M. Vrazel for a wastewater easement with a temporary construction easement in an amount not to exceed \$115,194.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**

**CITY OF MANOR PURCHASE AGREEMENT**  
**Manor Commercial Park Wastewater Project; Parcel 7**

**THE STATE OF TEXAS**  
**COUNTY OF TRAVIS**

THIS CONTRACT (hereinafter "Purchase Contract") WITNESSETH that **Mae M. Vrazel also known as Minnie Mae Harbers Vrazel** (hereinafter collectively referred to as "Owner"), for good and valuable consideration, the receipt of which is hereby acknowledged, and for the mutual promises contained herein, agree to grant, sell, and convey certain real property to the **City of Manor, Texas, a Texas home-rule municipality, situated in Travis County, Texas**, (hereinafter the "City"), or its assigns, and the City agrees to purchase, the following described certain real property for the consideration and subject to the terms herein stated, as follows:

*Wastewater Easement Parcel:* All that certain tract, piece or parcel of land consisting of 29,715 square feet, more or less, being situated in Travis County, Texas, and as more particularly described in Exhibit "A," attached hereto and made part hereof for all purposes.

*Temporary Construction Easement Parcel:* All that certain tract, piece or parcel of land consisting of 36,808 square feet, more or less, being situated in Travis County, Texas, and as more particularly depicted and labeled "25' T. C. E." on sketch in Exhibit "A," attached hereto and made part hereof for all purposes.

**Total Price.** ONE HUNDRED FIFTEEN THOUSAND ONE HUNDRED NINETY-FOUR AND NO/100'S DOLLARS (**\$115,194.00**) total shall be paid by the City for a permanent and temporary easement to the Wastewater Easement Parcel and Temporary Construction Easement Parcel and for which no lien or encumbrances, expressed or implied, including current taxes, will be retained. The TOTAL PRICE shall be inclusive of all land and any improvements situated thereon.

**Closing.** Owner and the City will finalize this purchase by Closing on or before sixty (60) days after full execution of this Agreement (but not before all Other Interests have been satisfied by Owner as described below), which date is hereinafter referred to as the Closing or Closing date. The Closing shall occur at Longhorn Title Company, Inc., 3613 Williams Drive, Suite 204, Georgetown, Texas 78628.

**Title, Final Possession.** Owner agrees at Closing to convey to the City a wastewater easement and temporary construction easement to the tract described above for the consideration described. Owner agrees to surrender final possession of the above-described tract to the City at the time of closing.

**Other Interests.** Notwithstanding anything herein contained to the contrary, it is a condition precedent to Owner's obligations under this contract that all lienholders execute and

deliver a subordination or lender consent to easement covering the property hereinabove described on or before Closing. Also, it is a condition precedent to Owner's obligations under this contract that the interests of any parties in possession, easement holders, or any other interest holders be satisfied by Owner such that said interests are released from the property hereinabove described on or before Closing.

**Wastewater Easement and Temporary Construction Easement.** Owner shall deliver to the City at Closing a duly executed and acknowledged Wastewater Easement and Temporary Construction Easement in substantially the form and substance as set out in Exhibit "B" attached hereto and incorporated herein. The City agrees to prepare the Wastewater Easement and Temporary Construction Easement in substantially the form set out in Exhibit "B" at no expense to Owner and to pay the costs of title insurance and any applicable Closing costs.

**Utility stub-outs.** As additional consideration, the City agrees to construct two (2) 8" utility stub-out connection points for Owner to connect to the wastewater line the City is to construct within the Permanent Easement after Closing. Prior to actual connection through the stub-outs, Owner agrees to make the appropriate wastewater service connection application with the City, and to pay all applicable connection fees, including impact fees. The stub-outs to be extended according to this Agreement shall be in the locations depicted on Exhibit "C," attached hereto.

**Payment.** The City agrees to pay to Owner, upon delivery of the properly executed instruments of conveyance described herein, the above-described Total Price.

**Entire Agreement.** The Purchase Contract supersedes any and all other agreements either oral or written between Owner and the City with respect to the tract described above and any improvements located thereon.

**Imminence of Condemnation.** Owner and the City agree that the tract described above is being conveyed to the City under the imminence of condemnation, as that term is used in the United States Internal Revenue Code.

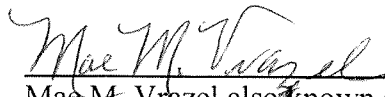
**Right of Re-Purchase if Public Use is Cancelled.** Pursuant to Tex. Prop. Code Sec. 21.023, the City hereby advises Owner, and Owner hereby acknowledges, of the following: should the City acquire Owner's property through eminent domain, (1) Owner or Owner's heirs, successors, or assigns may be entitled to: (A) repurchase the property pursuant to Tex. Prop. Code Secs. 21.101 – 21.103; or (B) request from the City certain information relating to the use of the property and any actual progress made toward that use; and (2) the repurchase price is the price paid to Owner at the time the City acquires the property through eminent domain.

**Compliance.** Owner agrees to comply with all terms of this Purchase Contract and agrees that the permanent and temporary easement rights to the above-described tract shall vest in the City and be effective from and after Closing.

**Formal Approval.** Owner and the City agree that this contract is subject to approval by the City Council of the City of Manor.

**Effective Date.** This Purchase Contract shall be effective upon the last date indicated below.

**OWNER:**

  
 Mae M. Vrazel also known as  
 Minne Mae Harbers Vrazel

10-27-23  
 Date

**BUYER:**

**CITY OF MANOR, TEXAS**  
**A Texas home-rule municipality**

By: \_\_\_\_\_  
 Dr. Christopher Harvey, Mayor  
 City of Manor, Texas

\_\_\_\_\_  
 Date

Parcel No. 7  
 Project: Manor Commercial Park Project  
 TCAD Tax ID: 236873

**FIELD NOTES FOR A 29,715 SQUARE FOOT WASTEWATER EASEMENT:**

A **29,715 square foot** Wastewater Easement, located in the A. C. Caldwell Survey #52, Abstract No. 154, in Travis County, Texas, being a portion of a called 21.69 acre tract of land as described in Document No. 2020146894, of the Official Public Records of Travis County, Texas. Said **29,715 square foot** Wastewater Easement being more particularly described by metes and bounds as follows:

**BEGINNING** at a found 1" iron pipe in the south line of U.S. Highway No. 290, a variable width right-of-way as depicted on State Department of Highways and Public Transportation, Plan of Proposed Right of Way Project, Account Number 8014-1-78, for the most north common corner of said 21.69 acre tract and Lot 1, Kimbro Business Park, a plat of record in Volume 85, Pages 187D and 188A, of the Plat Records of Travis County, Texas, from which a found 1/2" iron rod in said south line, for the north common corner of said Lot 1 and Lot 2, in said Kimbro Business Park, bears N 85° 55' 57" E, with the south line of said U.S. Highway No. 290 and the north line of said Lot 1, a distance of 349.30 feet;

**THENCE:** S 27° 13' 47" W, with the east line of said 21.69 acre tract, the west line of said Lot 1 and the west line of a called 21.152 acre tract of land as described in Document No. 2020095917, of said Official Public Records, a distance of **1,200.28 feet**, to a set 1/2" iron rod with a pink cap stamped "GBA 10194808" for the southeast corner of said 21.69 acre tract and a west corner of said 21.152 acre tract;

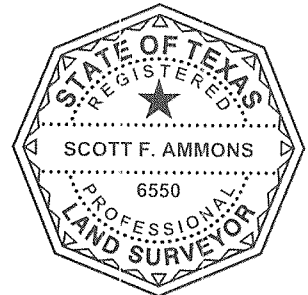
**THENCE:** N 63° 25' 36" W, with the south line of said 21.69 acre tract, a north line of said 21.152 acre tract and the north line of Lot 7, Block 5, Manor Commercial Park III, a plat of record in Document No. 200500033, of said Official Public Records, a distance of **311.44 feet**, to a point for corner, from which a found 1/2" iron rod in the north line of Lot 5, Block 5, said Manor Commercial Park III, for the southwest corner of said 21.69 acre tract and the southeast corner of Lot 2, Block 5, in said Manor Commercial Park III, bears N 63° 25' 36" W, with the south line of said 21.69 acre tract and the north line of said Manor Commercial Park III, a distance of 783.38 feet;

**THENCE:** Over and across said 21.69 acre tract, the following three (3) courses:

1. N 27° 16' 24" E, a distance of **20.00 feet**, to a point for corner;
2. S 63° 25' 36" E, a distance of **291.43 feet**, to a point for corner;
3. N 27° 13' 47" E, a distance of **1,168.35 feet**, to a point in the south line of said U.S. Highway No. 290 and the north line of said 21.69 acre tract, for corner, from which a found TxDOT Type I monument in said south line, bears S 85° 55' 57" W, with said south line, a distance of 1,554.85 feet;

**THENCE:** N 85° 55' 57" E, with said south line and said north line, a distance of **23.41 feet**, to the **POINT OF BEGINNING** and containing **29,715 square feet** of land, situated in Travis County, Texas.

Bearings are based on the State Plane Coordinate System of the Texas, Central Zone (4203), North American Datum of 1983. Field work was completed on July 17, 2023.



*Handwritten signature of Scott F. Ammons*

**FIELD NOTES FOR A 36,808 SQUARE FOOT TEMPORARY CONSTRUCTION EASEMENT:**

A **36,808 square foot** Temporary Construction Easement, located in the A. C. Caldwell Survey #52, Abstract No. 154, in Travis County, Texas, being a portion of a called 21.69 acre tract of land as described in Document No. 2020146894, of the Official Public Records of Travis County, Texas. Said **36,808 square foot** Temporary Construction Easement being more particularly described by metes and bounds as follows:

**BEGINNING** at a point in the north line of said 21.69 acre tract and the south line of U.S. Highway No. 290, a variable width right-of-way as depicted on State Department of Highways and Public Transportation, Plan of Proposed Right of Way Project, Account Number 8014-1-78, from which a found 1" iron pipe in said south line, for the north common corner of said 21.69 acre tract and Lot 1, Kimbro Business Park, a plat of record in Volume 86, Pages 187D and 188A, of the Plat Records of Travis County, Texas, bears N 85° 55' 57" E, with said north line and said south line, a distance of 23.41 feet;

**THENCE:** Over and across said 21.69 acre tract, the following three (3) courses:

1. S 27° 13' 47" W, a distance of **1,168.35 feet**, to a point for corner;
2. N 63° 25' 36" W, a distance of **291.43 feet**, to a point for corner;
3. S 27° 16' 24" W, a distance of **20.00 feet**, to a point in the south line of said 21.69 acre tract and the north line of Lot 7, Block 5, Manor Commercial Park III, a plat of record in Document No. 200500033, of said Official Public Records, for corner;

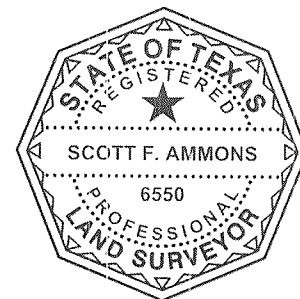
**THENCE:** N 63° 25' 36" W, with said south line and said north line, a distance of **25.00 feet**, to a point for corner, from which a found 1/2" iron rod in the north line of Lot 5, Block 5, said Manor Commercial Park III, for the southwest corner of said 21.69 acre tract and the southeast corner of Lot 2, Block 5, in said Manor Commercial Park III, bears N 63° 25' 36" W, with the south line of said 21.69 acre tract and the north line of said Manor Commercial Park III, a distance of 758.38 feet;

**THENCE:** Over and across said 21.69 acre tract, the following three (3) courses:

1. N 27° 16' 24" E, a distance of **45.00 feet**, to a point for corner;
2. S 63° 25' 36" E, a distance of **291.41 feet**, to a point for corner;
3. N 27° 13' 47" E, a distance of **1,128.43 feet**, to a point in the south line of said U.S. Highway No. 290 and the north line of said 21.69 acre tract, for corner, from which a found TxDOT Type I monument in said south line, bears S 85° 55' 57" W, with said south line, a distance of 1,525.59 feet;

**THENCE:** N 85° 55' 57" E, with said south line and said north line, a distance of **29.26 feet**, to the **POINT OF BEGINNING** and containing **36,808 square feet** of land, situated in Travis County, Texas.

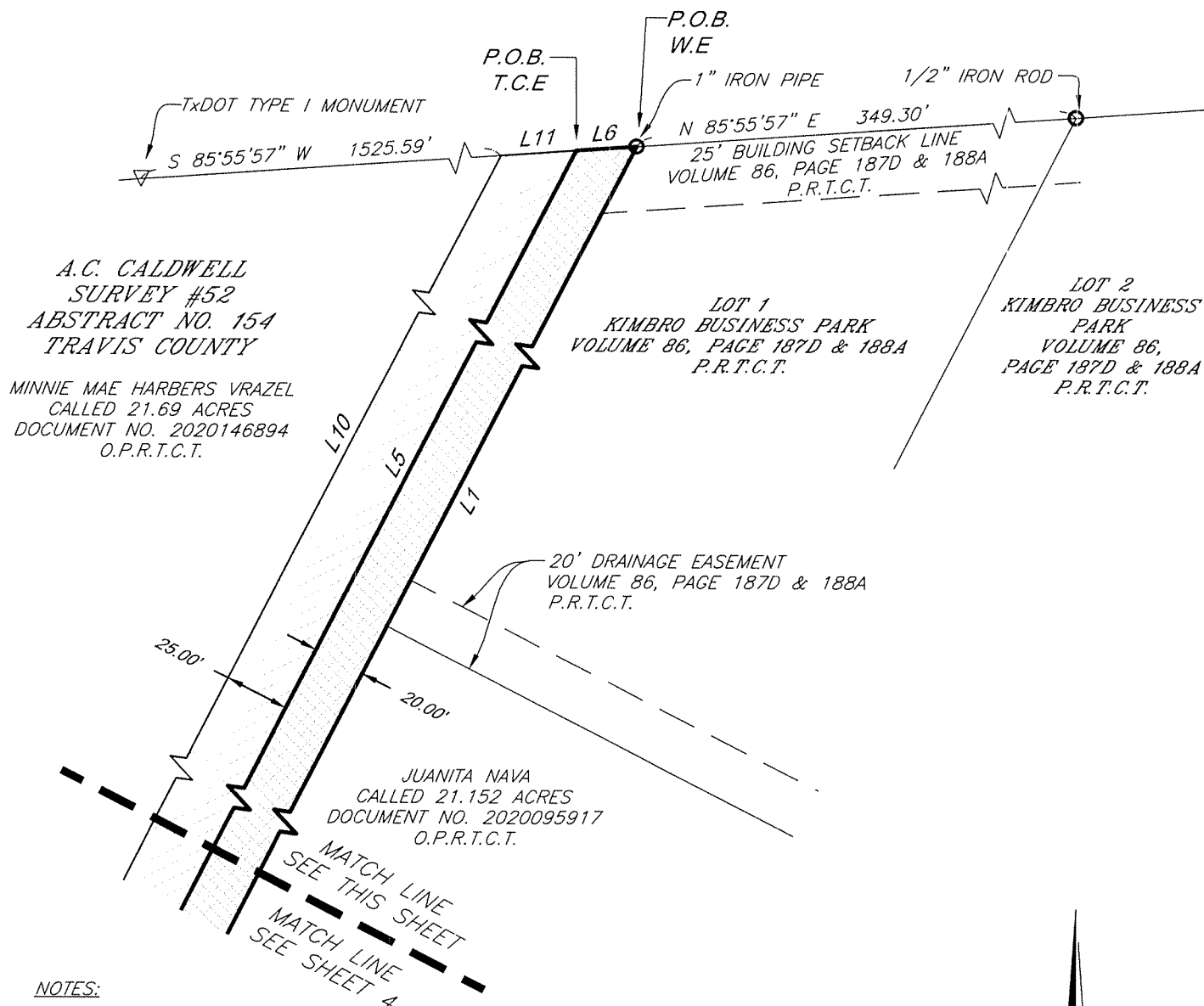
Bearings are based on the State Plane Coordinate System of the Texas, Central Zone (4203), North American Datum of 1983. Field work was completed on July 17, 2023.




*Handwritten signature of Scott F. Ammons*




**U.S. HIGHWAY NO. 290  
(VARIABLE WIDTH RIGHT-OF-WAY)  
TxDOT ACCOUNT NUMBER 8014-1-78  
TxDOT CONTROL NUMBERS  
114-2-43, 114-3-18, & 114-4-37**

**NOTES:**

1. BEARINGS BASED ON TEXAS STATE PLANE COORDINATES, CENTRAL ZONE, 4203, NAD83-US SURVEY FEET.

 Denotes W.W.E.  
29,715 Square Feet

 Denotes T.C.E.  
36,808 Square Feet

Scale : 1"=60'



**GBA**  
architects  
engineers

© George Butler Associates, Inc.  
2023

2301 Double Creek Drive  
Building 1, Suite 110  
Round Rock, Texas 78664  
512.616.0055  
www.gbateam.com  
TBPELS FIRM #10194808

PROJECT NUMBER

15072

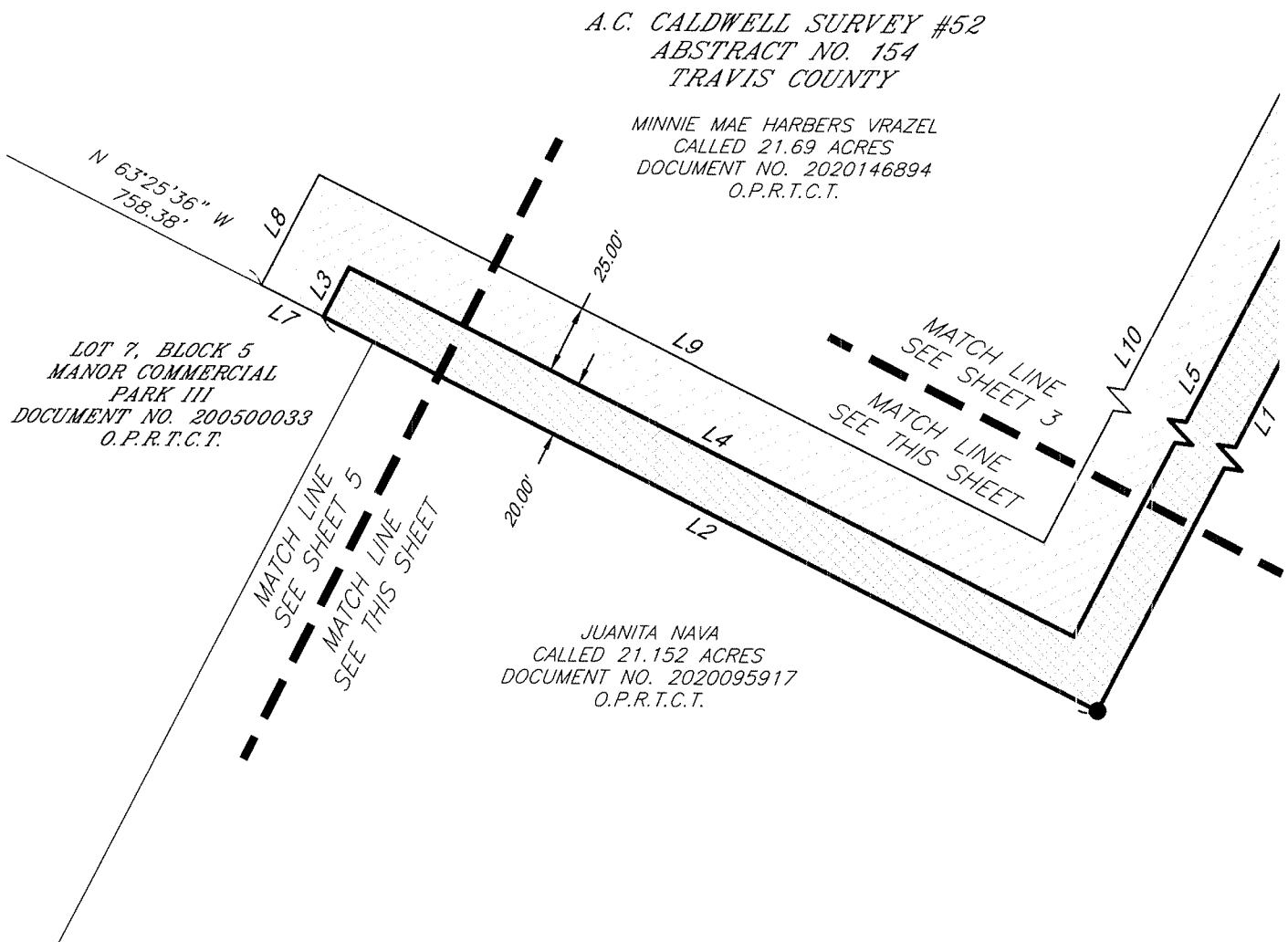
DATE

09/12/2023

*Exhibit "A"*  
**Wastewater Easement  
Manor, Travis Co., TX**


SHEET NUMBER


**3 of 6**

**NOTES:**

1. BEARINGS BASED ON TEXAS STATE PLANE COORDINATES, CENTRAL ZONE, 4203, NAD83-US SURVEY FEET.



 Denotes W.W.E.  
29,715 Square Feet

 Denotes T.C.E.  
36,808 Square Feet

Scale : 1"=60'

**GBA**  
architects  
engineers  
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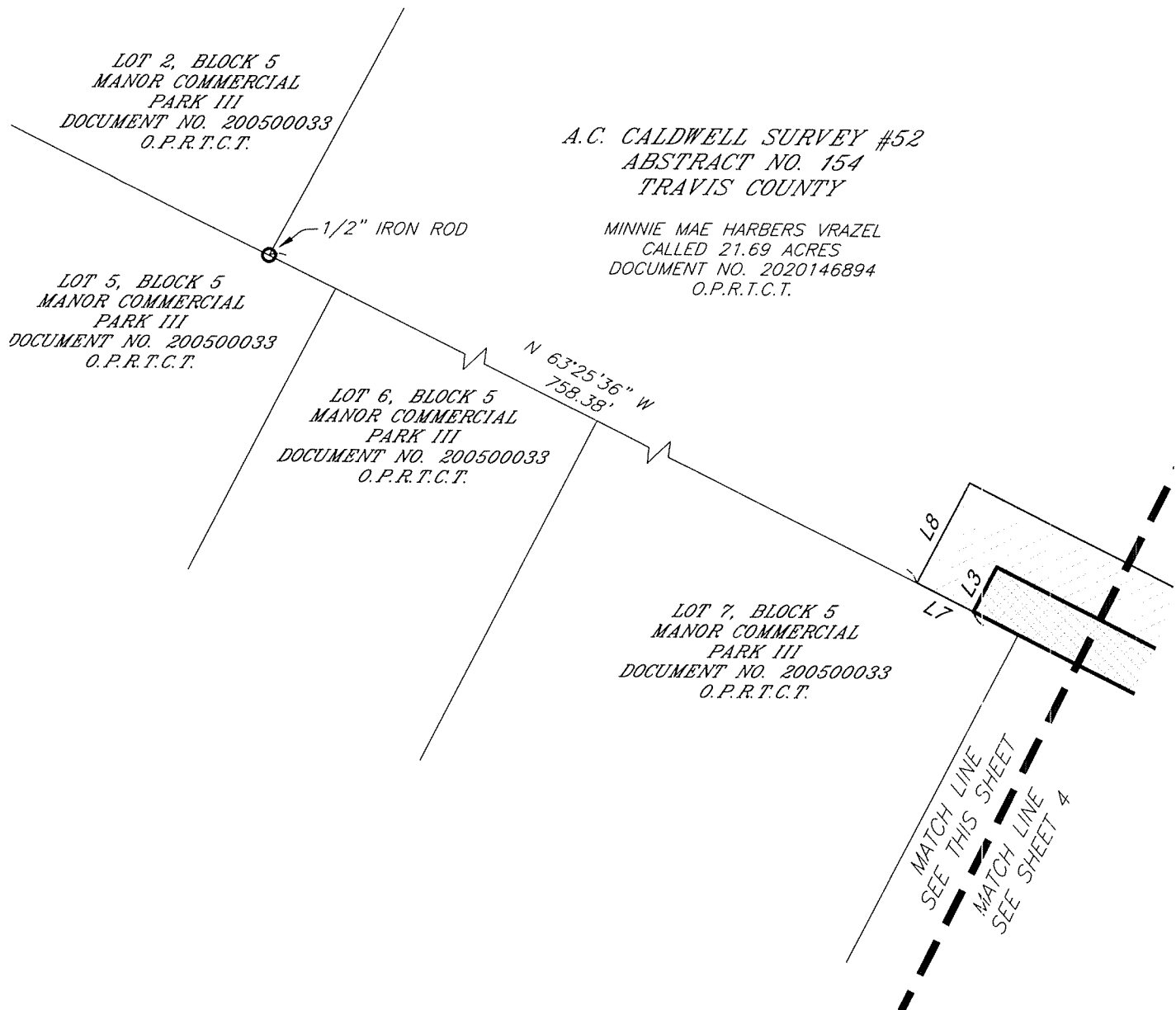
DATE

09/13/2023


Exhibit "A"  
Wastewater Easement  
Manor, Travis Co., TX


SHEET NUMBER

**4 of 6**

**NOTES:**

1. BEARINGS BASED ON TEXAS STATE PLANE COORDINATES, CENTRAL ZONE, 4203, NAD83-US SURVEY FEET.

 Denotes W.W.E.  
29,715 Square Feet

 Denotes T.C.E.  
36,808 Square Feet

Scale : 1"=60'

**GBA**  
architects  
engineers  
© George Butler Associates, Inc.  
2023

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TBPELS FIRM #10194808

PROJECT NUMBER

15072

DATE

09/13/2023

Exhibit "A"  
Wastewater Easement  
Manor, Travis Co., TX

SHEET NUMBER

5 of 6

<i>Line Table</i>		
<i>Line #</i>	<i>Bearing</i>	<i>Distance</i>
L1	S 27° 13' 47" W	1200.28'
L2	N 63° 25' 36" W	311.44'
L3	N 27° 16' 24" E	20.00'
L4	S 63° 25' 36" E	291.43'
L5	N 27° 13' 47" E	1168.35'
L6	N 85° 55' 57" E	23.41'
L7	N 63° 25' 36" W	25.00'
L8	N 27° 16' 24" E	45.00'
L9	S 63° 25' 36" E	291.41'
L10	N 27° 13' 47" E	1128.43'
L11	N 85° 55' 57" E	29.26'

LEGEND

▽	FOUND TxDOT TYPE I MONUMENT
●	SET 1/2" IRON ROD WITH A PINK CAP STAMPED "GBA 10194808"
○	PROPERTY CORNER FOUND AS NOTED
P.O.B.	POINT OF BEGINNING
T.C.E.	TEMPORARY CONSTRUCTION EASEMENT
W.W.E.	WASTEWATER EASEMENT
O.P.R.T.C.T.	OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY TEXAS
P.R.T.C.T.	PLAT RECORDS OF TRAVIS COUNTY TEXAS

This is to certify that this real property exhibit was prepared by me or under my direct supervision. This exhibit does not warrant that a boundary survey was performed upon the hereon shown tract of land.



SCOTT F. AMMONS 09/13/2023  
REGISTERED PUBLIC LAND SURVEYOR NO. 6550  
STATE OF TEXAS



2301 Double Creek Drive  
Building 1, Suite 110  
Round Rock, Texas 78664  
512.616.0055  
www.gbateam.com  
TBPELS FIRM #10194808

PROJECT NUMBER  
15072

DATE  
09/13/2023

Exhibit "A"  
Wastewater Easement  
Manor, Travis Co., TX

SHEET NUMBER

6 of 6

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM THIS INSTRUMENT BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

**EXHIBIT "B"**  
**WASTEWATER EASEMENT  
 AND TEMPORARY WORKSPACE EASEMENT**

**THE STATE OF TEXAS**

§  
§  
§

**COUNTY OF TRAVIS**

That, **Mae M. Vrazel also known as Minnie Mae Harbers Vrazel ("Grantor")**, whether one or more, for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration, to **Grantor** in hand paid by **City of Manor, Texas**, a Texas home-rule municipality situated in Travis County, Texas ("**Grantee**"), the receipt and sufficiency of which is hereby acknowledged and confessed, and for which no lien or encumbrance, expressed or implied, is retained, has this day GRANTED, SOLD, and CONVEYED and by these presents does GRANT, SELL, and CONVEY unto **Grantee**, a permanent easement for purposes of construction, reconstruction, operation, maintenance, repair, upgrade, and/or removal of wastewater lines, facilities, connections therewith, manholes, vents, and all necessary appurtenances thereto (the "**Project**"), upon, across, under, and through all or any portion of the following described property:

A tract of land consisting of 29,715 square feet, more or less, being more particularly described by metes and bounds and sketch in the attached Exhibit "A," hereby incorporated by reference and made a part hereof for all purposes, with said 29,715 square foot parcel being referred to hereafter as the **Permanent Easement**.

In addition to the rights in the **Permanent Easement**, **Grantor** also hereby grants unto **Grantee** a **Temporary Workspace Easement** over that certain 25' wide strip of land abutting the Permanent Easement to the west and north being approximately 36,808 square feet in size, more or less, and being depicted graphically on Exhibit "A" as "25' T. C. E." for any and all purposes incident to effectuating the **Project**, including but not limited to construction staging, equipment storage, temporary spoil storage, and access. The duration of said **Temporary Workspace Easement** shall not exceed twelve (12) months, commencing upon **Grantee's** commencement of excavation for the **Project** within the **Permanent Easement** and terminating upon the earlier of **Grantee's** completion of the **Project** or the expiration of twelve (12) months from **Grantee's** commencement of work, whichever date first occurs. **Grantee** shall have the right to utilize all materials excavated from the **Permanent Easement** during the **Project** for uses incident to the **Project**.

The right to use the Easements shall belong to the **Grantee** and its agents, employees, designees, contractors, guests, invitees, successors and assigns, and all those acting by or on behalf of it for the purposes of installation, construction, operation, maintenance, monitoring, replacement, upgrading, repairing, or removing in whole or in part, a wastewater pipeline and appurtenances thereto.

**Grantee** shall have the right to unimpaired ingress and egress, entry and access in, to, through, on, over, under, and across the **Permanent Easement** and **Temporary Workspace Easement**. **Grantee** shall promptly repair any damage to any of **Grantor's** existing roads or surface caused by **Grantee** so as to maintain the roads or surface in as good as or better condition as existed prior to use by **Grantee**.

**Grantor** may use the Easements for any and all purposes not inconsistent with the purposes set forth in this Agreement, including but not limited to parking, access drives, landscaping, and lighting. **Grantor** may not erect permanent building structures within the **Permanent Easement**, however, and **Grantor** may not use any part of the Easements if such use may otherwise damage, destroy, injure, and/or interfere with **Grantee's** use of the Easements for the purposes for which the Easements are being sought by **Grantee**, in **Grantee's** sole determination.

**Grantor** shall retain all the oil, gas, and other minerals in, on and under the **Permanent Easement** and **Temporary Workspace Easement**.

**Grantee** shall have the right to remove any fence which now crosses or may cross the Easements during initial construction of the **Project**. **Grantee** shall replace all such fencing or gates with gates or fencing of the same or better quality, type, and dimension as existed prior to **Grantee's** work.

**Grantee** agrees that upon completion of construction of the Project, **Grantee** shall remove and dispose of all debris, trash, and litter resulting from construction. **Grantee** shall be obligated to restore the surface of the **Permanent Easement** and the **Temporary Workspace Easement** area at **Grantee's** sole cost and expense as nearly as reasonably possible in **Grantee's** sole determination to the same condition in which the surface was immediately before initial construction, including the restoration of any fencing, sidewalks, landscaping, or similar surface improvements located upon or adjacent to the **Permanent Easement** which may have been removed, relocated, altered, damaged, or destroyed as a result of the **Grantee's** initial use of the easements granted hereunder, except that **Grantee** shall not be obligated to replace trees or vegetation other than groundcover.

This Agreement shall be interpreted in accordance with the laws of the state of Texas and all applicable federal laws (without regard to any conflicts-of-law rule or principle that would require the application of same to the laws of another jurisdiction).

This Agreement contains the entire agreement and supersedes any and all prior oral understandings and/or agreements, if any, concerning the subject of the Agreement.

TO HAVE AND TO HOLD the above-described easement, together with all and singular the rights and appurtenances thereto in anywise belonging unto **Grantee**, and **Grantee's** heirs, executors, administrators, successors and assigns forever; and **Grantor** does hereby bind **Grantor**, their heirs, executors, administrators, successors and assigns to WARRANT AND FOREVER DEFEND all and singular the easement unto **Grantee** and **Grantee's** heirs, executors, administrators, successors and assigns against every person whomsoever lawfully claiming or to claim the same, or any part thereof, together with the privilege at any and all times to enter said premises, or any part thereof, for the purpose of constructing, operating, maintaining, replacing, upgrading and repairing said public wastewater utility lines, and for making connections therewith.

**GRANTOR:**

\_\_\_\_\_  
Mae M. Vrazel also known as  
Minnie Mae Harbers Vrazel

\_\_\_\_\_  
Date

**ACCEPTED:**

**GRANTEE: City of Manor, Texas:**

\_\_\_\_\_  
By: Dr. Christopher Harvey, Mayor

## \*\*\*\*\* NOTARY ACKNOWLEDGEMENTS \*\*\*\*\*

THE STATE OF TEXAS

§

COUNTY OF TRAVIS

§

§

The foregoing instrument was executed before me by Mae M. Vrazel also known as Minnie Mae Harbers Vrazel on this the \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
Notary Public-State of Texas

THE STATE OF TEXAS

§

COUNTY OF TRAVIS

§

§

**BEFORE ME**, the undersigned authority, a Notary Public in and for said County and State, on this the \_\_\_\_\_ day of \_\_\_\_\_ 2023, personally appeared Dr. Christopher Harvey, Mayor of City of Manor, Grantee herein, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he executed the same for the purposes and consideration therein expressed and in the capacity therein stated.

\_\_\_\_\_  
Notary Public-State of Texas

**Project Name:** Manor Commercial Park Project  
**Parcel No.** 7  
**TCAD PID No.:** 236873

**AFTER RECORDING RETURN TO:**

City of Manor  
105 E. Eggleston  
Manor, Texas 78653







## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Scott Dunlop, Director  
**DEPARTMENT:** Development Services

### AGENDA ITEM DESCRIPTION:

Consideration, discussion, and possible action on a Supplement to the Agreement for Street Lighting Service by and between Oncor Electric Delivery Company and the City of Manor for street light service within the Monarch Ranch Subdivision.

### BACKGROUND/SUMMARY:

This is a standard agreement that amends our existing agreement to provide for streetlights within a phase of a new development (Monarch Ranch) that is within Oncor's service area.

**LEGAL REVIEW:** Yes, Veronica Rivera, Assistant City Attorney  
**FISCAL IMPACT:** No  
**PRESENTATION:** No  
**ATTACHMENTS:** Yes

- Agreement

### STAFF RECOMMENDATION:

It is the city staff's recommendation that the City Council approve a Supplement to the Agreement for Street Lighting Service by and between Oncor Electric Delivery Company and the City of Manor for street light service within the Monarch Ranch Subdivision.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**



October 26, 2023

WO Number: 20932860

**Oncor Electric Delivery****Lauren Simpson**

3487 County Road 100

Hutto, Texas 78634

Office (512) 244.5619

Cell: (512) 592.8334

RE: Monarch Ranch, Manor – Metes &amp; Bounds Requirements

Enclosed please find and executable copy of the Easement Information Form. Please complete this form via DocuSign and use the attachments link to provide the necessary supporting documents at your earliest convenience. This form helps in generating the formal easement documents required for this project.

Included within are the requirements for a customer provided Exhibit “A”. Please follow these directions for creating the required Exhibit “A”. As soon as you have this completed please send a soft copy to my email address for review.

Once the customer provided Exhibit “A” has been approved, the formal easement documents will be sent over for execution.

Please sign this cover letter, via DocuSign, indicating your receipt of these documents and understanding of the requirements for a customer provided Exhibit “A”.

If any additional information is required, please feel free to contact me.

Sincerely,

DocuSigned by:  
  
61651DB12FCA445...

Lauren Simpson  
New Construction Manager  
Oncor | Project Management & Design Services

Please sign below indicating that your receipt of these documents & understanding of the requirements for a customer provided Exhibit “A”

Name: Scott Dunlop Title: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**EXHIBIT "A" – Registered**

**WR #:** 20932860 **Project Name:** Monarch Ranch

**SUPPLEMENT TO THE AGREEMENT FOR STREET LIGHTING SERVICE BY AND BETWEEN  
ONCOR ELECTRIC DELIVERY COMPANY AND City of Manor**

This Supplement ("Supplement") to the Agreement for Street Lighting Service dated 06/29/2005 ("Agreement"), is made and entered into this 31st day of October, 2023, by Oncor Electric Delivery Company LLC, a Delaware limited liability company ("Company") and City of Manor, ("Customer") both hereinafter referred to as the "Parties." In consideration of the mutual promises and undertakings herein set forth, the Parties hereby agree to amend the Agreement as follows:

1. The following Request for Street Lighting Service is hereby added to the Agreement:

Request for Street Lighting Service dated 10/31/2023, attached hereto.

2. This Supplement shall become effective upon execution by the Parties.
3. This Supplement is subject to the terms and conditions of the Agreement.
4. If Customer has arranged for its designated agent or representative ("Customer's Agent") to pay to Company the contribution-in-aid-of-construction ("CIAC") referenced in the Agreement, then Customer's Agent shall execute this Amendment for the sole purpose of establishing such agent's agreement to pay such CIAC.
5. Except as otherwise provided herein, the Agreement shall continue in full force and effect in accordance with its terms.

IN WITNESS HEREOF, the Parties have caused this Supplement to be executed in several counterparts, each of which shall be deemed an original but all shall constitute one and the same instrument.

ONCOR ELECTRIC DELIVERY COMPANY

DocuSigned by:

*Lauren Simpson*

61651DB12FCA445...

Signature - Oncor Representative

Lauren Simpson

Printed Name – Oncor Representative

New Construction Manager

Title - Oncor Representative

10/31/2023 | 11:59:00 AM CDT

Date Signed – Oncor Representative

City of Manor

Signature – Customer Representative

Scott Moore

Printed Name – Customer Representative

Title – Customer Representative

Date Signed – Customer Representative

\*\*\*\*\*  
*\*\*For CIAC purposes only pursuant to Section (4) above\*\**

Signature – Customer's Agent

Printed Name – Customer's Agent

Title - Customer's Agent

Date Signed – Customer's Agent



## EXHIBIT “B” – WR

Item 4.

## REQUEST FOR STREET LIGHTING SERVICE

Actions: **A**-Addition **R**-Removal **RL**-Relocation **S**-Service (Schedule D – Only)

ESID Premise	Action	Order required from CR to Energize – Yes/No (For New ESID Only)	Qty	Wattage	Lamp Type	Rate Schedule**	Identifying Luminaire/ Pole Type	Location (Address, etc.) (See Attached Sketch)
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 094 – SID: 3037643-09753488
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 093 – SID: 3037680-09753445
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 092 – SID: 3037730-09753392
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 091 – SID: 3037773-09753374
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 059 – SID: 3037655-09753389
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 095 – SID: 3037617-09753339
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 096 – SID: 3037589-09753300
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 097 – SID: 3037562-09753242
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 099 – SID: 3037627-09753179
7881213	A	NO	1	55	LC	A	LEDCH55/SLPR28	WS 098 – SID: 3037612-0975310
<b>Comments:</b> Monarch Ranch Subdivision								

\*\*Unmetered Facilities -- Schedule A (Group 1 or 2), B (Group 1 or 2), C (Group 1 or 2), or D; R (Rectangular); P (Post-Top); H (Historical) ;  
CLOSED/REMOVE ONLY I (Incandescent); W (Wallpack Mercury Vapor);  
Metered Facilities – Non-Company-Owned; or  
Metered Facilities – Company-Owned (closed to new installations)

1. Customer or Developer agrees to pay Company contribution-in-aid-of-construction in the amount of \$ 0.00.

2. If Company is prevented from installing the requested facilities by any event of force majeure as defined in Section 5.2.4 of Company's Tariff for Retail Delivery Service, Company will return to Customer or Developer as appropriate, without interest, the entire amount of Customer or Developer's contribution-in-aid-of-construction payment, thereby terminating this supplement and Company's obligation to provide facilities requested herein.

WR Number(s): 20932860

Date: 10/31/2023





# ELECTRIC CONSTRUCTION PRINT

WO Number: **20932860-01** Date: **2023/10/24** Description: **Monarch Ranch Subdivision - SW corner of Gregg Lane and FM 973 Manor 78653**

Sheet: **1** of **1** Scale: **[SCALE]** Customer:

Job Status: **Design** Svc Ctr / Office: **/** Address: **SW Corner of Gregg Lane and FM 973, MANOR, 78653 ,**

Designer: **GOMEZ, LAUREN/** Location:

Project Mgr: **SIMPSON, LAUREN/**

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## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Audrey Guthrie, Associate Attorney  
**DEPARTMENT:** Legal

### AGENDA ITEM DESCRIPTION:

Consideration, discussion, and possible action to place liens on properties that were abated for violations of Manor Code of Ordinance Article 6.03 for tall grass, litter, and junk on properties.

### BACKGROUND/SUMMARY:

On July 15 and 16, 2023, the following properties:

- 106 Wheeler St. (TCAD # 238607),
- 408 Parsons St (TCAD # 238681), and
- East Burton St.(TCAD # 235668)

were each separately noticed for violations of Article 6.03 of the Manor Code of Ordinances for tall grass as well as litter and junk on these properties. After notice of the violations and an opportunity for compliance, the owners did not remedy their violations. The City Code Enforcement abated the nuisances by hiring a third-party contractor to bring each property into compliance with the city code. The City placed a lien on the properties for the cost of the abatement to clean up the properties.

The Code Enforcement Division will continue to work with property owners on a regular basis to keep their yards in compliance with city codes. There may be a possibility to establish a partnership for property owners who do not have the means or resources to maintain their properties to utilize volunteers and business partners with the tools and equipment to be rented or loaned out for community service initiatives in the future. This request will come back to the City Council for further discussion and direction to move forward with.

**LEGAL REVIEW:** Yes, Audrey Guthrie, Associate Attorney  
**FISCAL IMPACT:** No  
**PRESENTATION:** No  
**ATTACHMENTS:** Yes

- 106 W. Wheeler Lien
- 408 W. Parsons Lien
- E. Burton St. Lien

### STAFF RECOMMENDATION:

The city staff recommends that the City Council acknowledges and places liens on properties that were abated for violations of Manor Code of Ordinance Article 6.03 for tall grass, litter, and junk on properties as presented; and authorize the City Manager to execute the liens.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**

### NOTICE OF LIEN

Pursuant to Chapter 342 of the Texas Health and Safety Code, and Chapter 6, of the City of Manor Code of Ordinances, the City of Manor, a Texas Home Rule Municipal Corporation situated in the County of Travis, State of Texas, acting by its duly authorized representatives and under its authority, on July 15, 2023, and after notice as required by said ordinances, has caused valuable work, to-wit: cutting and removal of weeds and debris, to be done with respect to certain real property situated within the corporate limits of the City of Leander, Travis County, Texas, and described as follows:

Legal Description: **LOT 10 BLK 48 MANOR TOWN OF MH S#PH 2**

TCAD Property ID: **238607**

Property Address: 106 West Wheeler St., Manor, Texas 78653

The City of Manor, in connection with such work or improvements, has expended and has heretofore determined the reasonable value of such work or improvements, including expenses to be the sum of \$725.00, Seven hundred and twenty-five dollars and zero cents. Pursuant to said statute and ordinances, the City of Manor has become vested with, and by this instrument does hereby perfect, a privileged lien against the property hereinabove described, to secure the payment of the said sum stated above, plus interest thereon at the rate of ten percent (10%) per annum from the date of recording of this instrument in the Official Records of Travis County, Texas, to the date of full payment for such work or improvements; the lien hereby created being inferior only to a valid and existing tax lien or assessment lien for street improvements. The governing body of the City of Manor may bring a suit for foreclosure in the name of the municipality to recover the expenditures and interest due.

Executed by me, by the authority of the City of Manor, this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

**ATTEST:**

**CITY OF MANOR**

\_\_\_\_\_  
Lluvia Almaraz  
City Secretary, City of Manor

\_\_\_\_\_  
Scott Moore, City Manager

**STATE OF TEXXAS  
COUNTY OF TRAVIS**

**CORPORATE ACKNOWLEDGMENT**

**BEFORE ME**, the undersigned authority, on this day personally appeared Scott Moore, a person known to me, in his capacity as City Manager of the City of Manor, a Texas Home Rule Municipal Corporation situated in Travis County, Texas, and acknowledged to me that he executed this Notice of Lien on behalf of the City of Manor, for the purposes therein expressed.

**WITNESSED MY HAND AND SEAL OF OFFICE THIS** \_\_\_\_\_ day of \_\_\_\_\_, 2023.



### NOTICE OF LIEN

Pursuant to Chapter 342 of the Texas Health and Safety Code, and Chapter 6, of the City of Manor Code of Ordinances, the City of Manor, a Texas Home Rule Municipal Corporation situated in the County of Travis, State of Texas, acting by its duly authorized representatives and under its authority, on July 15, 2023, and after notice as required by said ordinances, has caused valuable work, to-wit: cutting and removal of weeds and debris, to be done with respect to certain real property situated within the corporate limits of the City of Leander, Travis County, Texas, and described as follows:

Legal Description: **ABS 546 SUR 40 MANOR J ACR 0.3800**

TCAD Property ID           **238681**

Property Address: 408 West Parsons St., Manor, Texas 78653

The City of Manor, in connection with such work or improvements, has expended and has heretofore determined the reasonable value of such work or improvements, including expenses to be the sum of \$1,070.00, One-thousand, seventy dollars and zero cents. Pursuant to said statute and ordinances, the City of Manor has become vested with, and by this instrument does hereby perfect, a privileged lien against the property hereinabove described, to secure the payment of the said sum stated above, plus interest thereon at the rate of ten percent (10%) per annum from the date of recording of this instrument in the Official Records of Travis County, Texas, to the date of full payment for such work or improvements; the lien hereby created being inferior only to a valid and existing tax lien or assessment lien for street improvements. The governing body of the City of Manor may bring a suit for foreclosure in the name of the municipality to recover the expenditures and interest due.

Executed by me, by the authority of the City of Manor, this \_\_\_\_ day of \_\_\_\_\_, 2023.

**ATTEST:**

**CITY OF MANOR**

\_\_\_\_\_  
Lluvia Almaraz  
City Secretary, City of Manor

\_\_\_\_\_  
Scott Moore, City Manager

**STATE OF TEXXAS  
COUNTY OF TRAVIS**

**CORPORATE ACKNOWLEDGMENT**

**BEFORE ME**, the undersigned authority, on this day personally appeared Scott Moore, a person known to me, in his capacity as City Manager of the City of Manor, a Texas Home Rule Municipal Corporation situated in Travis County, Texas, and acknowledged to me that he executed this Notice of Lien on behalf of the City of Manor, for the purposes therein expressed.

**WITNESSED MY HAND AND SEAL OF OFFICE THIS** \_\_\_\_ day of \_\_\_\_\_, 2023.

### NOTICE OF LIEN

Pursuant to Chapter 342 of the Texas Health and Safety Code, and Chapter 6, of the City of Manor Code of Ordinances, the City of Manor, a Texas Home Rule Municipal Corporation situated in the County of Travis, State of Texas, acting by its duly authorized representatives and under its authority, on July 16, 2023, and after notice as required by said ordinances, has caused valuable work, to-wit: cutting and removal of weeds and debris, to be done with respect to certain real property situated within the corporate limits of the City of Leander, Travis County, Texas, and described as follows:

Legal Description: LOT 14 BLK 12 MANOR TOWN OF

TCAD Property ID: **235668**

Property Address: East Burton St., Manor, Texas 78653

The City of Manor, in connection with such work or improvements, has expended and has heretofore determined the reasonable value of such work or improvements, including expenses to be the sum of \$2,170.00, Two-thousand one hundred and seventy dollars and zero cents. Pursuant to said statute and ordinances, the City of Manor has become vested with, and by this instrument does hereby perfect, a privileged lien against the property hereinabove described, to secure the payment of the said sum stated above, plus interest thereon at the rate of ten percent (10%) per annum from the date of recording of this instrument in the Official Records of Travis County, Texas, to the date of full payment for such work or improvements; the lien hereby created being inferior only to a valid and existing tax lien or assessment lien for street improvements. The governing body of the City of Manor may bring a suit for foreclosure in the name of the municipality to recover the expenditures and interest due.

Executed by me, by the authority of the City of Manor, this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

**ATTEST:**

**CITY OF MANOR**

\_\_\_\_\_  
Lluvia Almaraz  
City Secretary, City of Manor

\_\_\_\_\_  
Scott Moore, City Manager

**STATE OF TEXXAS**  
**COUNTY OF TRAVIS**

**CORPORATE ACKNOWLEDGMENT**

**BEFORE ME**, the undersigned authority, on this day personally appeared Scott Moore, a person known to me, in his capacity as City Manager of the City of Manor, a Texas Home Rule Municipal Corporation situated in Travis County, Texas, and acknowledged to me that he executed this Notice of Lien on behalf of the City of Manor, for the purposes therein expressed.

**WITNESSED MY HAND AND SEAL OF OFFICE THIS** \_\_\_\_\_ day of \_\_\_\_\_, 2023.



## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Tyler Shows EIT  
**DEPARTMENT:** City Engineer

### AGENDA ITEM DESCRIPTION:

Consideration, discussion, and possible action on a construction contract for the Cottonwood Creek West Tributary Wastewater Main Extension Project.

### BACKGROUND/SUMMARY:

On October 24, 2023, the bids were publicly opened and read, for the proposed wastewater project. The project consists of the installation of 2.2 miles of wastewater service mains ranging from 12" to 18" with 37 manholes being installed along the project dedicated easement. This project will also consist of 560' linear feet of boring and encasement pipe within the project's dedicated easement, which would also include staging within the temporary construction easement secured for this project. As reflected on the attached Bid Tabulation, fifteen bids were received. The low bidder was Santa Clara Construction, LLC. The process of verifying the Contractor's qualifications is complete. Based on submitted project information, project references and previous work, Santa Clara Construction has extensive experience with wastewater line installation. A recommendation for an award can be made. Award the base bid of \$2,533,379.

**LEGAL REVIEW:** Yes, Completed Deron Henry  
**FISCAL IMPACT:** Yes, Funding through DA/City Participation  
**PRESENTATION:** No  
**ATTACHMENTS:** Yes

- Recommendation of Award
- Bid Tabulation

### STAFF RECOMMENDATION:

The City staff recommends that the City Council approve and award the Construction Contract for the Cottonwood Creek West Tributary Wastewater Main Extension project to Santa Clara Construction, LLC. in the amount of \$2,533,379.00 for the base bid.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**

Mailing Address:  
9601 Amberglen Blvd. #109  
Austin, Tx 78729

November 15, 2023

Honorable Dr. Christopher Harvey, Mayor  
City of Manor  
105 E Eggleston St  
Manor, TX 78653

Re: Cottonwood Creek West Tributary Wastewater Main Extension project – CIP Project #35  
Letter of Award Recommendation

Dear Mayor Harvey:

Bids were publicly opened and read on October 24, 2023, for the above-referenced project. As reflected on the attached Bid Tabulation, fifteen (15) bids were received. The lowest, responsive, responsible bidder is Santa Clara Construction, LLC. We have contacted this bidder and confirmed he wants the contract at the amount bid.

As a result of our evaluation, and verification of contractor references, we hereby recommend the City award a construction contract to Santa Clara Construction, LLC. in the amount of \$2,533,379.00 for all Base Bid work, with final amounts dependent on actual installed quantities.

We have prepared a Notice of Award for reference and an Agreement for execution by you in the event the City Council votes to follow this recommendation. Once the Contractor signs the Agreement and all bond and insurance requirements have been satisfied, a Notice to Proceed will be issued. Under the General Conditions of the Agreement, the Contractor shall begin construction within ten (10) days of the Notice to Proceed and substantially complete the project within one hundred and fifty (150) calendar days excluding any justified delays. Please call if you should have any questions in this regard.

Sincerely,



Rebecca Howley, P.E., CFM  
RJH/s  
Enclosure

PN: 15128.00



**NOTICE OF AWARD**

TO: Santa Clara Construction, LLC

PROJECT DESCRIPTION: Cottonwood Creek West Tributary Wastewater Main Extension Project

OWNER: City of Manor

The OWNER has considered the BID submitted by you for the above-described PROJECT in response to its INVITATION TO BID and INSTRUCTIONS TO BIDDERS. You are hereby notified that your BID has been accepted for Base Bid work items in the amount of \$2,533,379.00.

You are required by the INSTRUCTIONS TO BIDDERS to execute the AGREEMENT and furnish the required Contractor's Performance BOND, Payment BOND, and Certificate(s) of INSURANCE within ten (10) days from the date of this NOTICE to you.

If you fail to execute said AGREEMENT and to furnish said BONDS and INSURANCE Certificate(s) within ten (10) days from the date of this NOTICE, the OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID SECURITY. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this 15<sup>th</sup> day of November 2023.

OWNER: City of Manor

By: \_\_\_\_\_

Rebecca Howley, P.E., CFM  
GBA, Inc.  
Engineer for OWNER

## ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged.

CONTRACTOR: Santa Clara Construction, LLC

this the \_\_\_\_\_ day of \_\_\_\_\_, 2023.

By: \_\_\_\_\_

Title: \_\_\_\_\_

## AGREEMENT

THE STATE OF TEXAS

§

§

KNOW ALL BY THESE PRESENTS:

COUNTY OF TRAVIS

§

**THIS AGREEMENT** is made and entered into on this \_\_\_\_day of the month of \_\_\_\_\_, 20\_\_, by and between the **City of Manor, Texas**, a home-rule city and municipal corporation with principal offices located at 105 E. Eggleston St., Manor, Texas, Travis County, Texas, (hereinafter referred to as "**Owner**" or the "**City**"), and \_\_\_\_\_ with principal offices located \_\_\_\_\_ (hereinafter referred to as "**Contractor**").

That, for and in consideration of the mutual terms, conditions and covenants of this Agreement and the accompanying documents between Owner and Contractor and for and in consideration of payments as set forth therein, Contractor hereby agrees to commence and complete the following Project: **COTTONWOOD CREEK WEST TRIBUTARY WASTEWATER MAIN EXTENSION for the CITY OF MANOR, TEXAS** (hereinafter, the "Project"), consisting of furnishing all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to construct and complete the **Project** together with any and all extra work as described in the drawings, maps, plans, and specifications, in accordance with Instructions to Bidders, the Notices to Bidders, the General Conditions, the Special Conditions, the Bid Proposal, technical specifications, maps and plans, Performance bond, Payment bond, and other drawings and printed or written explanatory matter thereof, and the addenda thereof, all as approved by the Owner, all of which are made a part hereof, attached hereto as Exhibit A and incorporated into this Agreement, and collectively evidence and constitute the entire contract (the "**Contract Documents**").

Contractor hereby agrees to commence Work within ten (10) calendar days following the date contained in the Notice to Proceed issued by Owner, and Contractor hereby agrees to substantially complete same within **ONE HUNDRED AND FIFTY (150)** calendar days for completion of the wastewater collection system as detailed in the Contract Documents, and **ONE HUNDRED AND EIGHTY (180)** calendar days for completion of all work detailed in the Contract Documents, after the date contained in the Notice to Proceed.

Waiver of any breach of this Agreement shall not constitute waiver of any subsequent breach.

Owner agrees to pay Contractor from available funds for satisfactory performance of this Agreement the price or prices as shown in the Bid Proposal submitted by the Contractor for the Project, which forms a part of this contract and has been approved by the Owner, in the total amount of **\$2,533,379.00** subject to proper additions and deductions (the "**Contract Amount**"), all as provided in the General Conditions and Special Conditions of the Contract Documents, and Owner agrees to make payments on account thereof as provided therein. Lack of funds shall render this Agreement null and void to the extent funds are not available.

Contractor agrees that time is of the essence in this Agreement and for each calendar day of delay beyond the time established for completion of the work specified in the Contract Documents the Owner may withhold from Contractor's compensation the sum of One Thousand Dollars (\$1000.00) as stipulated damages for the delay.

Although drawn by Owner, both parties hereto expressly agree and assert that in the event of any dispute over its meaning or application, this Agreement shall be interpreted reasonably and fairly, and neither more strongly for nor against either party.

This Agreement is to be governed by and shall be construed in accordance with the laws of the State of Texas without regard to conflicts of law principles, thereof. Proper venue for any dispute or litigation shall be only in Travis County, Texas.

This Agreement and all rights and obligations contained herein may not be assigned by Contractor without the prior written approval of the City. However, Contractor shall have the right to employ such assistance as may be required for the performance of the project, including the use of subcontractors, which employment shall not be deemed an assignment of the Contractors' rights and duties hereunder.

To the extent this Agreement constitutes a contract for goods or services within the meaning of Section 2270.002 of the Texas Government Code, as amended, solely for purposes of compliance with Chapter 2270 of the Texas Government Code, and subject to applicable Federal law, Contractor represents that neither Contractor nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of Contractor (i) boycotts Israel or (ii) will boycott Israel through the term of this Agreement. The terms "boycotts Israel" and "boycott Israel" as used in this paragraph have the meanings assigned to the term "boycott Israel" in Section 808.001 of the Texas Government Code, as amended.

To the extent this Agreement constitute a governmental contract within the meaning of Section 2252.151 of the Texas Government Code, as amended, solely for purposes of compliance with Chapter 2252 of the Texas Government Code, and except to the extent otherwise required by applicable federal law, Contractor represents that Contractor nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of Contractor is a company listed by the Texas Comptroller of Public Accounts under Sections 2270.0201, or 2252.153 of the Texas Government Code.

Contractor hereby verifies that it and its parent company, wholly- or majority-owned subsidiaries, and other affiliates, if any, do not boycott energy companies and will not boycott energy companies during the term of this Agreement. The foregoing verification is made solely to comply with Section 2274.002, Texas Government Code, and to the extent such Section is not inconsistent with a governmental entity's constitutional or statutory duties related to the issuance, incurrence, or management of debt obligations or the deposit, custody, management, borrowing, or investment of funds. As used in the foregoing verification, "boycott energy company" means, without an ordinary business purpose, refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company: (A) engages in the exploration, production, utilization, transportation, sale, or manufacturing of fossil fuel-based energy and does not commit or pledge to meet environmental standards beyond applicable federal and state law; or (B) does business with a company described by the preceding statement in (A).

Contractor hereby verifies that it and its parent company, wholly- or majority-owned subsidiaries, and other affiliates, if any, do not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association and will not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association during the term of this Agreement. The foregoing verification is made solely to comply with Section 2274.002, Texas Government Code. As used in the foregoing verification, "discriminate against a firearm entity or firearm trade association" means: (i) refuse to engage in the trade of any goods or services with the entity or association based solely on its status as a firearm entity or firearm trade association; (ii) refrain from continuing an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; or (iii) terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; but does not include (a) the established policies of a merchant, retail seller, or platform that restrict or prohibit the listing or selling of ammunition, firearms, or firearm accessories; or (b) a company's refusal to engage in the trade of any goods or services, decision to refrain from continuing an existing business relationship, or decision to terminate an existing business relationship to comply with federal, state, or local law, policy, or regulations or a directive by a regulatory agency; or for any traditional business reason that is specific to the customer or potential customer and not based solely on an entity's or association's status as a firearm entity or firearm trade association.

Texas law requires that business entities, as defined in Texas Government Code, Section 2252.908, who contract with the City complete the on-line of Form 1295 "Certificate of Interested Parties"



as promulgated by the Texas Ethics Commission (<https://www.ethics.state.tx.us/filinginfo/1295/>). Form 1295 is also required for any and all contract amendments, extensions or renewals. Prior to any payment to Contractor hereunder, Contractor shall provide proof of submission to the City Secretary that the appropriate Form 1295 documentation has been submitted.

**IN WITNESS WHEREOF**, both parties have caused this Agreement to be signed in their respective corporate names by duly authorized representatives, and the parties hereby bind themselves, their successors and assigns for the faithful and full performance of the terms and provisions hereof.

EXECUTED on the latest date of the signatories indicated below.

OWNER

CONTRACTOR

By: \_\_\_\_\_

By: \_\_\_\_\_

Mayor, City of \_\_\_\_\_, Texas

Printed Name: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date Signed: \_\_\_\_\_

Date Signed: \_\_\_\_\_

**ATTEST:**

By: \_\_\_\_\_

City Secretary, City of \_\_\_\_\_

**Bid Tabulation**

Bid Date: October 24, 2023

Project: Cottonwood Creek West Tributary Wastewater Main Extension

Checked By: Rebecca Howley, PE, CFM

				CC Carlton Industries		Cash Construction Company, Inc.		Smith Contracting Co., Inc.		Qro Mex Construction Co., Inc.	
Item No.	Description	Units	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Silt Fence	LF	11,637.00	\$ 4.60	\$ 53,530.2	\$ 3.0	\$ 34,911.0	\$ 3.75	\$ 43,638.75	\$ 4.50	\$ 52,366.50
2	Revegetation	LS	1.00	\$ 70,000.00	\$ 70,000.0	\$ 52,100.0	\$ 52,100.0	\$ 60,000.00	\$ 60,000.00	\$ 45,000.00	\$ 45,000.00
3	Stabilized Construction Entrance	EA	5.00	\$ 3,000.00	\$ 15,000.0	\$ 1,100.0	\$ 5,500.0	\$ 2,000.00	\$ 10,000.00	\$ 2,000.00	\$ 10,000.00
4	SWPP	LS	1.00	\$ 7,500.00	\$ 7,500.0	\$ 2,000.0	\$ 2,000.0	\$ 4,000.00	\$ 4,000.00	\$ 30,500.00	\$ 30,500.00
5	Mobilization	LS	1.00	\$ 72,500.00	\$ 72,500.0	\$ 10,000.0	\$ 10,000.0	\$ 75,000.00	\$ 75,000.00	\$ 45,000.00	\$ 45,000.00
6	Clearing/Grubbing	LS	1.00	\$ 80,000.00	\$ 80,000.0	\$ 35,500.0	\$ 35,500.0	\$ 50,000.00	\$ 50,000.00	\$ 25,000.00	\$ 25,000.00
<b>Wastewater Line Improvements</b>											
7	Connection to existing wastewater line	EA	1.00	\$ 5,300.00	\$ 5,300.0	\$ 3,000.0	\$ 3,000.0	\$ 5,500.00	\$ 5,500.00	\$ 7,000.00	\$ 7,000.00
8	12" SDR-26 WW line	LF	3,593.00	\$ 81.00	\$ 291,033.0	\$ 89.6	\$ 321,896.9	\$ 120.00	\$ 431,160.00	\$ 92.00	\$ 330,556.00
	12" SDR-26 WW line	LF	422.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	LF	2,267.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	LF	106.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	LF	798.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9	15" SDR-26 WW line	LF	4,049.00	\$ 99.00	\$ 400,851.0	\$ 112.9	\$ 456,929.7	\$ 140.00	\$ 566,860.00	\$ 106.00	\$ 429,194.00
	15" SDR-26 WW line	LF	1,473.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	LF	1,287.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	LF	799.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	LF	490.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	18" SDR-26 WW line	LF	4,005.00	\$ 155.00	\$ 620,775.0	\$ 180.4	\$ 722,622.2	\$ 170.00	\$ 680,850.00	\$ 153.00	\$ 612,765.00
	18" SDR-26 WW line	LF	394.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	LF	1,002.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	LF	606.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	LF	245.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	LF	371.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	LF	355.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	LF	351.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	LF	681.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11	4' WW Manhole Standard Depth W/ Coating	EA	25.00	\$ 5,100.00	\$ 127,500.0	\$ 7,600.0	\$ 190,000.0	\$ 9,800.00	\$ 245,000.00	\$ 14,500.00	\$ 362,500.00
12	5' WW Manhole Standard Depth W/ Coating	EA	11.00	\$ 7,900.00	\$ 86,900.0	\$ 10,600.0	\$ 116,600.0	\$ 14,000.00	\$ 154,000.00	\$ 17,400.00	\$ 191,400.00
13	6' WW Manhole Standard Depth W/ Coating	EA	1.00	\$ 16,500.00	\$ 16,500.0	\$ 17,100.0	\$ 17,100.0	\$ 25,000.00	\$ 25,000.00	\$ 22,000.00	\$ 22,000.00
14	Extra Vertical Feet 4' Manhole W/ Coating	LF	79.00	\$ 495.00	\$ 39,105.0	\$ 425.0	\$ 33,575.0	\$ 650.00	\$ 51,350.00	\$ 500.00	\$ 39,500.00
15	Extra Vertical Feet 5' Manhole W/ Coating	LF	55.00	\$ 750.00	\$ 41,250.0	\$ 575.0	\$ 31,625.0	\$ 800.00	\$ 44,000.00	\$ 700.00	\$ 38,500.00
16	Extra Vertical Feet 6' Manhole W/ Coating	LF	24.00	\$ 890.00	\$ 21,360.0	\$ 730.0	\$ 17,520.0	\$ 900.00	\$ 21,600.00	\$ 800.00	\$ 19,200.00
17	Bored 24" Steel encasement pipe including 12" SDR-26 WW lin	LF	388.00	\$ 625.00	\$ 242,500.0	\$ 640.0	\$ 248,320.0	\$ 620.00	\$ 240,560.00	\$ 520.00	\$ 201,760.00
18	Bored 30" Steel encasement pipe including 15" SDR-26 WW lin	LF	91.00	\$ 820.00	\$ 74,620.0	\$ 785.0	\$ 71,435.0	\$ 770.00	\$ 70,070.00	\$ 590.00	\$ 53,690.00
19	Bored 36" Steel encasement pipe including 18" SDR-26 WW lin	LF	79.00	\$ 1,000.00	\$ 79,000.0	\$ 995.0	\$ 78,605.0	\$ 970.00	\$ 76,630.00	\$ 640.00	\$ 50,560.00
20	Boring Pit (30' X 10')	EA	5.00	\$ 11,500.00	\$ 57,500.0	\$ 2,250.0	\$ 11,250.0	\$ 18,000.00	\$ 90,000.00	\$ 11,000.00	\$ 55,000.00
21	Receiving Pit (10' X 10')	EA	5.00	\$ 3,500.00	\$ 17,500.0	\$ 1,100.0	\$ 5,500.0	\$ 3,000.00	\$ 15,000.00	\$ 2,000.00	\$ 10,000.00
22	Trench Safety	LF	11,637.00	\$ 1.00	\$ 11,637.0	\$ 1.0	\$ 11,637.0	\$ 1.00	\$ 11,637.00	\$ 5.00	\$ 58,185.00
23	Gravel Repair	LF	200.00	\$ 50.00	\$ 10,000.0	\$ 40.0	\$ 8,000.0	\$ 12.00	\$ 2,400.00	\$ 35.00	\$ 7,000.00
24	Stub outs (Gravity Sewer Connections)	EA	9.00	\$ 1,250.00	\$ 11,250.0	\$ 1,600.0	\$ 14,400.0	\$ 2,000.00	\$ 18,000.00	\$ 2,400.00	\$ 21,600.00
<b>Miscellaneous</b>											
25	Traffic control plan	LS	1.00	\$ 26,500.00	\$ 26,500.0	\$ 12,555.0	\$ 12,555.0	\$ 10,000.00	\$ 10,000.00	\$ 30,000.00	\$ 30,000.00
26	Temporary fencing	LF	7,000.00	\$ 6.50	\$ 45,500.0	\$ 11.0	\$ 77,000.0	\$ 11.00	\$ 77,000.00	\$ 9.50	\$ 66,500.00
27	10' gate installation	EA	14.00	\$ 1,150.00	\$ 16,100.0	\$ 1,100.0	\$ 15,400.0	\$ 1,000.00	\$ 14,000.00	\$ 2,400.00	\$ 33,600.00
28	Drainage improvements	LS	1.00	\$ 39,900.00	\$ 39,900.0	\$ 25,000.0	\$ 25,000.0	\$ 30,000.00	\$ 30,000.00	\$ 40,000.00	\$ 40,000.00
<b>Base Bid Total =</b>				\$ 2,581,111.20		\$ 2,629,981.67		\$ 3,123,255.75		\$ 2,888,376.50	

**Bid Tabulation**

Bid Date: October 24, 2023

Project: Cottonwood Creek West Tributary Wastewater Main Extens

Checked By: Rebecca Howley, PE, CFM

		SPIESS Construction Co., Inc.		Liberty Civil Construction, LLC		Royal Vista, Inc.		Joe Bland Construction, LP.	
Item No.	Description	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Silt Fence	\$ 3.00	\$ 34,911.00	\$ 4.49	\$ 52,250.1	\$ 4.0	\$ 46,548.0	\$ 5.00	\$ 58,185.00
2	Revegetation	\$ 30,000.00	\$ 30,000.00	\$ 57,641.85	\$ 57,641.9	\$ 60,000.0	\$ 60,000.0	\$ 75,000.00	\$ 75,000.00
3	Stabilized Construction Entrance	\$ 1,000.00	\$ 5,000.00	\$ 1,118.31	\$ 5,591.6	\$ 1,000.0	\$ 5,000.0	\$ 1,800.00	\$ 9,000.00
4	SWPP	\$ 15,000.00	\$ 15,000.00	\$ 9,562.33	\$ 9,562.3	\$ 100,000.0	\$ 100,000.0	\$ 4,800.00	\$ 4,800.00
5	Mobilization	\$ 180,000.00	\$ 180,000.00	\$ 147,230.15	\$ 147,230.2	\$ 220,000.0	\$ 220,000.0	\$ 25,000.00	\$ 25,000.00
6	Clearing/Grubbing	\$ 20,000.00	\$ 20,000.00	\$ 90,781.56	\$ 90,781.6	\$ 65,000.0	\$ 65,000.0	\$ 25,000.00	\$ 25,000.00
<b>Wastewater Line Improvements</b>									
7	Connection to existing wastewater line	\$ 20,000.00	\$ 20,000.00	\$ 7,299.87	\$ 7,299.9	\$ 6,000.0	\$ 6,000.0	\$ 5,990.00	\$ 5,990.00
8	12" SDR-26 WW line	\$ -	\$ -	\$ 100.31	\$ 360,413.8	\$ 97.5	\$ 350,317.5	\$ 86.00	\$ 308,998.00
	12" SDR-26 WW line	\$ 170.00	\$ 71,740.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ 180.00	\$ 408,060.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ 190.00	\$ 20,140.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ 200.00	\$ 159,600.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9	15" SDR-26 WW line	\$ -	\$ -	\$ 114.40	\$ 463,205.6	\$ 115.0	\$ 465,635.0	\$ 110.00	\$ 445,390.00
	15" SDR-26 WW line	\$ 160.00	\$ 235,680.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ 170.00	\$ 218,790.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ 180.00	\$ 143,820.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ 190.00	\$ 93,100.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	18" SDR-26 WW line	\$ -	\$ -	\$ 188.86	\$ 756,384.3	\$ 212.5	\$ 851,062.5	\$ 171.00	\$ 684,855.00
	18" SDR-26 WW line	\$ 160.00	\$ 63,040.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ 170.00	\$ 170,340.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ 180.00	\$ 109,080.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ 190.00	\$ 46,550.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ 210.00	\$ 77,910.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ 220.00	\$ 78,100.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ 240.00	\$ 84,240.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ 260.00	\$ 177,060.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11	4' WW Manhole Standard Depth W/ Coating	\$ 14,000.00	\$ 350,000.00	\$ 8,275.65	\$ 206,891.3	\$ 5,200.0	\$ 130,000.0	\$ 8,750.00	\$ 218,750.00
12	5' WW Manhole Standard Depth W/ Coating	\$ 18,000.00	\$ 198,000.00	\$ 11,100.37	\$ 122,104.1	\$ 5,700.0	\$ 62,700.0	\$ 13,500.00	\$ 148,500.00
13	6' WW Manhole Standard Depth W/ Coating	\$ 29,000.00	\$ 29,000.00	\$ 15,168.11	\$ 15,168.1	\$ 10,500.0	\$ 10,500.0	\$ 25,000.00	\$ 25,000.00
14	Extra Vertical Feet 4' Manhole W/ Coating	\$ 140.00	\$ 11,060.00	\$ 522.40	\$ 41,269.6	\$ 450.0	\$ 35,550.0	\$ 350.00	\$ 27,650.00
15	Extra Vertical Feet 5' Manhole W/ Coating	\$ 225.00	\$ 12,375.00	\$ 737.41	\$ 40,557.6	\$ 550.0	\$ 30,250.0	\$ 450.00	\$ 24,750.00
16	Extra Vertical Feet 6' Manhole W/ Coating	\$ 325.00	\$ 7,800.00	\$ 714.10	\$ 17,138.4	\$ 650.0	\$ 15,600.0	\$ 500.00	\$ 12,000.00
17	Bored 24" Steel encasement pipe including 12" SDR-26 WW lin	\$ 650.00	\$ 252,200.00	\$ 640.65	\$ 248,572.2	\$ 700.0	\$ 271,600.0	\$ 650.00	\$ 252,200.00
18	Bored 30" Steel encasement pipe including 15" SDR-26 WW lin	\$ 855.00	\$ 77,805.00	\$ 789.21	\$ 71,818.1	\$ 750.0	\$ 68,250.0	\$ 885.00	\$ 80,535.00
19	Bored 36" Steel encasement pipe including 18" SDR-26 WW lin	\$ 1,000.00	\$ 79,000.00	\$ 988.35	\$ 78,079.7	\$ 800.0	\$ 63,200.0	\$ 1,075.00	\$ 84,925.00
20	Boring Pit (30' X 10')	\$ 8,000.00	\$ 40,000.00	\$ 17,234.44	\$ 86,172.2	\$ 15,000.0	\$ 75,000.0	\$ 20,000.00	\$ 100,000.00
21	Receiving Pit (10' X 10')	\$ 6,000.00	\$ 30,000.00	\$ 2,387.31	\$ 11,936.6	\$ 5,000.0	\$ 25,000.0	\$ 15,000.00	\$ 75,000.00
22	Trench Safety	\$ 1.00	\$ 11,637.00	\$ 1.11	\$ 12,917.1	\$ 15.0	\$ 174,555.0	\$ 8.00	\$ 93,096.00
23	Gravel Repair	\$ 50.00	\$ 10,000.00	\$ 56.36	\$ 11,272.0	\$ 25.0	\$ 5,000.0	\$ 70.00	\$ 14,000.00
24	Stub outs (Gravity Sewer Connections)	\$ 3,000.00	\$ 27,000.00	\$ 1,073.58	\$ 9,662.2	\$ 1,000.0	\$ 9,000.0	\$ 2,150.00	\$ 19,350.00
<b>Miscellaneous</b>									
25	Traffic control plan	\$ 10,000.00	\$ 10,000.00	\$ 11,118.99	\$ 11,119.0	\$ 19,000.0	\$ 19,000.0	\$ 7,000.00	\$ 7,000.00
26	Temporary fencing	\$ 12.00	\$ 84,000.00	\$ 10.84	\$ 75,880.0	\$ 7.0	\$ 49,000.0	\$ 12.00	\$ 84,000.00
27	10' gate intallation	\$ 2,200.00	\$ 30,800.00	\$ 1,028.51	\$ 14,399.1	\$ 2,100.0	\$ 29,400.0	\$ 1,125.00	\$ 15,750.00
28	Drainage improvements	\$ 40,000.00	\$ 40,000.00	\$ 20,032.59	\$ 20,032.6	\$ 50,000.0	\$ 50,000.0	\$ 10,500.00	\$ 10,500.00
		\$ 3,762,838.00		\$ 3,045,350.87		\$ 3,293,168.00		\$ 2,935,224.00	

**Bid Tabulation**

Bid Date: October 24, 2023

Project: Cottonwood Creek West Tributary Wastewater Main Extens

Checked By: Rebecca Howley, PE, CFM

Item No.	Description	Bell Contractors, Inc.		Western Municipal Construction of Texas, LLC.		Nelson Lewis Inc.		Patin Construction LLC	
		Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Silt Fence	\$ 3.74	\$ 43,522.38	\$ 3.00	\$ 34,911.00	\$ 4.00	\$ 46,548.0	\$ 4.0	\$ 46,548.0
2	Revegetation	\$ 105,337.83	\$ 105,337.83	\$ 48,000.00	\$ 48,000.00	\$ 25,000.00	\$ 25,000.0	\$ 15,000.0	\$ 15,000.0
3	Stabilized Construction Entrance	\$ 1,725.00	\$ 8,625.00	\$ 4,500.00	\$ 22,500.00	\$ 2,000.00	\$ 10,000.0	\$ 1,800.0	\$ 9,000.0
4	SWPP	\$ 11,787.50	\$ 11,787.50	\$ 7,500.00	\$ 7,500.00	\$ 5,000.00	\$ 5,000.0	\$ 3,000.0	\$ 3,000.0
5	Mobilization	\$ 147,728.24	\$ 147,728.24	\$ 175,000.00	\$ 175,000.00	\$ 85,000.00	\$ 85,000.0	\$ 5,000.0	\$ 5,000.0
6	Clearing/Grubbing	\$ 20,125.00	\$ 20,125.00	\$ 205,000.00	\$ 205,000.00	\$ 8,000.00	\$ 8,000.0	\$ 90,000.0	\$ 90,000.0
<b>Wastewater Line Improvements</b>									
7	Connection to existing wastewater line	\$ 12,554.55	\$ 12,554.55	\$ 5,000.00	\$ 5,000.00	\$ 7,000.00	\$ 7,000.0	\$ 5,000.0	\$ 5,000.0
8	12" SDR-26 WW line	\$ 108.88	\$ 391,205.84	\$ 102.00	\$ 366,486.00	\$ 92.00	\$ 330,556.0	\$ 80.0	\$ 287,440.0
	12" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9	15" SDR-26 WW line	\$ 135.41	\$ 548,275.09	\$ 130.00	\$ 526,370.00	\$ 107.00	\$ 433,243.0	\$ 109.0	\$ 441,341.0
	15" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	18" SDR-26 WW line	\$ 160.70	\$ 643,603.50	\$ 178.00	\$ 712,890.00	\$ 167.00	\$ 668,835.0	\$ 125.0	\$ 500,625.0
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11	4' WW Manhole Standard Depth W/ Coating	\$ 7,537.23	\$ 188,430.75	\$ 14,000.00	\$ 350,000.00	\$ 9,000.00	\$ 225,000.0	\$ 7,500.0	\$ 187,500.0
12	5' WW Manhole Standard Depth W/ Coating	\$ 13,292.98	\$ 146,222.78	\$ 18,000.00	\$ 198,000.00	\$ 14,000.00	\$ 154,000.0	\$ 15,000.0	\$ 165,000.0
13	6' WW Manhole Standard Depth W/ Coating	\$ 23,811.45	\$ 23,811.45	\$ 35,000.00	\$ 35,000.00	\$ 20,000.00	\$ 20,000.0	\$ 25,000.0	\$ 25,000.0
14	Extra Vertical Feet 4' Manhole W/ Coating	\$ 385.25	\$ 30,434.75	\$ 2,500.00	\$ 197,500.00	\$ 400.00	\$ 31,600.0	\$ 300.0	\$ 23,700.0
15	Extra Vertical Feet 5' Manhole W/ Coating	\$ 504.85	\$ 27,766.75	\$ 2,600.00	\$ 143,000.00	\$ 600.00	\$ 33,000.0	\$ 500.0	\$ 27,500.0
16	Extra Vertical Feet 6' Manhole W/ Coating	\$ 879.75	\$ 21,114.00	\$ 3,000.00	\$ 72,000.00	\$ 800.00	\$ 19,200.0	\$ 1,000.0	\$ 24,000.0
17	Bored 24' Steel encasement pipe including 12" SDR-26 WW lin	\$ 655.54	\$ 254,349.52	\$ 650.00	\$ 252,200.00	\$ 900.00	\$ 349,200.0	\$ 675.0	\$ 261,900.0
18	Bored 30' Steel encasement pipe including 15" SDR-26 WW lin	\$ 889.61	\$ 80,954.51	\$ 750.00	\$ 68,250.00	\$ 1,100.00	\$ 100,100.0	\$ 900.0	\$ 81,900.0
19	Bored 36' Steel encasement pipe including 18" SDR-26 WW lin	\$ 1,074.99	\$ 84,924.21	\$ 1,000.00	\$ 79,000.00	\$ 1,300.00	\$ 102,700.0	\$ 1,100.0	\$ 86,900.0
20	Boring Pit (30' X 10')	\$ 18,630.00	\$ 93,150.00	\$ 10,000.00	\$ 50,000.00	\$ 18,000.00	\$ 90,000.0	\$ 19,500.0	\$ 97,500.0
21	Receiving Pit (10' X 10')	\$ 2,357.50	\$ 11,787.50	\$ 10,000.00	\$ 50,000.00	\$ 800.00	\$ 4,000.0	\$ 10,000.0	\$ 50,000.0
22	Trench Safety	\$ 3.99	\$ 46,431.63	\$ 1.00	\$ 11,637.00	\$ 2.00	\$ 23,274.0	\$ 3.0	\$ 34,911.0
23	Gravel Repair	\$ 18.76	\$ 3,752.00	\$ 60.00	\$ 12,000.00	\$ 30.00	\$ 6,000.0	\$ 50.0	\$ 10,000.0
24	Stub outs (Gravity Sewer Connections)	\$ 2,806.38	\$ 25,257.42	\$ 1,500.00	\$ 13,500.00	\$ 3,500.00	\$ 31,500.0	\$ 2,500.0	\$ 22,500.0
<b>Miscellaneous</b>									
25	Traffic control plan	\$ 37,950.00	\$ 37,950.00	\$ 2,500.00	\$ 2,500.00	\$ 2,000.00	\$ 2,000.0	\$ 2,500.0	\$ 2,500.0
26	Temporary fencing	\$ 5.75	\$ 40,250.00	\$ 12.00	\$ 84,000.00	\$ 3.00	\$ 21,000.0	\$ 5.0	\$ 35,000.0
27	10' gate installation	\$ 1,725.00	\$ 24,150.00	\$ 5,500.00	\$ 77,000.00	\$ 2,000.00	\$ 28,000.0	\$ 800.0	\$ 11,200.0
28	Drainage improvements	\$ 50,489.37	\$ 50,489.37	\$ 25,000.00	\$ 25,000.00	\$ 18,000.00	\$ 18,000.0	\$ 25,000.0	\$ 25,000.0
		\$ 3,123,991.57		\$ 3,824,244.00		\$ 2,877,756.00		\$ 2,574,965.00	

**Bid Tabulation**

Bid Date: October 24, 2023

Project: Cottonwood Creek West Tributary Wastewater Main Extens

Checked By: Rebecca Howley, PE, CFM

		Skyblue Utilities, Inc.		Blackrock Construction		Santa Clara Construction, Ltd.	
Item No.	Description	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Silt Fence	\$ 2.73	\$ 31,769.01	\$ 3.00	\$ 34,911.00	\$ 3.00	\$ 34,911.00
2	Revegetation	\$ 19,620.00	\$ 19,620.00	\$ 35,250.00	\$ 35,250.00	\$ 37,500.00	\$ 37,500.00
3	Stabilized Construction Entrance	\$ 1,417.00	\$ 7,085.00	\$ 1,750.00	\$ 8,750.00	\$ 2,500.00	\$ 12,500.00
4	SWPP	\$ 5,450.00	\$ 5,450.00	\$ 8,800.00	\$ 8,800.00	\$ 5,000.00	\$ 5,000.00
5	Mobilization	\$ 76,300.00	\$ 76,300.00	\$ 150,000.75	\$ 150,000.75	\$ 80,000.00	\$ 80,000.00
6	Clearing/Grubbing	\$ 32,700.00	\$ 32,700.00	\$ 17,625.00	\$ 17,625.00	\$ 14,000.00	\$ 14,000.00
<b>Wastewater Line Improvements</b>							
7	Connection to existing wastewater line	\$ 4,183.30	\$ 4,183.30	\$ 5,580.00	\$ 5,580.00	\$ 5,000.00	\$ 5,000.00
8	12" SDR-26 WW line	\$ 160.16	\$ 575,454.88	\$ 107.00	\$ 384,451.00	\$ 87.00	\$ 312,591.00
	12" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	12" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9	15" SDR-26 WW line	\$ 130.89	\$ 529,973.61	\$ 127.00	\$ 514,223.00	\$ 100.00	\$ 404,900.00
	15" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	18" SDR-26 WW line	\$ 384.71	\$ 1,540,763.55	\$ 142.00	\$ 568,710.00	\$ 138.00	\$ 552,690.00
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	18" SDR-26 WW line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11	4' WW Manhole Standard Depth W/ Coating	\$ 9,919.53	\$ 247,988.25	\$ 12,400.00	\$ 310,000.00	\$ 7,500.00	\$ 187,500.00
12	5' WW Manhole Standard Depth W/ Coating	\$ 13,331.66	\$ 146,648.26	\$ 15,260.00	\$ 167,860.00	\$ 11,500.00	\$ 126,500.00
13	6' WW Manhole Standard Depth W/ Coating	\$ 19,271.56	\$ 19,271.56	\$ 20,545.00	\$ 20,545.00	\$ 19,000.00	\$ 19,000.00
14	Extra Vertical Feet 4' Manhole W/ Coating	\$ 327.00	\$ 25,833.00	\$ 430.00	\$ 33,970.00	\$ 530.00	\$ 41,870.00
15	Extra Vertical Feet 5' Manhole W/ Coating	\$ 381.50	\$ 20,982.50	\$ 620.00	\$ 34,100.00	\$ 650.00	\$ 35,750.00
16	Extra Vertical Feet 6' Manhole W/ Coating	\$ 436.00	\$ 10,464.00	\$ 500.00	\$ 12,000.00	\$ 770.00	\$ 18,480.00
17	Bored 24' Steel encasement pipe including 12" SDR-26 WW line	\$ 678.39	\$ 263,215.32	\$ 525.00	\$ 203,700.00	\$ 490.00	\$ 190,120.00
18	Bored 30' Steel encasement pipe including 15" SDR-26 WW line	\$ 917.52	\$ 83,494.32	\$ 660.00	\$ 60,060.00	\$ 700.00	\$ 63,700.00
19	Bored 36' Steel encasement pipe including 18" SDR-26 WW line	\$ 1,110.82	\$ 87,754.78	\$ 710.00	\$ 56,090.00	\$ 870.00	\$ 68,730.00
20	Boring Pit (30' X 10')	\$ 3,475.54	\$ 17,377.70	\$ 2,500.00	\$ 12,500.00	\$ 40,000.00	\$ 200,000.00
21	Receiving Pit (10' X 10')	\$ 1,090.00	\$ 5,450.00	\$ 1,000.00	\$ 5,000.00	\$ 5,000.00	\$ 25,000.00
22	Trench Safety	\$ 4.36	\$ 50,737.32	\$ 0.25	\$ 2,909.25	\$ 1.00	\$ 11,637.00
23	Gravel Repair	\$ 21.80	\$ 4,360.00	\$ 38.00	\$ 7,600.00	\$ 30.00	\$ 6,000.00
24	Stub outs (Gravity Sewer Connections)	\$ 3,815.00	\$ 34,335.00	\$ 1,265.00	\$ 11,385.00	\$ 1,500.00	\$ 13,500.00
<b>Miscellaneous</b>							
25	Traffic control plan	\$ 1,635.00	\$ 1,635.00	\$ 10,000.00	\$ 10,000.00	\$ 7,500.00	\$ 7,500.00
26	Temporary fencing	\$ 8.72	\$ 61,040.00	\$ 7.00	\$ 49,000.00	\$ 3.00	\$ 21,000.00
27	10' gate installation	\$ 4,360.00	\$ 61,040.00	\$ 2,750.00	\$ 38,500.00	\$ 2,000.00	\$ 28,000.00
28	Drainage improvements	\$ 21,800.00	\$ 21,800.00	\$ 18,500.00	\$ 18,500.00	\$ 10,000.00	\$ 10,000.00
		\$ 3,986,726.36		\$ 2,782,020.00		\$ 2,533,379.00	



## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Ryan Phipps, Chief  
**DEPARTMENT:** Police

### AGENDA ITEM DESCRIPTION:

Consideration, discussion, and possible action on a Resolution authorizing the City Manager to enter into a Multiple-Use Agreement with the Texas Department of Transportation Allowing the Installation and Operation of Automated License Plate Recognition Cameras in Texas Department of Transportation Right-Of-Way.

### BACKGROUND/SUMMARY:

On Wednesday, June 7, 2023, the City Council approved the purchase of services and equipment from Flock Safety. Prior to executing the project, it was determined that a resolution was needed from the City Council that would authorize the City Manager to sign an agreement with the Texas Department of Transportation (TxDOT) to use the equipment on their property and right-of-way.

This is being resubmitted to the Council for a resolution authorizing the City Manager to sign any agreements between the City of Manor, Flock Safety, and TxDOT.

**LEGAL REVIEW:** Yes, Audrey Guthrie, Associate Attorney  
**FISCAL IMPACT:** Yes, a one-time expense of \$41,750 and an annual recurring total \$30,000 for a first- year total of \$71,750.  
**PRESENTATION:** No  
**ATTACHMENTS:** Yes

- Resolution No. 2023-36
- Agreement

### STAFF RECOMMENDATION:

The city staff recommends that the City Council approve Resolution No.2023-36 authorizing the City Manager to enter into a Multiple-Use Agreement with the Texas Department of Transportation Allowing the Installation and Operation of Automated License Plate Recognition Cameras in Texas Department of Transportation Right-Of-Way.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**

**RESOLUTION NO. 2023-36**

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MANOR, TEXAS, AUTHORIZING THE CITY MANAGER TO ENTER INTO A MULTIPLE-USE AGREEMENT WITH THE TEXAS DEPARTMENT OF TRANSPORTATION ALLOWING THE INSTALLATION AND OPERATION OF AUTOMATED LICENSE PLATE RECOGNITION CAMERAS IN TEXAS DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY; AND PROVIDING AN EFFECTIVE DATE.**

**WHEREAS**, the City Council of the City of Manor, Texas (the “City Council”) has determined the addition of Automatic License Plate Recognition (ALPR) Cameras will increase public safety and aid the Police Department in its crime prevention efforts and strategies; and

**WHEREAS**, The City Council desires to engage with the Texas Department of Transportation (TXDOT) and asks that Flock Safety be allowed to place ALPR Cameras in TXDOT right-of-way on behalf of the City of Manor; and

**WHEREAS**, the Chief of Police has discussed the ALPR cameras and come to an agreement with Flock Safety regarding their installation;

**WHEREAS**, the City Council finds it to be in the public interest to authorize the City of Manor to enter into a Multiple-Use Agreement with TXDOT.

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

**Section 1.** The City Council hereby approves the recitals contained in the preamble of this Resolution and finds that all the recitals are true and correct and incorporate the same in the body of this Resolution as findings of fact.

**Section 2.** The City Council hereby authorizes the City Manager to execute and enter into the attached Multiple-Use Agreement with TXDOT for the installation and operation of ALPR Cameras in TXDOT right-a-way, marked as Attachment A hereto.

**Section 3.** If any section, article, paragraph, sentence, clause, phrase or word in this resolution or application thereof to any persons or circumstances is held invalid or unconstitutional by a court of competent jurisdiction, such holding shall not affect the validity of the remaining portions of this resolution; and the City Council hereby declares it would have passed such remaining portions of the resolution despite such invalidity, which remaining portions shall remain in full force and effect.

**Section 4.** This resolution shall take effect immediately from and after its passage, and it is duly resolved.

**PASSED AND APPROVED** by the City Council of Manor, Texas, at a regular meeting on the 15<sup>th</sup> day of November 2023, at which a quorum was present, and for which due notice was given pursuant to Texas Government Code, Chapter 551.

**THE CITY OF MANOR, TEXAS**

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Dr. Christopher Harvey  
Mayor

**ATTEST:**

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Lluvia T. Almaraz  
City Secretary



**ATTACHMENT A**



**Flock Safety + Manor PD**

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Flock Group Inc.  
1170 Howell Mill Rd, Suite 210  
Atlanta, GA 30318

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MAIN CONTACT:  
Alex Small  
alex.small@flocksafety.com  
2073330058

flock safety



# flock safety

## EXHIBIT A ORDER FORM

Customer: Manor PD  
 Legal Entity Name: Manor PD  
 Accounts Payable Email: rphipps@manortx.gov  
 Address: 402 W Parsons St Manor, Texas 78653

Initial Term: 24 Months  
 Renewal Term: 24 Months  
 Payment Terms: Net 30  
 Billing Frequency: Annual Plan - First Year Invoiced at Signing.  
 Retention Period: 30 Days

### Hardware and Software Products

Annual recurring amounts over subscription term

Item	Cost	Quantity	Total
<b>Flock Safety Platform</b>			\$30,000.00
<b>Flock Safety Flock OS</b>			
FlockOS™	Included	1	Included
<b>Flock Safety LPR Products</b>			
Flock Safety Falcon®	Included	10	Included

### Professional Services and One Time Purchases

Item	Cost	Quantity	Total
<b>(One Time Fees)</b>			
<b>Flock Safety Professional Services</b>			
Professional Services - Standard Implementation Fee	\$650.00	3	\$1,950.00
Professional Services - Advanced Implementation Fee	\$1,900.00	5	\$9,500.00
Professional Services - Existing Infrastructure Implementation Fee	\$150.00	2	\$300.00
		<b>Subtotal Year 1:</b>	<b>\$41,750.00</b>
		<b>Annual Recurring Subtotal:</b>	<b>\$30,000.00</b>
		<b>Estimated Tax:</b>	<b>\$0.00</b>
		<b>Contract Total:</b>	<b>\$71,750.00</b>

*Taxes shown above are provided as an estimate. Actual taxes are the responsibility of the Customer. This Agreement will automatically renew for successive renewal terms of the greater of one year or the length set forth on the Order Form (each, a "Renewal Term") unless either Party gives the other Party notice of non-renewal at least thirty (30) days prior to the end of the then-current term.*

**Billing Schedule**

Billing Schedule	Amount (USD)
<b>Year 1</b>	
At Contract Signing	\$41,750.00
<b>Annual Recurring after Year 1</b>	\$30,000.00
<b>Contract Total</b>	\$71,750.00

\*Tax not included

**Product and Services Description**

Flock Safety Platform Items	Product Description	Terms
Flock Safety Falcon ®	An infrastructure-free license plate reader camera that utilizes Vehicle Fingerprint® technology to capture vehicular attributes.	The Term shall commence upon first installation and validation of Flock Hardware.

One-Time Fees	Service Description
Installation on existing infrastructure	One-time Professional Services engagement. Includes site & safety assessment, camera setup & testing, and shipping & handling in accordance with the Flock Safety Advanced Implementation Service Brief.
Professional Services - Standard Implementation Fee	One-time Professional Services engagement. Includes site and safety assessment, camera setup and testing, and shipping and handling in accordance with the Flock Safety Standard Implementation Service Brief.
Professional Services - Advanced Implementation Fee	One-time Professional Services engagement. Includes site & safety assessment, camera setup & testing, and shipping & handling in accordance with the Flock Safety Advanced Implementation Service Brief.

**FlockOS Features & Description****Package: Essentials**

FlockOS Features	Description
Community Cameras (Full Access)	Access to all privately owned Flock devices within your jurisdiction that have been shared with you.
Unlimited Users	Unlimited users for FlockOS
State Network (LP Lookup Only)	Allows agencies to look up license plates on all cameras opted in to the statewide Flock network.
Nationwide Network (LP Lookup Only)	Allows agencies to look up license plates on all cameras opted in to the nationwide Flock network.
Direct Share - Surrounding Jurisdiction (Full Access)	Access to all Flock devices owned by law enforcement that have been directly shared with you. Have ability to search by vehicle fingerprint, receive hot list alerts, and view devices on the map.
Time & Location Based Search	Search full, partial, and temporary plates by time at particular device locations
License Plate Lookup	Look up specific license plate location history captured on Flock devices
Vehicle Fingerprint Search	Search footage using Vehicle Fingerprint™ technology. Access vehicle type, make, color, license plate state, missing / covered plates, and other unique features like bumper stickers, decals, and roof racks.
Flock Insights/Analytics page	Reporting tool to help administrators manage their LPR program with device performance data, user and network audits, plate read reports, hot list alert reports, event logs, and outcome reports.
ESRI Based Map Interface	Flock Safety's maps are powered by ESRI, which offers the ability for 3D visualization, viewing of floor plans, and layering of external GIS data, such as City infrastructure (i.e., public facilities, transit systems, utilities), Boundary mapping (i.e., precincts, county lines, beat maps), and Interior floor plans (i.e., hospitals, corporate campuses, universities)
Real-Time NCIC Alerts on Flock ALPR Cameras	Alert sent when a vehicle entered into the NCIC crime database passes by a Flock camera
Unlimited Custom Hot Lists	Ability to add a suspect's license plate to a custom list and get alerted when it passes by a Flock camera

By executing this Order Form, Customer represents and warrants that it has read and agrees to all of the terms and conditions contained in the Master Services Agreement attached. The Parties have executed this Agreement as of the dates set forth below.

**FLOCK GROUP, INC.**

By: DocuSigned by:  
Mark Smith  
AC5C931454C24F3...

Name: Mark Smith

Title: General Counsel

Date: 6/21/2023

**Customer: Manor PD**

By: h. Shi

Name: Ryan Phiero

Title: Chief of Police

Date: 06/21/2023

PO Number: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## Master Services Agreement

This Master Services Agreement (this “**Agreement**”) is entered into by and between Flock Group, Inc. with a place of business at 1170 Howell Mill Road NW Suite 210, Atlanta, GA 30318 (“**Flock**”) and the entity identified in the signature block (“**Customer**”) (each a “**Party**,” and together, the “**Parties**”) on this the 31 day of May 2023. This Agreement is effective on the date of mutual execution (“**Effective Date**”). Parties will sign an Order Form (“**Order Form**”) which will describe the Flock Services to be performed and the period for performance, attached hereto as **Exhibit A**. The Parties agree as follows:

### RECITALS

**WHEREAS**, Flock offers a software and hardware situational awareness solution through Flock’s technology platform that upon detection is capable of capturing audio, video, image, and recording data and provide notifications to Customer (“**Notifications**”);

**WHEREAS**, Customer desires access to the Flock Services (defined below) on existing devices, provided by Customer, or Flock provided Flock Hardware (as defined below) in order to create, view, search and archive Footage and receive Notifications, via the Flock Services;

**WHEREAS**, Customer shall have access to the Footage in Flock Services. Pursuant to Flock’s standard Retention Period (defined below) Flock deletes all Footage on a rolling thirty (30) day basis, except as otherwise stated on the Order Form. Customer shall be responsible for extracting, downloading and archiving Footage from the Flock Services on its own storage devices; and

**WHEREAS**, Flock desires to provide Customer the Flock Services and any access thereto, subject to the terms and conditions of this Agreement, solely for the awareness, prevention, and prosecution of crime, bona fide investigations and evidence gathering for law enforcement purposes, (“**Permitted Purpose**”).

**AGREEMENT**

Item 7.

**NOW, THEREFORE**, Flock and Customer agree that this Agreement, and any Order Form, purchase orders, statements of work, product addenda, or the like, attached hereto as exhibits and incorporated by reference, constitute the complete and exclusive statement of the Agreement of the Parties with respect to the subject matter of this Agreement, and replace and supersede all prior agreements, term sheets, purchase orders, correspondence, oral or written communications and negotiations by and between the Parties.

**1. DEFINITIONS**

Certain capitalized terms, not otherwise defined herein, have the meanings set forth or cross-referenced in this Section 1.

1.1 “**Anonymized Data**” means Customer Data permanently stripped of identifying details and any potential personally identifiable information, by commercially available standards which irreversibly alters data in such a way that a data subject (i.e., individual person or entity) can no longer be identified directly or indirectly.

1.2 “**Authorized End User(s)**” means any individual employees, agents, or contractors of Customer accessing or using the Services, under the rights granted to Customer pursuant to this Agreement.

1.3 “**Customer Data**” means the data, media and content provided by Customer through the Services. For the avoidance of doubt, the Customer Data will include the Footage.

1.4. “**Customer Hardware**” means the third-party camera owned or provided by Customer and any other physical elements that interact with the Embedded Software and the Web Interface to provide the Services.

1.5 “**Embedded Software**” means the Flock proprietary software and/or firmware integrated with or installed on the Flock Hardware or Customer Hardware.

1.6 “**Flock Hardware**” means the Flock device(s), which may include the pole, clamps, solar panel, installation components, and any other physical elements that interact with the Embedded Software and the Web Interface, to provide the Flock Services as specifically set forth in the applicable product addenda.



1.7 “**Flock IP**” means the Services, the Embedded Software, and any intellectual property or proprietary information therein or otherwise provided to Customer and/or its Authorized End Users. Flock IP does not include Footage (as defined below).

1.8 “**Flock Network End User(s)**” means any user of the Flock Services that Customer authorizes access to or receives data from, pursuant to the licenses granted herein.

1.9 “**Flock Services**” means the provision of Flock’s software and hardware situational awareness solution, via the Web Interface, for automatic license plate detection, alerts, audio detection, searching image records, video and sharing Footage.

1.10 “**Footage**” means still images, video, audio and other data captured by the Flock Hardware or Customer Hardware in the course of and provided via the Flock Services.

1.11 “**Hotlist(s)**” means a digital file containing alphanumeric license plate related information pertaining to vehicles of interest, which may include stolen vehicles, stolen vehicle license plates, vehicles owned or associated with wanted or missing person(s), vehicles suspected of being involved with criminal or terrorist activities, and other legitimate law enforcement purposes. Hotlist also includes, but is not limited to, national data (i.e., NCIC) for similar categories, license plates associated with AMBER Alerts or Missing Persons/Vulnerable Adult Alerts, and includes manually entered license plate information associated with crimes that have occurred in any local jurisdiction.

1.12 “**Installation Services**” means the services provided by Flock for installation of Flock Services.

1.13 “**Retention Period**” means the time period that the Customer Data is stored within the cloud storage, as specified in the product addenda.

1.14 “**Vehicle Fingerprint™**” means the unique vehicular attributes captured through Services such as: type, make, color, state registration, missing/covered plates, bumper stickers, decals, roof racks, and bike racks.

1.15 “**Web Interface**” means the website(s) or application(s) through which Customer and its Authorized End Users can access the Services.

## 2. SERVICES AND SUPPORT

**2.1 Provision of Access.** Flock hereby grants to Customer a non-exclusive, non-transferable right to access the features and functions of the Flock Services via the Web Interface during the Term, solely for the Authorized End Users. The Footage will be available for Authorized End Users to access and download via the Web Interface for the data retention time defined on the Order Form ("**Retention Period**"). Authorized End Users will be required to sign up for an account and select a password and username ("**User ID**"). Customer shall be responsible for all acts and omissions of Authorized End Users, and any act or omission by an Authorized End User which, including any acts or omissions of authorized End user which would constitute a breach of this agreement if undertaken by customer. Customer shall undertake reasonable efforts to make all Authorized End Users aware of all applicable provisions of this Agreement and shall cause Authorized End Users to comply with such provisions. Flock may use the services of one or more third parties to deliver any part of the Flock Services, (such as using a third party to host the Web Interface for cloud storage or a cell phone provider for wireless cellular coverage).

**2.2 Embedded Software License.** Flock grants Customer a limited, non-exclusive, non-transferable, non-sublicensable (except to the Authorized End Users), revocable right to use the Embedded Software as it pertains to Flock Services, solely as necessary for Customer to use the Flock Services.

**2.3 Support Services.** Flock shall monitor the Flock Services, and any applicable device health, in order to improve performance and functionality. Flock will use commercially reasonable efforts to respond to requests for support within seventy-two (72) hours. Flock will provide Customer with reasonable technical and on-site support and maintenance services in-person, via phone or by email at [support@flocksafety.com](mailto:support@flocksafety.com) (such services collectively referred to as "**Support Services**").

**2.4 Upgrades to Platform.** Flock may make any upgrades to system or platform that it deems necessary or useful to (i) maintain or enhance the quality or delivery of Flock's products or services to its agencies; the competitive strength of, or market for, Flock's products or services; such platform or system's cost efficiency or performance, or (ii) to comply with applicable law. Parties understand that such upgrades are necessary from time to time and will not

diminish the quality of the services or materially change any terms or conditions within this Agreement.

**2.5 Service Interruption.** Services may be interrupted in the event that: (a) Flock's provision of the Services to Customer or any Authorized End User is prohibited by applicable law; (b) any third-party services required for Services are interrupted; (c) if Flock reasonably believe Services are being used for malicious, unlawful, or otherwise unauthorized use; (d) there is a threat or attack on any of the Flock IP by a third party; or (e) scheduled or emergency maintenance ("**Service Interruption**"). Flock will make commercially reasonable efforts to provide written notice of any Service Interruption to Customer, to provide updates, and to resume providing access to Flock Services as soon as reasonably possible after the event giving rise to the Service Interruption is cured. Flock will have no liability for any damage, liabilities, losses (including any loss of data or profits), or any other consequences that Customer or any Authorized End User may incur as a result of a Service Interruption. To the extent that the Service Interruption is not caused by Customer's direct actions or by the actions of parties associated with the Customer, the time will be tolled by the duration of the Service Interruption (for any continuous suspension lasting at least one full day). For example, in the event of a Service Interruption lasting five (5) continuous days, Customer will receive a credit for five (5) free days at the end of the Term.

**2.6 Service Suspension.** Flock may temporarily suspend Customer's and any Authorized End User's access to any portion or all of the Flock IP or Flock Service if (a) there is a threat or attack on any of the Flock IP by Customer; (b) Customer's or any Authorized End User's use of the Flock IP disrupts or poses a security risk to the Flock IP or any other customer or vendor of Flock; (c) Customer or any Authorized End User is/are using the Flock IP for fraudulent or illegal activities; (d) Customer has violated any term of this provision, including, but not limited to, utilizing Flock Services for anything other than the Permitted Purpose; or (e) any unauthorized access to Flock Services through Customer's account ("**Service Suspension**"). Customer shall not be entitled to any remedy for the Service Suspension period, including any reimbursement, tolling, or credit. If the Service Suspension was not caused by Customer, the Term will be tolled by the duration of the Service Suspension.

**2.7 Hazardous Conditions.** Flock Services do not contemplate hazardous materials, or other hazardous conditions, including, without limit, asbestos, lead, toxic or flammable substances. In the event any such hazardous materials are discovered in the designated locations in which Flock

is to perform services under this Agreement, Flock shall have the right to cease work immediately.

### 3. CUSTOMER OBLIGATIONS

**3.1 Customer Obligations.** Flock will assist Customer Authorized End Users in the creation of a User ID. Authorized End Users agree to provide Flock with accurate, complete, and updated registration information. Authorized End Users may not select as their User ID, a name that they do not have the right to use, or any other name with the intent of impersonation. Customer and Authorized End Users may not transfer their account to anyone else without prior written permission of Flock. Authorized End Users shall not share their account username or password information and must protect the security of the username and password. Unless otherwise stated and defined in this Agreement, Customer shall not designate Authorized End Users for persons who are not officers, employees, or agents of Customer. Authorized End Users shall only use Customer-issued email addresses for the creation of their User ID. Customer is responsible for any Authorized End User activity associated with its account. Customer shall ensure that Customer provides Flock with up to date contact information at all times during the Term of this agreement. Customer shall be responsible for obtaining and maintaining any equipment and ancillary services needed to connect to, access or otherwise use the Flock Services. Customer shall (at its own expense) provide Flock with reasonable access and use of Customer facilities and Customer personnel in order to enable Flock to perform Services (such obligations of Customer are collectively defined as *“Customer Obligations”*).

**3.2 Customer Representations and Warranties.** Customer represents, covenants, and warrants that Customer shall use Flock Services only in compliance with this Agreement and all applicable laws and regulations, including but not limited to any laws relating to the recording or sharing of data, video, photo, or audio content.

### 4. DATA USE AND LICENSING

**4.1 Customer Data.** As between Flock and Customer, all right, title and interest in the Customer Data, belong to and are retained solely by Customer. Customer hereby grants to Flock a limited, non-exclusive, royalty-free, irrevocable, worldwide license to use the Customer Data and perform

all acts as may be necessary for Flock to provide the Flock Services to Customer. Flock does not own and shall not sell Customer Data.

**4.2 Customer Generated Data.** Flock may provide Customer with the opportunity to post, upload, display, publish, distribute, transmit, broadcast, or otherwise make available, messages, text, illustrations, files, images, graphics, photos, comments, sounds, music, videos, information, content, ratings, reviews, data, questions, suggestions, or other information or materials produced by Customer ("**Customer Generated Data**"). Customer shall retain whatever legally cognizable right, title, and interest in Customer Generated Data. Customer understands and acknowledges that Flock has no obligation to monitor or enforce Customer's intellectual property rights of Customer Generated Data. Customer grants Flock a non-exclusive, irrevocable, worldwide, royalty-free, license to use the Customer Generated Data for the purpose of providing Flock Services. Flock does not own and shall not sell Customer Generated Data.

**4.3 Anonymized Data.** Flock shall have the right to collect, analyze, and anonymize Customer Data and Customer Generated Data to the extent such anonymization renders the data non-identifiable to create Anonymized Data to use and perform the Services and related systems and technologies, including the training of machine learning algorithms. Customer hereby grants Flock a non-exclusive, worldwide, perpetual, royalty-free right to use and distribute such Anonymized Data to improve and enhance the Services and for other development, diagnostic and corrective purposes, and other Flock offerings. Parties understand that the aforementioned license is required for continuity of Services. Flock does not own and shall not sell Anonymized Data.

## 5. CONFIDENTIALITY; DISCLOSURES

**5.1 Confidentiality.** To the extent required by any applicable public records requests, each Party (the "**Receiving Party**") understands that the other Party (the "**Disclosing Party**") has disclosed or may disclose business, technical or financial information relating to the Disclosing Party's business (hereinafter referred to as "**Proprietary Information**" of the Disclosing Party). Proprietary Information of Flock includes non-public information regarding features, functionality and performance of the Services. Proprietary Information of Customer includes non-public data provided by Customer to Flock or collected by Flock via Flock Services, which includes but is not limited to geolocation information and environmental data collected by sensors. The Receiving

Party agrees: (i) to take the same security precautions to protect against disclosure or unauthorized use of such Proprietary Information that the Party takes with its own proprietary information, but in no event less than commercially reasonable precautions, and (ii) not to use (except in performance of the Services or as otherwise permitted herein) or divulge to any third person any such Proprietary Information. The Disclosing Party agrees that the foregoing shall not apply with respect to any information that the Receiving Party can document (a) is or becomes generally available to the public; or (b) was in its possession or known by it prior to receipt from the Disclosing Party; or (c) was rightfully disclosed to it without restriction by a third party; or (d) was independently developed without use of any Proprietary Information of the Disclosing Party. Nothing in this Agreement will prevent the Receiving Party from disclosing the Proprietary Information pursuant to any judicial or governmental order, provided that the Receiving Party gives the Disclosing Party reasonable prior notice of such disclosure to contest such order. At the termination of this Agreement, all Proprietary Information will be returned to the Disclosing Party, destroyed or erased (if recorded on an erasable storage medium), together with any copies thereof, when no longer needed for the purposes above, or upon request from the Disclosing Party, and in any case upon termination of the Agreement. Notwithstanding any termination, all confidentiality obligations of Proprietary Information that is trade secret shall continue in perpetuity or until such information is no longer trade secret.

**5.2 Usage Restrictions on Flock IP.** Flock and its licensors retain all right, title and interest in and to the Flock IP and its components, and Customer acknowledges that it neither owns nor acquires any additional rights in and to the foregoing not expressly granted by this Agreement. Customer further acknowledges that Flock retains the right to use the foregoing for any purpose in Flock's sole discretion. Customer and Authorized End Users shall not: (i) copy or duplicate any of the Flock IP; (ii) decompile, disassemble, reverse engineer, or otherwise attempt to obtain or perceive the source code from which any software component of any of the Flock IP is compiled or interpreted, or apply any other process or procedure to derive the source code of any software included in the Flock IP; (iii) attempt to modify, alter, tamper with or repair any of the Flock IP, or attempt to create any derivative product from any of the foregoing; (iv) interfere or attempt to interfere in any manner with the functionality or proper working of any of the Flock IP; (v) remove, obscure, or alter any notice of any intellectual property or proprietary right appearing on or contained within the Flock Services or Flock IP; (vi) use the Flock Services for anything other

than the Permitted Purpose; or (vii) assign, sublicense, sell, resell, lease, rent, or otherwise transfer, convey, pledge as security, or otherwise encumber, Customer's rights. There are no implied rights.

**5.3 Disclosure of Footage.** Subject to and during the Retention Period, Flock may access, use, preserve and/or disclose the Footage to law enforcement authorities, government officials, and/or third parties, if legally required to do so or if Flock has a good faith belief that such access, use, preservation or disclosure is reasonably necessary to comply with a legal process, enforce this Agreement, or detect, prevent or otherwise address security, privacy, fraud or technical issues, or emergency situations.

## 6. PAYMENT OF FEES

**6.1 Billing and Payment of Fees.** Customer shall pay the fees set forth in the applicable Order Form based on the billing structure and payment terms as indicated in the Order Form. If Customer believes that Flock has billed Customer incorrectly, Customer must contact Flock no later than thirty (30) days after the closing date on the first invoice in which the error or problem appeared to receive an adjustment or credit. Customer acknowledges and agrees that a failure to contact Flock within this period will serve as a waiver of any claim. If any undisputed fee is more than thirty (30) days overdue, Flock may, without limiting its other rights and remedies, suspend delivery of its service until such undisputed invoice is paid in full. Flock shall provide at least thirty (30) days' prior written notice to Customer of the payment delinquency before exercising any suspension right.

**6.2 Notice of Changes to Fees.** Flock reserves the right to change the fees for subsequent Renewal Terms by providing sixty (60) days' notice (which may be sent by email) prior to the end of the Initial Term or Renewal Term (as applicable).

**6.3 Late Fees.** If payment is not issued to Flock by the due date of the invoice, an interest penalty of 1.0% of any unpaid amount may be added for each month or fraction thereafter, until final payment is made.

**6.4 Taxes.** Customer is responsible for all taxes, levies, or duties, excluding only taxes based on Flock's net income, imposed by taxing authorities associated with the order. If Flock has the legal obligation to pay or collect taxes, including amount subsequently assessed by a taxing

authority, for which Customer is responsible, the appropriate amount shall be invoice to and paid by Customer unless Customer provides Flock a legally sufficient tax exemption certificate and Flock shall not charge customer any taxes from which it is exempt. If any deduction or withholding is required by law, Customer shall notify Flock and shall pay Flock any additional amounts necessary to ensure that the net amount that Flock receives, after any deduction and withholding, equals the amount Flock would have received if no deduction or withholding had been required.

## 7. TERM AND TERMINATION

**7.1 Term.** The initial term of this Agreement shall be for the period of time set forth on the Order Form (the "**Term**"). Following the Term, unless otherwise indicated on the Order Form, this Agreement will automatically renew for successive renewal terms of the greater of one year or the length set forth on the Order Form (each, a "**Renewal Term**") unless either Party gives the other Party notice of non-renewal at least thirty (30) days prior to the end of the then-current term.

**7.2 Termination.** Upon termination or expiration of this Agreement, Flock will remove any applicable Flock Hardware at a commercially reasonable time period. In the event of any material breach of this Agreement, the non-breaching Party may terminate this Agreement prior to the end of the Term by giving thirty (30) days prior written notice to the breaching Party; provided, however, that this Agreement will not terminate if the breaching Party has cured the breach prior to the expiration of such thirty (30) day period ("**Cure Period**"). Either Party may terminate this Agreement (i) upon the institution by or against the other Party of insolvency, receivership or bankruptcy proceedings, (ii) upon the other Party's making an assignment for the benefit of creditors, or (iii) upon the other Party's dissolution or ceasing to do business. In the event of a material breach by Flock, and Flock is unable to cure within the Cure Period, Flock will refund Customer a pro-rata portion of the pre-paid fees for Services not received due to such termination.

**7.3 Survival.** The following Sections will survive termination: 1, 3, 5, 6, 7, 8.3, 8.4, 9, 10.1 and 10.6.



## 8. REMEDY FOR DEFECT; WARRANTY AND DISCLAIMER

**8.1 Manufacturer Defect.** Upon a malfunction or failure of Flock Hardware or Embedded Software (a “*Defect*”), Customer must notify Flock’s technical support team. In the event of a Defect, Flock shall make a commercially reasonable attempt to repair or replace the defective Flock Hardware at no additional cost to the Customer. Flock reserves the right, in its sole discretion, to repair or replace such Defect, provided that Flock shall conduct inspection or testing within a commercially reasonable time, but no longer than seven (7) business days after Customer gives notice to Flock.

**8.2 Replacements.** In the event that Flock Hardware is lost, stolen, or damaged, Customer may request a replacement of Flock Hardware at a fee according to the reinstall fee schedule (<https://www.flocksafety.com/reinstall-fee-schedule>). In the event that Customer chooses not to replace lost, damaged, or stolen Flock Hardware, Customer understands and agrees that (1) Flock Services will be materially affected, and (2) that Flock shall have no liability to Customer regarding such affected Flock Services, nor shall Customer receive a refund for the lost, damaged, or stolen Flock Hardware.

**8.3 Warranty.** Flock shall use reasonable efforts consistent with prevailing industry standards to maintain the Services in a manner which minimizes errors and interruptions in the Services and shall perform the Installation Services in a professional and workmanlike manner. Services may be temporarily unavailable for scheduled maintenance or for unscheduled emergency maintenance, either by Flock or by third-party providers, or because of other causes beyond Flock’s reasonable control, but Flock shall use reasonable efforts to provide advance notice in writing or by e-mail of any scheduled service disruption.

**8.4 Disclaimer.** THE REMEDY DESCRIBED IN SECTION 8.1 ABOVE IS CUSTOMER’S SOLE REMEDY, AND FLOCK’S SOLE LIABILITY, WITH RESPECT TO DEFECTS. FLOCK DOES NOT WARRANT THAT THE SERVICES WILL BE UNINTERRUPTED OR ERROR FREE; NOR DOES IT MAKE ANY WARRANTY AS TO THE RESULTS THAT MAY BE OBTAINED FROM USE OF THE SERVICES. EXCEPT AS EXPRESSLY SET FORTH IN THIS SECTION, THE SERVICES ARE PROVIDED “AS IS” AND FLOCK DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A

PARTICULAR PURPOSE AND NON-INFRINGEMENT. THIS DISCLAIMER ONLY APPLIES TO THE EXTENT ALLOWED BY THE GOVERNING LAW OF THE STATE MENTIONED IN SECTION 10.6.

**8.5 Insurance.** Flock will maintain commercial general liability policies as stated in Exhibit B.

**8.6 Force Majeure.** Parties are not responsible or liable for any delays or failures in performance from any cause beyond their control, including, but not limited to acts of God, changes to law or regulations, embargoes, war, terrorist acts, pandemics (including the spread of variants), issues of national security, acts or omissions of third-party technology providers, riots, fires, earthquakes, floods, power blackouts, strikes, supply chain shortages of equipment or supplies, financial institution crisis, weather conditions or acts of hackers, internet service providers or any other third party acts or omissions.

## **9. LIMITATION OF LIABILITY; INDEMNITY**

**9.1 Limitation of Liability.** NOTWITHSTANDING ANYTHING TO THE CONTRARY, FLOCK, ITS OFFICERS, AFFILIATES, REPRESENTATIVES, CONTRACTORS AND EMPLOYEES SHALL NOT BE RESPONSIBLE OR LIABLE WITH RESPECT TO ANY SUBJECT MATTER OF THIS AGREEMENT OR TERMS AND CONDITIONS RELATED THERETO UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY, PRODUCT LIABILITY, OR OTHER THEORY: (A) FOR LOSS OF REVENUE, BUSINESS OR BUSINESS INTERRUPTION; (B) INCOMPLETE, CORRUPT, OR INACCURATE DATA; (C) COST OF PROCUREMENT OF SUBSTITUTE GOODS, SERVICES OR TECHNOLOGY; (D) FOR ANY INDIRECT, EXEMPLARY, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES; (E) FOR ANY MATTER BEYOND FLOCK'S ACTUAL KNOWLEDGE OR REASONABLE CONTROL INCLUDING REPEAT CRIMINAL ACTIVITY OR INABILITY TO CAPTURE FOOTAGE; OR (F) FOR ANY AMOUNTS THAT, TOGETHER WITH AMOUNTS ASSOCIATED WITH ALL OTHER CLAIMS, EXCEED THE FEES PAID AND/OR PAYABLE BY CUSTOMER TO FLOCK FOR THE SERVICES UNDER THIS AGREEMENT IN THE TWELVE (12) MONTHS PRIOR TO THE ACT OR OMISSION THAT GAVE RISE TO THE LIABILITY, IN EACH CASE, WHETHER OR NOT FLOCK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF

LIABILITY OF SECTION ONLY APPLIES TO THE EXTENT ALLOWED BY THE GOVERNING LAW OF THE STATE REFERENCED IN SECTION 10.6.

NOTWITHSTANDING ANYTHING TO THE CONTRARY, THE FOREGOING LIMITATIONS OF LIABILITY SHALL NOT APPLY (I) IN THE EVENT OF GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, OR (II) INDEMNIFICATION OBLIGATIONS.

**9.2 Responsibility.** Each Party to this Agreement shall assume the responsibility and liability for the acts and omissions of its own employees, officers, or agents, in connection with the performance of their official duties under this Agreement. Each Party to this Agreement shall be liable for the torts of its own officers, agents, or employees.

**9.3 Flock Indemnity.** Flock shall indemnify and hold harmless Customer, its agents and employees, from liability of any kind, including claims, costs (including defense) and expenses, on account of: (i) any copyrighted material, patented or unpatented invention, articles, device or appliance manufactured or used in the performance of this Agreement; or (ii) any damage or injury to property or person directly caused by Flock's installation of Flock Hardware, except for where such damage or injury was caused solely by the negligence of the Customer or its agents, officers or employees. Flock's performance of this indemnity obligation shall not exceed the fees paid and/or payable for the services rendered under this Agreement in the preceding twelve (12) months.

## 10. INSTALLATION SERVICES AND OBLIGATIONS

**10.1 Ownership of Hardware.** Flock Hardware is owned and shall remain the exclusive property of Flock. Title to any Flock Hardware shall not pass to Customer upon execution of this Agreement, except as otherwise specifically set forth in this Agreement. Except as otherwise expressly stated in this Agreement, Customer is not permitted to remove, reposition, re-install, tamper with, alter, adjust or otherwise take possession or control of Flock Hardware. Customer agrees and understands that in the event Customer is found to engage in any of the foregoing restricted actions, all warranties herein shall be null and void, and this Agreement shall be subject to immediate termination for material breach by Customer. Customer shall not perform any acts which would interfere with the retention of title of the Flock Hardware by Flock. Should Customer default on any payment of the Flock Services, Flock may remove Flock Hardware at

Flock's discretion. Such removal, if made by Flock, shall not be deemed a waiver of Flock's rights to any damages Flock may sustain as a result of Customer's default and Flock shall have the right to enforce any other legal remedy or right.

**10.2 Deployment Plan.** Flock shall advise Customer on the location and positioning of the Flock Hardware for optimal product functionality, as conditions and locations allow. Flock will collaborate with Customer to design the strategic geographic mapping of the location(s) and implementation of Flock Hardware to create a deployment plan ("***Deployment Plan***"). In the event that Flock determines that Flock Hardware will not achieve optimal functionality at a designated location, Flock shall have final discretion to veto a specific location, and will provide alternative options to Customer.

**10.3 Changes to Deployment Plan.** After installation of Flock Hardware, any subsequent requested changes to the Deployment Plan, including, but not limited to, relocating, re-positioning, adjusting of the mounting, removing foliage, replacement, changes to heights of poles will incur a fee according to the reinstall fee schedule located at (<https://www.flocksafety.com/reinstall-fee-schedule>). Customer will receive prior notice and confirm approval of any such fees.

**10.4 Customer Installation Obligations.** Customer is responsible for any applicable supplementary cost as described in the Customer Implementation Guide, attached hereto as Exhibit C ("***Customer Obligations***"). Customer represents and warrants that it has, or shall lawfully obtain, all necessary right title and authority and hereby authorizes Flock to install the Flock Hardware at the designated locations and to make any necessary inspections or maintenance in connection with such installation.

**10.5 Flock's Obligations.** Installation of any Flock Hardware shall be installed in a professional manner within a commercially reasonable time from the Effective Date of this Agreement. Upon removal of Flock Hardware, Flock shall restore the location to its original condition, ordinary wear and tear excepted. Flock will continue to monitor the performance of Flock Hardware for the length of the Term. Flock may use a subcontractor or third party to perform certain obligations under this agreement, provided that Flock's use of such subcontractor or third party shall not release Flock from any duty or liability to fulfill Flock's obligations under this Agreement.

## 11. MISCELLANEOUS



**11.1 Compliance With Laws.** Parties shall comply with all applicable local, state and federal laws, regulations, policies and ordinances and their associated record retention schedules, including responding to any subpoena request(s).

**11.2 Severability.** If any provision of this Agreement is found to be unenforceable or invalid, that provision will be limited or eliminated to the minimum extent necessary so that this Agreement will otherwise remain in full force and effect.

**11.3 Assignment.** This Agreement is not assignable, transferable or sublicensable by either Party, without prior consent. Notwithstanding the foregoing, either Party may assign this Agreement, without the other Party's consent, (i) to any parent, subsidiary, or affiliate entity, or (ii) to any purchaser of all or substantially all of such Party's assets or to any successor by way of merger, consolidation or similar transaction.

**11.4 Entire Agreement.** This Agreement, together with the Order Form(s), the reinstall fee schedule (<https://www.flocksafety.com/reinstall-fee-schedule>), and any attached exhibits are the complete and exclusive statement of the mutual understanding of the Parties and supersedes and cancels all previous or contemporaneous negotiations, discussions or agreements, whether written and oral, communications and other understandings relating to the subject matter of this Agreement, and that all waivers and modifications must be in a writing signed by both Parties, except as otherwise provided herein. None of Customer's purchase orders, authorizations or similar documents will alter the terms of this Agreement, and any such conflicting terms are expressly rejected. Any mutually agreed upon purchase order is subject to these terms. In the event of any conflict of terms found in this Agreement or any other terms and conditions, the terms of this Agreement shall prevail. Customer agrees that Customer's purchase is neither contingent upon the delivery of any future functionality or features nor dependent upon any oral or written comments made by Flock with respect to future functionality or feature.

**11.5 Relationship.** No agency, partnership, joint venture, or employment is created as a result of this Agreement and Parties do not have any authority of any kind to bind each other in any respect whatsoever. Flock shall at all times be and act as an independent contractor to Customer.

**11.6 Governing Law; Venue.** This Agreement shall be governed by the laws of the state in which the Customer is located. The Parties hereto agree that venue would be proper in the chosen courts of the State of which the Customer is located. The Parties agree that the United Nations Convention for the International Sale of Goods is excluded in its entirety from this Agreement.

**11.7 Special Terms.** Flock may offer certain special terms which are indicated in the proposal and will become part of this Agreement, upon Customer's prior written consent and the mutual execution by authorized representatives ("**Special Terms**"). To the extent that any terms of this Agreement are inconsistent or conflict with the Special Terms, the Special Terms shall control.

**11.8 Publicity.** Flock has the right to reference and use Customer's name and trademarks and disclose the nature of the Services in business and development and marketing efforts.

**11.9 Feedback.** If Agency or Authorized End User provides any suggestions, ideas, enhancement requests, feedback, recommendations or other information relating to the subject matter hereunder, Agency or Authorized End User hereby assigns to Flock all right, title and interest (including intellectual property rights) with respect to or resulting from any of the foregoing.

**11.10 Export.** Customer may not remove or export from the United States or allow the export or re-export of the Flock IP or anything related thereto, or any direct product thereof in violation of any restrictions, laws or regulations of the United States Department of Commerce, the United States Department of Treasury Office of Foreign Assets Control, or any other United States or foreign Customer or authority. As defined in Federal Acquisition Regulation ("FAR"), section 2.101, the Services, the Flock Hardware and Documentation are "commercial items" and according to the Department of Defense Federal Acquisition Regulation ("DFAR") section 252.2277014(a)(1) and are deemed to be "commercial computer software" and "commercial computer software documentation." Flock is compliant with FAR Section 889 and does not contract or do business with, use any equipment, system, or service that uses the enumerated banned Chinese telecommunication companies, equipment or services as a substantial or essential component of any system, or as critical technology as part of any Flock system. Consistent with DFAR section 227.7202 and FAR section 12.212, any use, modification, reproduction, release, performance, display, or disclosure of such commercial software or commercial software documentation by the U.S. Government will be governed solely by the terms of this Agreement and will be prohibited except to the extent expressly permitted by the terms of this Agreement.

**11.11 Headings.** The headings are merely for organization and should not be construed as adding meaning to the Agreement or interpreting the associated sections.

**11.12 Authority.** Each of the below signers of this Agreement represent that they understand this Agreement and have the authority to sign on behalf of and bind the Parties they are representing.

11.13 **Conflict.** In the event there is a conflict between this Agreement and any applicable statement of work, or Customer purchase order, this Agreement controls unless explicitly stated otherwise.

11.14 **Public Disrepute.** In the event Customer or its employees become the subject of an indictment, arrest, public disrepute, contempt, scandal or behaves in a manner that, in the reasonable judgment of Flock, reflects unfavorably upon Flock, and/or their officers or principals, licensees, such act(s) or omission(s) shall constitute a material breach of this Agreement and Flock shall, in addition to any other rights and remedies available to it hereunder, whether at law or in equity, have the right to elect to terminate this Agreement.

11.15 **Notices.** All notices under this Agreement will be in writing and will be deemed to have been duly given when received, if personally delivered; when receipt is electronically confirmed, if transmitted by email; the day after it is sent, if sent for next day delivery by recognized overnight delivery service; and upon receipt, if sent by certified or registered mail, return receipt requested.

FLOCK NOTICES ADDRESS:

1170 HOWELL MILL ROAD, NW SUITE 210

ATLANTA, GA 30318

ATTN: LEGAL DEPARTMENT

EMAIL: [legal@flocksafety.com](mailto:legal@flocksafety.com)

Customer NOTICES ADDRESS:

ADDRESS:

ATTN:

EMAIL:



**EXHIBIT B**  
**INSURANCE**

**Required Coverage.** Flock shall procure and maintain for the duration of this Agreement insurance against claims for injuries to persons or damages to property that may arise from or in connection with the performance of the services under this Agreement and the results of that work by Flock or its agents, representatives, employees or subcontractors. Insurance shall be placed with insurers with a current A. M. Best rating of no less than "A" and "VII". Flock shall obtain and, during the term of this Agreement, shall maintain policies of professional liability (errors and omissions), automobile liability, and general liability insurance for insurable amounts of not less than the limits listed herein. The insurance policies shall provide that the policies shall remain in full force during the life of the Agreement.

**Types and Amounts Required.** Flock shall maintain, at minimum, the following insurance coverage for the duration of this Agreement:

- (i) **Commercial General Liability** insurance written on an occurrence basis with minimum limits of One Million Dollars (\$1,000,000) per occurrence and Two Million Dollars (\$2,000,000) in the aggregate for bodily injury, death, and property damage, including personal injury, contractual liability, independent contractors, broad-form property damage, and product and completed operations coverage;
- (ii) **Umbrella or Excess Liability** insurance written on an occurrence basis with minimum limits of Ten Million Dollars (\$10,000,000) per occurrence and Ten Million Dollars (\$10,000,000) in the aggregate;
- (iii) **Professional Liability/Errors and Omissions** insurance with minimum limits of Five Million Dollars (\$5,000,000) per occurrence and Five Million Dollars (\$5,000,000) in the aggregate;
- (iv) **Commercial Automobile Liability** insurance with a minimum combined single limit of One Million Dollars (\$1,000,000) per occurrence for bodily injury, death, and property coverage, including owned and non-owned and hired automobile coverage; and
- (v) **Cyber Liability** insurance written on an occurrence basis with minimum limits of Five Million Dollars (\$5,000,000).

## Customer Implementation Guide

# Law Enforcement



flock safety

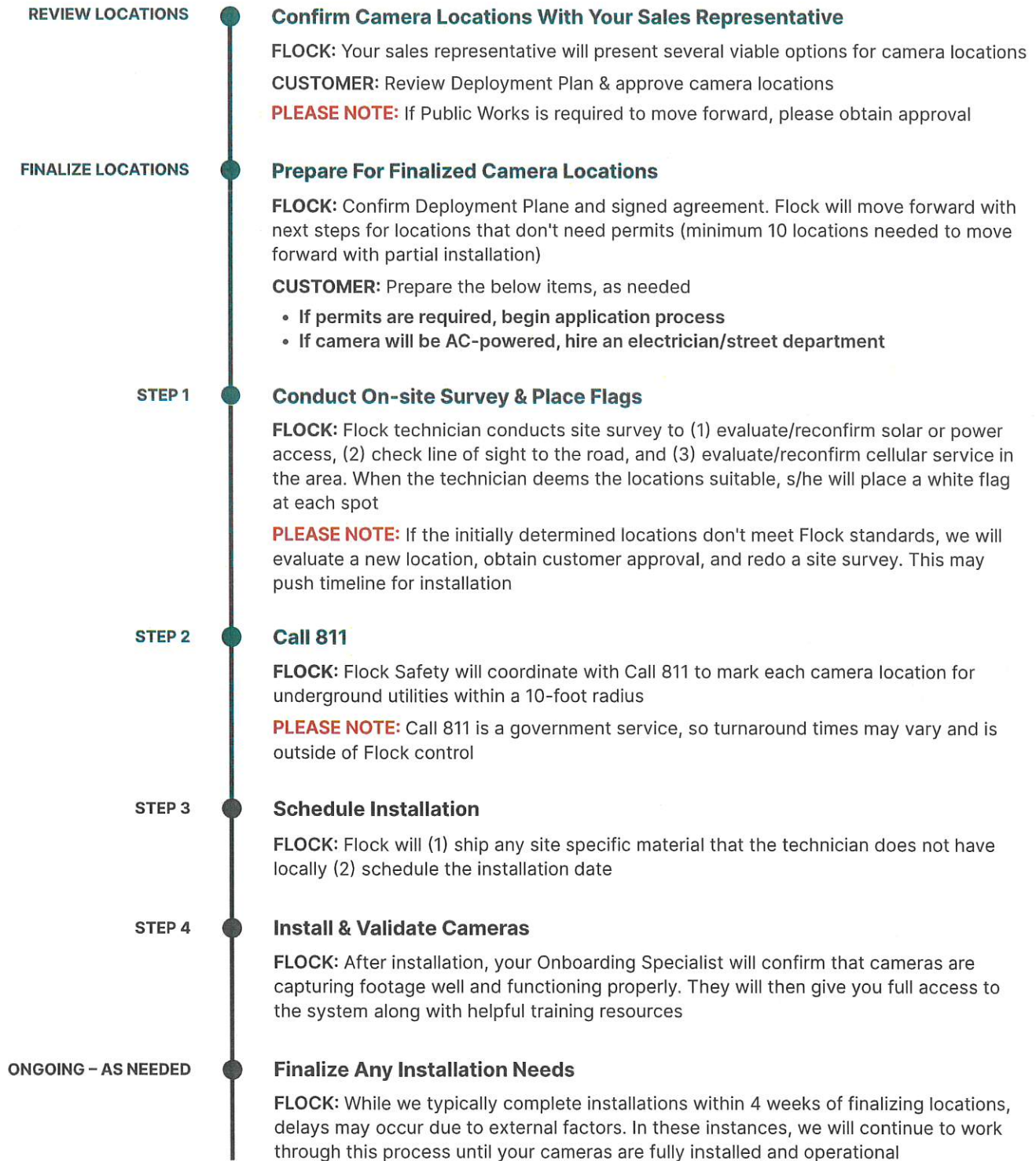


# Table of Contents



Implementation Timeline .....	2
Flock Safety Team .....	3
Implementation Service briefs: Existing Infrastructure vs Standard vs Advanced .....	6
• Existing Infrastructure Implementation	
• Standard Implementation	
• Advanced Implementation	
Things to Consider When Selecting Locations .....	12
Customer Responsibilities: AC-Powered Cams .....	14
Electrician Handout .....	15
• Electrician Installation Steps	
• FAQs about AC-Powered Flock Cameras	
Installation Service Brief Summary .....	18
Permitting: Pre-Install Questionnaire .....	19
1. Timeline	
2. Right of Way	
3. AC Power vs. Solar	
4. Traffic Control & Installation Methods	
5. Paperwork & Required Forms	
6. Contacts	
*Fee Schedule .....	21
Help Center .....	22
Customer Support .....	22

# Implementation Timeline



This timeline provides general guidance and understanding of your installation process. While we typically complete installations 6-8 weeks after locations have been finalized, delays can occur as noted in the timeline below:



# Flock Safety Team

Implementation Team	How They Will Support You
 <b>Project Manager</b>	<p>Your <b>Project Manager</b> is your <b>primary contact during camera installation</b>.</p> <p>Your project manager will guide you through the entire installation process, keeping you apprised of all implementation updates as well as answering any questions you have during this time. They will ensure that all the cameras are on the ground and operating for at least 48 hours before transitioning you to your Customer Success Manager.</p>
 <b>Field Operations Team</b>	<ul style="list-style-type: none"><li>• The Field Operations team is responsible for the physical installation and maintenance of cameras and associated equipment provided by Flock. This includes a large team of technicians, schedulers, and many others involved in ensuring the delivery of the product.</li><li>• They take the technical plan you finalized with Product Implementation and work closely with other teams at Flock to make sure that the cameras are installed quickly and safely and in a way that maximizes the opportunity to solve crime at a specific location.</li><li>• <b>*Note*:</b> For <b>all installation questions or concerns</b>, please always direct them to your <b>Customer Success Manager</b> and not the technician.</li></ul>



Relationship Team	How They Will Support You
 <p><b>Customer Success Manager</b></p>	<p>Your Customer Success Manager is your strategic partner for your lifetime as a Flock customer.</p> <p>While the cameras are getting installed, your CSM will help get your account set up and get all key users trained on the system.</p> <p>Post-Camera-Installation, your CSM will be your go-to for most account-related needs: You should reach out to them to:</p> <ul style="list-style-type: none"><li>• Set up Account Training</li><li>• Understand benefits of features</li><li>• Learning best practices for getting relevant data</li><li>• Identifying opportunities to expand the security network in your area</li><li>• Provide feedback on your partnership with Flock</li></ul>
 <p><b>Flock Safety Support</b></p>	<p>The Flock Safety Support team is committed to answering all your day-to-day questions as quickly as possible. <b>To get in touch with support</b>, simply email <a href="mailto:support@flocksafety.com">support@flocksafety.com</a> or call <b>866-901-1781 Mon-Fri 8am-8pm EST.</b></p> <p>Support can help you:</p> <ul style="list-style-type: none"><li>• Request camera maintenance</li><li>• Troubleshoot online platform</li><li>• Contract / Billing questions</li><li>• Update account information</li><li>• Camera Sharing questions</li><li>• Quick "How to" questions in your Flock Account</li></ul>

Outside Party	When They May Be Involved
Electrician/Street Department	If the Flock cameras need to be AC powered, you (customer) are responsible for providing an electrician to ensure power connectivity
Public Works (LE)	To weigh in on the use of public Rights of Way or property
Department of Transportation (DOT), City, or County agencies	If installation in your area requires permitting

**PLEASE NOTE:** On some occasions, third parties outside of Flock Safety may be (or need to be) involved in your implementation.

## Implementation Service Briefs: Existing Infrastructure vs Standard vs Advanced

	Existing Infrastructure Install	Standard Install	Advanced Install
<b>Pole</b>	None	Flock	NCHRP 350 / MASH
<b>Timeline</b>	Short	Medium	Longest
<b>Cost</b>	Lowest	Mid	Highest

### Existing Infrastructure Implementation

**COST:** \$150 per camera (one time cost)

#### Included In Scope:

Once designated locations are approved by the customer, as part of the **Existing Infrastructure Implementation Service** Flock will perform the following:

- An in-person site survey to confirm the installation feasibility of a location (location assessment, solar assessment, visibility review, etc.)
  - Cameras need sufficient power. Since a solar panel is required per camera, it can prevent adequate solar power if two cameras and two solar panels are on a single pole (blocking visibility). Therefore if relying on solar power, only one camera can be installed per pole.
- Confirm that a location is safe for work by following State utility locating procedures.
- Each installation may include the following:
  - Installation of camera and solar panel or AC adapter box on a suitable existing pole



- Types of existing infrastructure such as existing utility, light, and traffic signal poles.
- Pole no higher than 8'-12' (approval at Flock Safety's discretion)
- Flock will provide and mount an AC adapter unit that a qualified electrician can connect to AC power following our **electrical wiring requirements**. Flock is unable to make any AC connections or boreholes in any material other than dirt, grass, loose gravel (or other non-diggable material). Electrical work requiring a licensed electrician and associated costs, not included in the scope.
  - Access requiring up to a 14' using an A-frame ladder
  - Standard MUTCD traffic control procedures performed by a Flock technician
- Obtain a business license to operate in the city and state of camera location

## Out Of Scope:

By default, Flock does **not** include the following as part of the **Existing Infrastructure Implementation Service** but can provide a quote for sourcing at an additional cost:

- Mounting on mast arms (always require bucket truck and traffic control)
- Call 811 'Call-before-you-Dig' system
- Installation of any poles including but not limited to
  - Standard, 12' above grade **Flock breakaway pole**
  - NCHRP 350 or MASH approved pole (as may be required for locations in DOT right of way)
- A Bucket Truck for accessing horizontal/cross-beams and/or height above 14'
- Special equipment rentals for site access
- Site-specific engineered traffic plans
- Third-party provided traffic control
- State or city-specific specialty contractor licenses or unique attachment/connection requirements
- Custom engineered drawings
- Electrical work requires a licensed electrician.

- Flock will provide and mount an AC adapter that a qualified electrician can connect to AC power but cannot make any AC connections or boreholes in any material other than dirt, grass, loose gravel (or other non-diggable material).
- Concrete cutting
- Private utility search for privately owned items not included in standard 811 procedures (communication, networking, sprinklers, etc.)
- Upgrades to power sources to ready them for Flock power (additional fuses, switches, breakers, etc.)
- Any fees or costs associated with filing for required city, county, or state permits
- Licensing or attachment agreements with asset / infrastructure owners
- Utility contracts and billing
- Customer requested relocations (see fee schedule)

## Standard Implementation

**COST:** \$650 per camera (one time cost)

### Included In Scope:

Once designated locations are approved by the customer, as part of the **Standard Implementation Service** Flock will perform the following:

- An in-person site survey to confirm the installation feasibility of a location (location assessment, solar assessment, visibility review, etc.)
- Confirm that a location is safe for work by following state utility locating procedures. Work with local utilities to prevent service interruptions during the installation
  - Engage 811 'Call-before-you-Dig' system to receive legal dig date
  - Apply approved markings Coordinate with 811 regarding any necessary high-risk dig clearances or required vendor meets
- Each installation may include the following:
  - Installation of camera and solar panel with **standard, 12' above grade Flock breakaway pole**

- Installation of camera and AC adapter that a qualified electrician can connect to AC power on a suitable existing pole, no higher than 8-12' (approval at Flock Safety's discretion)
  - Flock will provide and mount an AC adapter that a qualified electrician can connect to AC power following our **electrical wiring requirements**. Flock is unable to make any AC connections or boreholes in any material other than dirt, grass, loose gravel (or other non-diggable material). Electrical work requiring a licensed electrician and associated costs, not included in the scope.
- Access requiring up to a 14' A-frame ladder
- Standard MUTCD traffic control procedures performed by a Flock technician
- Obtain a business license to operate in the City and State of camera location

## Out Of Scope:

By default, Flock does **not** include the following as part of the Standard Implementation Service but can provide a quote for sourcing at an additional cost:

- Use and/or mounting to existing infrastructure.
- NCHRP 350 or MASH approved pole (as may be required for locations in DOT right of way)
- A Bucket Truck for accessing horizontal/cross-beams and/or height above 14'
- Special equipment rentals for site access
- Site-specific engineered traffic plans
- Third-party provided traffic control
- State or city-specific specialty contractor licenses
- Custom engineered drawings
- Electrical work requires a licensed electrician.
  - Flock will provide and mount an AC adapter that a qualified electrician can connect to AC power but cannot make any AC connections or boreholes in any material other than dirt, grass, loose gravel (or other non-diggable material).
- Concrete cutting
- Private utility search for privately owned items not included in standard 811 procedures (communication, networking, sprinklers, etc.)



- Upgrades to power sources to ready them for Flock power (additional fuses, switches, breakers, etc.)
- Any fees or costs associated with filing for required city, county, or state permits
- Licensing or attachment agreements with asset / infrastructure owners
- Utility contracts and billing
- Customer requested relocations (see fee schedule)

## Advanced Implementation

**COST:** \$1,900 per camera (one time cost)

### Included In Scope:

Once Designated Locations are confirmed, as part of the **Advanced Implementation Service**, Flock will perform the following:

- An in-person site survey to confirm the installation feasibility of a location (location assessment, solar assessment, visibility review, etc.)
- Confirm that a location is safe for work by following State utility locating procedures. Work with local utilities to prevent service interruptions during the installation
  - Engage 811 'Call-before-you-Dig' system to receive legal dig date
  - Apply approved markings Coordinate with 811 regarding any necessary high-risk dig clearances or required vendor meets
- Each installation may include the following:
  - Installation of camera and solar panel on a suitable **NCHRP 350 or MASH** approved pole.
  - Installation of camera and AC adapter that a qualified electrician can connect to AC power.
    - Flock will provide and mount an AC adapter that a qualified electrician can connect to AC power following our [electrical wiring requirements](#). Flock cannot make any AC connections or boreholes in any material other than dirt, grass, loose gravel (or other non-diggable material).

Electrical work requiring a licensed electrician and associated costs, not included in the scope.

- Access requiring up to a 14' A-frame ladder
- Standard MUTCD traffic control procedures performed by a Flock technician
- Obtain a business license to operate in the City and State of camera location

## Out Of Scope:

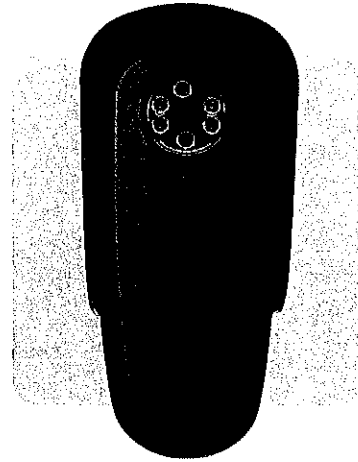
By default, Flock does not include the following as part of the **Advanced Implementation Service** but can optionally provide a quote for sourcing (additional cost):

- Installation on **Standard, 12' above grade Flock breakaway pole** or existing infrastructure.
- A Bucket Truck for accessing horizontal/cross-beams and/or height above 14'
- Special equipment rentals for site access
- Site-specific engineered traffic plans
- Third-party provided traffic control
- State or City-specific specialty contractor licenses
- Custom engineered drawings
- Electrical work requires a licensed electrician. Flock will provide and mount an AC adapter that a qualified electrician can connect to AC power but cannot make any AC connections or boreholes in any material other than dirt, grass, loose gravel (or other non-diggable material).
- Concrete cutting
- Private utility search for privately owned items not included in standard 811 procedures (communication, networking, sprinklers, etc.)
- Upgrades to power sources to ready them for Flock power (additional fuses, switches, breakers, etc.)
- Fees or costs associated with filing for required City, County, or State permits

# Things to Consider When Selecting Locations

## Falcon Cameras

- Use Cases
  - Flock LPRs are designed to capture images of rear license plates aimed in the direction of traffic.
  - Flock LPRs are not designed to capture pedestrians, sidewalks, dumpsters, gates, other areas of non-vehicle traffic, intersections.
- Placement
  - They capture vehicles driving away from an intersection.
  - They cannot point into the middle of an intersection.
  - They should be placed after the intersection to prevent stop and go motion activation or “stop and go” traffic.
- Mounting
  - They can be mounted on existing utility, light, traffic signal poles, or 12 foot Flock poles.\*
  - They should be mounted one per pole.\*\* If using AC power, they can be mounted 2 per pole.
- They can be powered with solar panels or direct wire-in AC Power (no outlets).\*\*\*
- They will require adequate cellular service using AT&T or T-Mobile to be able to process & send images.



\* Permitting (or permission from pole owner) may be required to use existing infrastructure or install in specific areas, depending on local regulations & policies.

\*\* Cameras need sufficient power. Since a solar panel is required per camera, it can prevent adequate solar power if two cameras and two solar panels are on a single pole (blocking visibility). Therefore if relying on solar power, only one camera can be installed per pole.

\*\*\* Flock does not provide Electrical services. Once installed, the agency or community must work with an electrician to wire the cameras. Electrician services should be completed within two days of installation to prevent the camera from dying.



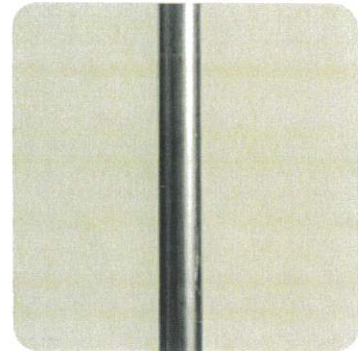
## Solar Panels

Solar panels need unobstructed southern-facing views.



## Pole

If a location requires a "DOT Pole" (i.e., Advanced Pole, **not** Flock standard pole), the implementation cost will be \$5,000/camera.



## Customer Responsibilities: AC-Powered Cams

If the Flock cameras need to be AC-powered, the **customer is responsible** for acquiring an electrician and ensuring they connect the camera to power. **See steps 2 and 6 below.**

### How to Get Started with a Powered Install



#### 1. Create a Deployment Plan

Work with us to select the best location(s) for Flock Safety cameras and power sources



#### 2. Acquire an Electric Quote

Contact an electrician to receive a quote to run 120volt AC power to the camera



#### 3. Sign Flock Safety Agreement

Sign the Flock Safety purchase order to begin the installation of cameras



#### 4. Conduct Site Survey

Flock will mark camera locations, locate underground utilities and mark if present



#### 5. Install Camera

Flock will install the camera and AC power kit at the specified camera location



#### 6. Connect Camera to Power

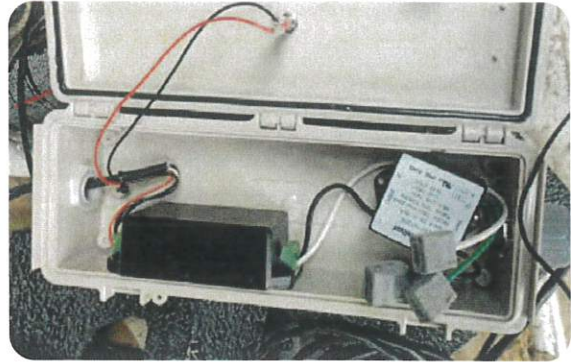
Notify the electrician that the camera is ready for the power connection installation



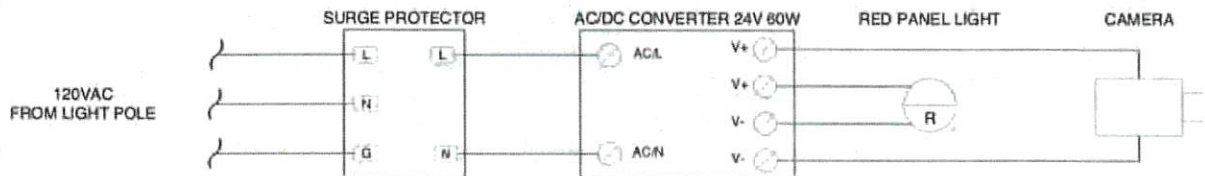
# Electrician Handout

## Electrician Installation Steps

1. Run AC cable and conduit to the box according to NEC Article 300 and any applicable local codes. The gland accepts 1/2" conduit.
2. Open the box using hinges.
3. Connect AC Mains per wiring diagram below:
  - a. Connect AC Neutral wire to the Surge Protector white Neutral wire using the open position on the lever nut.
  - b. Connect AC Line wire to the Surge Protector black Line wire using the open position on the lever nut.
  - c. Connect AC Ground wire to the Surge Protector green ground wire using the open position on the lever nut.
4. Verify that both the RED LED is lit on the front of the box
5. Close box and zip tie the box shut with the provided zip tie
6. While still on-site, call Flock, who will remotely verify that power is working correctly:



**Southeast Region - (678) 562-8766**  
**West-Region - (804) 607-9213**  
**Central & NE Region - (470) 868-4027**



## **FAQs about AC-Powered Flock Cameras**

### **What voltage is supported?**

The AC kit is designed to work with 120VAC Infrastructure by default. A 240VAC version is available on request.

### **How much power does this consume?**

Peak current draw is 1.5 A at 120VAC. The average power draw is roughly 30W in high traffic conditions but maybe lower when fewer vehicles are present.

### **Who is responsible for contracting the electrician?**

The customer is responsible for contracting an electrician. We can help answer questions, but the customer is responsible for identifying and contracting an electrician.

### **Who is responsible for maintenance?**

Flock will handle all maintenance related to Flock's camera and power equipment. However, any problems with the electrical supply are the customer's responsibility. The AC junction box has two lights to indicate the presence of power and make it easy for quick diagnosis if there is a problem related to the AC power source.

- If the camera indicates to Flock that there is a power supply problem, Flock will notify the customer and request that the customer verifies the lights on the AC junction box. If the AC Source light is illuminated, Flock will send a technician to investigate. If the AC source light is not illuminated, the customer should check any GFCI's or breakers in the supply circuit or call the electrician who installed the power supply.

### **How much does it cost?**

Work required to bring AC power to each location will be different, so exact pricing is unavailable. Primary cost drivers include arrow boards and the distance from the camera location to the AC power source.

### **What information do I need to provide my electrician?**

The Flock deployment plan and these work instructions should be sufficient to secure a quote. It will be helpful if you know the location of the existing power infrastructure before creating the deployment plan.

**Can you plug it into my existing power outlet?** The Flock AC power adapter does not use a standard outlet plug but must be directly wired into the power mains. While using outlet plugs may be convenient, they can easily be unplugged, presenting a tampering risk to this critical safety infrastructure. The electrician can route power directly to the camera with a direct wire-in connection if an outlet is close to the camera.

**How long does this process typically take?**

The installation process typically takes 6-8 weeks. To accelerate the process, be sure to have the electrician perform his work shortly after the Flock technician finishes installing the camera.

**What kind of electrician should I look for?**

Any licensed electrician should perform this work, though we have found that those who advertise working with landscape lighting are most suited for this work.

**What happens if the electrician damages the equipment?**

The customer is responsible for contracting the electrician. Any liability associated with this work would be assumed by the customer. If any future work is required at this site due to the electrical infrastructure or the work performed by the electrician would be the responsibility of the customer.

**When should the electrician perform his work?**

Once Flock installs the camera, you will receive an email alert letting you know that this has been completed. After this, you will need to schedule the electrician to route power to the pole.

**What if my electrician has questions about Flock's AC Kit?**

You should share the [AC-Power Kit Details](#) packet with the electrician if they have questions.

**What if the AC power is on a timer?**

Sometimes the AC power will be on a timer (like used for exterior lighting). Flock requires that the AC power provided to the camera be constant. The source that the electrician uses must not be on a timing circuit.

# Installation Service Brief Summary

Below outlines the statement of work for the Flock Camera Installation:

What Is Covered By Flock	What Is NOT Covered By Flock	Special Note
Flock Cameras & Online Platform	Traffic Control And Any Associated Costs	
Mounting Poles	*DOT Approved Pole Cost Electrician & Ongoing Electrical Costs	
AC Power Kit (As Needed)	Engineering Drawings	
Solar Panels (As Needed)	Relocation Fees	<i>Excluding Changes During Initial Installation</i>
Site Surveys And Call 811 Scheduling	Contractor Licensing Fees	
Installation Labor Costs	Permit Application Processing Fees	
Customer Support / Training	Specialist Mounting Equipment	<i>Including, But Not Limited To, **MASH Poles Or Adapters</i>
Cellular Data Coverage	Bucket Trucks	
Maintenance Fees (Review <a href="#">Fees Sheet</a> For More Details)	Loss, Theft, Damage To Flock Equipment	
Data Storage For 30 Days	Camera Downtime Due To Power Outage	<i>Only Applicable For AC-Powered Cameras</i>
	***Field Technician Maintenance For <b>Falcon™ Flex</b>	

\*If a location requires a "DOT pole" (i.e., not our standard), the implementation cost will be \$5,000/camera; This cost is applicable for installations in GA, IL, SC, TN, and CA.

\*\*MASH poles: Manual for Assessing Safety Hardware (MASH) presents uniform guidelines for crash testing permanent and temporary highway safety features and recommends evaluation criteria to assess test results

\*\*\*If a camera is lost, stolen, or damaged, a replacement device can be purchased at a discounted price of \$800

# Permitting: Pre-Install Questionnaire

## 1. Timeline

- In Flock Safety's experience, in-depth permitting requirements can **add 2+ months to the installation timeline**.
- The SLA for permit document submission is within 15 days from contract signature date (contract Closed-Won)

## 2. Right of Way

- Will any Flock Safety cameras be installed on the city, state, or power company-owned poles or in the city, county, or state Right of Way (RoW)?
  - What is the RoW buffer?
  - Will additional permits or written permission be required from third-party entities (such as DOT, power companies, public works, etc.)?
- Will any cameras be installed on city-owned traffic signal poles (vertical mass)?
  - If yes, please provide heights/photos to determine if a bucket truck is needed for the installation.
    - Note: A bucket truck is required if the height exceeds 15 feet tall.

## 3. AC Power vs. Solar

- If AC powered, is there a 120V power source available, and is there access to an electrician who can connect the existing wire to the Flock Safety powered **installation kit**?
- If solar-powered, consider the size of the solar panel and potential to impact the visibility of DOT signs/signals:
  - Single Panel: 21.25" x 14" x 2" (Length x Width x Depth)
  - Double Panel: 21.25" x 28" x 2" (LxWxD)

## 4. Traffic Control & Installation Methods

- **If a bucket truck is required**, this typically necessitates an entire lane to be blocked in the direction of travel. **Can you provide a patrol car escort, or will full traffic control be required?\***

**PLEASE NOTE:** If traffic control is required, you may incur additional costs due to city/state requirements; Fees will be determined by quotes received.

- **If full traffic control is required (cones, arrow boards, etc.):**
  - Will standard plans suffice, or are custom plans needed? Custom plans can double the cost, while standard plans can be pulled from the Manual of Uniform Traffic Control Devices (**MUTCD**).
  - Will a non-sealed copy of the traffic plan suffice? Or does the traffic plan need to be sealed and/or submitted by a professional engineer?
  - Are there state-specific special versions/variances that must be followed?
- **If a bucket truck is *not* required**, the shoulder or sidewalk should suffice and enable Flock Safety to proceed without traffic control systems in place.
  - Note: In some states (i.e., arrow boards), sidewalks may require signage. If signage is mandatory, Will your Public Works department be able to assist?

## 5. Paperwork & Required Forms

- Flock Safety will need copies of paperwork to complete before proceeding (ex., business license applications, encroachment permit applications). We can save critical time by gathering these documents upfront. We appreciate your assistance in procuring these.

## 6. Contacts

- If Flock Safety needs to interface directly with the departments, please share the contact information of the following departments:
  - Permitting
  - Public Works
  - Traffic Department



**\*Fee Schedule**

After a deployment plan with Designated Locations and equipment has been agreed upon by both Flock and the Customer, any subsequent changes to the deployment plan (“Reinstalls”) driven by a Customer’s request will incur a fee per the table below.

**What Services Incur Fees:**

- Requested relocations post-approval by customer
- Relocations due to poor performance will be the responsibility of Flock
  - If a customer requests a location against the advisement of Flock, performance issues and any requested relocations will be the responsibility of the customer.
- Per the contract and absent a defect, in the event that Flock Hardware is lost, stolen, or damaged, Customer may request that Flock replace the Flock Hardware at a fee according to the then-current Reinstall policy  
<https://www.flocksafety.com/reinstall-fee-schedule>
- Misc billables for out of scope items for each implementation

**Incurred Fees:**

- Camera relocation
  - Existing infrastructure (non-AC powered)..... **\$350**
  - Flock pole (non-AC powered)..... **\$750**
  - Advanced pole (non-AC powered)..... **\$5000**
- Replacements
  - Camera only as a result of vandalism, theft, or damage ..... **\$800**
  - Pole replacement only as a result of vandalism, theft, or damage
    - Flock pole ..... **\$500**
    - Advanced pole ..... **\$5000**
  - Full replacement as a result of vandalism, theft, or damage
    - Flock pole, camera, and solar (non-AC Powered)..... **\$1300**
    - Advanced pole, camera, and solar (non-AC Powered)..... **\$5800**

- Trip charge ..... **\$350**
  - Examples:
    - Angle adjustment (elective)
    - Install additional Flock signage

All fees are per reinstall or required visit (in the case that a reinstall is attempted but not completed) and include labor and materials. If you have any questions, please email [support@flocksafety.com](mailto:support@flocksafety.com).

## Help Center

Our Help Center is filled with many resources to help you navigate through the online platform. Below you will find some common questions and their relevant help article:

**[How do I search camera footage?](#)**

**[How do I add a user?](#)**

**[How do I add a vehicle to my own Hot List?](#)**

**[How do I enable browser notifications for Hot List alerts?](#)**

**[How do I get text alerts for Hot List?](#)**

**[How do I request camera access from other nearby agencies?](#)**

**[How do I use the National Lookup to search for a plate?](#)**

*(National Lookup - network of law enforcement agencies that have opted to allow their network of Flock cameras to be used for searches)*

**[How do I reset my / another user's password?](#)**

## Customer Support

You can reach our customer support team anytime by emailing [support@flocksafety.com](mailto:support@flocksafety.com). They can help answer any "How-To" questions you may have.





## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** James Allen, Lieutenant  
**DEPARTMENT:** Police

### AGENDA ITEM DESCRIPTION:

Consideration, discussion, and possible action on a Resolution approving and adopting the Travis County's Hazard Mitigation Action Plan (HMAP) Update.

### BACKGROUND/SUMMARY:

In 2022 the City of Manor entered into an inter-local agreement with the Travis County Office of Emergency Management for the Travis County Hazard Mitigation Action Plan (HMAP). An HMAP is required to participate in grant programs provided by the Federal Emergency Management Agency (FEMA) and the Texas Division of Emergency Management (TDEM). These funds will allow the City to determine its hazard response level, and to take action to prepare for any possible hazards. This will include training, equipment, and exercises in coordination with a multi-jurisdictional plan. The HMAP is required to be updated every five (5) years.

The City of Manor has numerous other vulnerabilities beyond that of tornadoes. Other natural and man-made disasters pose a risk to the city, and they need to be identified. Continuing this partnership with Travis County in the HMAP process will aid the City in identifying those vulnerabilities, establishing priorities to address and mitigate these issues, conducting response planning and preparedness, as well as recovery planning.

**LEGAL REVIEW:** Not Applicable  
**FISCAL IMPACT:** No  
**PRESENTATION:** No  
**ATTACHMENTS:** Yes

- Resolution No. 2023-37
- 2023 Travis County HMAP Update

### STAFF RECOMMENDATION:

The city staff recommends that the City Council approve Resolution No.2023-37 adopting the Travis County's Hazard Mitigation Action Plan (HMAP) Update.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**

**RESOLUTION NO. 2023-37****A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MANOR, TEXAS,  
APPROVING THE HAZARD MITIGATION ACTION PLAN UPDATE**

WHEREAS, natural hazards in the City of Manor area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of Manor has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Travis County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The Travis County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of Manor will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The City of Manor vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of Manor to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

**PASSED, ADOPTED, AND APPROVED** on this 15<sup>th</sup> day of November 2023.

**THE CITY OF MANOR, TEXAS**

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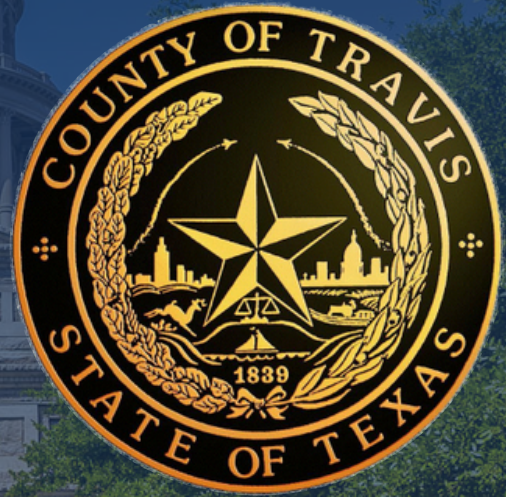
Dr. Christopher Harvey, Mayor

**ATTEST:**

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Lluvia T. Almaraz, City Secretary

# TRAVIS COUNTY HAZARD MITIGATION ACTION PLAN



## UPDATE 2023

**Draft**

Maintaining a Safe, Secure,  
and Sustainable Community



**H2O**  
PARTNER

For more information, visit our website at:

<https://www.traviscountytx.gov/>

Written comments should be forwarded to:

H2O Partners, Inc.

P. O. Box 160130

Austin, Texas 78716

[info@h2opartnersusa.com](mailto:info@h2opartnersusa.com)

[www.h2opartnersusa.com](http://www.h2opartnersusa.com)



## SECTION 1 – INTRODUCTION

Background.....	1-1
Scope .....	1-2
Purpose .....	1-2
Authority.....	1-3
Summary of Sections .....	1-3

## SECTION 2 – PLANNING PROCESS

Plan Preparation and Development.....	2-1
Review and Incorporation of Existing Plans .....	2-10
Timeline for Implementing Mitigation Actions .....	2-14
Public and Stakeholder Involvement .....	2-15

## SECTION 3 – COUNTY PROFILE

Overview.....	3-1
Population and Demographics .....	3-4
Population Growth .....	3-7
Economic Impact .....	3-8
Natural, Cultural, and Historic Resources.....	3-9
Existing Land Use and Development Trends .....	3-12
Future Growth and Development .....	3-14

## SECTION 4 – RISK OVERVIEW

Hazard Description .....	4-1
Disaster Declaration History .....	4-4
Natural Hazards and Climate Change .....	4-6
Overview of Hazard Analysis .....	4-8
Hazard Ranking .....	4-10

## SECTION 5 – WILDFIRE

Hazard Description .....	5-1
Location .....	5-2
Extent .....	5-18
Historical Occurrences .....	5-37
Probability of Future Events .....	5-42

Vulnerability and Impact .....	5-42
Climate Change Considerations .....	5-67

## SECTION 6 – LIGHTNING

Hazard Description .....	6-1
Location .....	6-1
Extent .....	6-1
Historical Occurrences .....	6-3
Probability of Future Events .....	6-6
Vulnerability and Impact .....	6-6
Climate Change Considerations .....	6-11

## SECTION 7 – DROUGHT

Hazard Description .....	7-1
Location .....	7-1
Extent .....	7-1
Historical Occurrences .....	7-3
Probability of Future Events .....	7-6
Vulnerability and Impact .....	7-6
Climate Change Considerations .....	7-11

## SECTION 8 – EXTREME HEAT

Hazard Description .....	8-1
Location .....	8-1
Extent .....	8-1
Historical Occurrences .....	8-4
Probability of Future Events .....	8-6
Vulnerability and Impact .....	8-6
Climate Change Considerations .....	8-10

## SECTION 9 – FLOOD

Hazard Description .....	9-1
Location .....	9-2
Extent .....	9-19
Historical Occurrences .....	9-22



Probability of Future Events .....	9-28
Vulnerability and Impact .....	9-28
Climate Change Consideration .....	9-34
NFIP Participation .....	9-35
NFIP Compliance and Maintenance .....	9-37
Repetitive Loss .....	9-38

## SECTION 10 – THUNDERSTORM WIND

Hazard Description .....	10-1
Location .....	10-1
Extent .....	10-2
Historical Occurrences .....	10-3
Probability of Future Events .....	10-9
Vulnerability and Impact .....	10-10
Climate Change Considerations .....	10-15

## SECTION 11 – HAIL

Hazard Description .....	11-1
Location .....	11-1
Extent .....	11-2
Historical Occurrences .....	11-3
Probability of Future Events .....	11-7
Vulnerability and Impact .....	11-7
Climate Change Considerations .....	11-12

## SECTION 12 – WINTER STORM

Hazard Description .....	12-1
Location .....	12-3
Extent .....	12-3
Historical Occurrences .....	12-5
Probability of Future Events .....	12-7
Vulnerability and Impact .....	12-8
Climate Change Considerations .....	12-12

## SECTION 13 – TORNADO

Hazard Description .....	13-1
Location .....	13-1
Extent .....	13-2
Historical Occurrences .....	13-4
Probability of Future Events .....	13-9
Vulnerability and Impact .....	13-9
Climate Change Considerations .....	13-15

## SECTION 14 – DAM FAILURE

Hazard Description .....	14-1
Location .....	14-3
Extent .....	14-5
Historical Occurrences .....	14-8
Probability of Future Events .....	14-8
Vulnerability and Impact .....	14-8
Climate Change Considerations .....	14-12

## SECTION 15 – EXPANSIVE SOILS

Hazard Description .....	15-1
Location .....	15-1
Extent .....	15-4
Historical Occurrences .....	15-7
Probability of Future Events .....	15-8
Vulnerability and Impact .....	15-8
Climate Change Considerations .....	15-12

## SECTION 16 – MITIGATION STRATEGY

Mitigation Goals .....	16-1
Goal 1 .....	16-1
Goal 2 .....	16-1
Goal 3 .....	16-2
Goal 4 .....	16-2
Goal 5 .....	16-2

Goal 6 .....	16-2
--------------	------

## SECTION 17 – PREVIOUS ACTIONS

Summary .....	17-1
2017 Travis County HMP .....	17-2
Travis County-Wide .....	17-2
Travis County .....	17-7
City of Lakeway .....	17-57
City of Manor .....	17-63
City of Pflugerville .....	17-71
City of Sunset Valley .....	17-90
Village of The Hills .....	17-109
2017 Travis County Communities Plan .....	17-123
Village of Briarcliff .....	17-123
City of Jonestown .....	17-129
City of Lago Vista .....	17-139
City of Mustang Ridge .....	17-146
Village of Point Venture .....	17-150
Village of San Leanna .....	17-154
City of West Lake Hills .....	17-160

## SECTION 18 – MITIGATION ACTIONS

Summary .....	18-1
Travis County-Wide Actions .....	18-3
Travis County .....	18-9
Village of Briarcliff .....	18-82
City of Creedmoor .....	18-91
City of Jonestown .....	18-92
City of Lago Vista .....	18-98
City of Lakeway .....	18-108
City of Manor .....	18-150
City of Mustang Ridge .....	18-163
City of Pflugerville .....	18-177
Village of Point Venture .....	18-194

City of Rollingwood .....	18-205
Village of San Leanna .....	18-214
City of Sunset Valley .....	18-224
Village of The Hills .....	18-239
City of West Lake Hills .....	18-285
Emergency Services District (ESD) #6 .....	18-304

## SECTION 19 – PLAN MAINTENANCE

Plan Maintenance Procedures .....	19-1
Incorporation .....	19-1
Monitoring and Evaluation .....	19-5
Updating .....	19-7
Continued Public Involvement .....	19-8

## APPENDIX A – PLANNING TEAM

## APPENDIX B – PUBLIC SURVEY RESULTS

## APPENDIX C – CRITICAL FACILITIES

## APPENDIX D – DAM LOCATIONS

## APPENDIX E – MEETING DOCUMENTATION

## APPENDIX F – CAPABILITY ASSESSMENT

## APPENDIX G – STATE AND FEDERAL FUNDING OPPORTUNITIES





# SECTION 1 INTRODUCTION



Background.....	1
Scope .....	2
Purpose .....	2
Authority.....	3
Summary of Sections.....	3

## BACKGROUND

Travis County is located in south central Texas, between San Antonio and Dallas-Fort Worth. The Colorado River meanders through the county from west to east, forming a series of man-made lakes (Lake Travis, Lake Austin, and Lady Bird Lake). The following counties are located around Travis County: Williamson County to the north, Bastrop County to the east, Caldwell County to the south, Hays County to the southwest, Blanco County to the west, and Burnet County to the northwest. The county seat and largest city is Austin, the capital of Texas.

Texas is prone to extremely heavy rains and flooding with half of the world record rainfall rates (48 hours or less).<sup>1</sup> While flooding is a well-known risk, Travis County is susceptible to a wide range of natural hazards, including but not limited to wildfire, extreme heat, lightning, and drought. These life-threatening hazards can destroy property, disrupt the economy, and lower the overall quality of life for individuals.

While it is impossible to prevent an event from occurring, the impacts from many hazards on people and property can be lessened through mitigation. The Federal Emergency Management Agency (FEMA) defines mitigation as *sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects*.<sup>2</sup> Communities participate in hazard mitigation by developing hazard mitigation plans. The Texas Division of Emergency Management (TDEM) is required to review the plan and FEMA has the authority to review and approve hazard mitigation plans through the Disaster Mitigation Act of 2000.

The Disaster Mitigation Act requires that hazard mitigation plans be reviewed and revised every five years to maintain eligibility for Hazard Mitigation Assistance (HMA) grant funding. FEMA approved the Travis County HMAP Update in 2017 and the Travis County Communities HMP Update in 2017, both of which expired in 2022, therefore the County began the process of developing a Hazard Mitigation Action Plan Update, by incorporated jurisdictions from both plans, in order to regain eligibility for grant funding. The HMAP Update planning process provided an opportunity for Travis County and participating jurisdictions to evaluate successful mitigation actions and explore opportunities to avoid future disaster loss. Travis County selected H2O Partners, Inc. to write and develop the 2023 HMAP Update, hereinafter titled: “Travis County Hazard Mitigation Plan Update 2023: Maintaining a Safe, Secure, and Sustainable Community” (Plan or Plan Update).

This is a multi-jurisdictional plan; the participating jurisdictions include: Travis County, Village of Briarcliff, City of Creedmoor, City of Jonestown, City of Lago Vista, City of Lakeway, City of Manor, City of Mustang Ridge, City of Pflugerville, Village of Point Venture, City of Rollingwood, Village

<sup>1</sup> <http://www.floodsafety.com/texas/regional-info/san-antonio-flooding/>

<sup>2</sup> <http://www.fema.gov/hazard-mitigation-planning-resources>

## SECTION 1: INTRODUCTION

of San Leanna, City of Sunset Valley, Village of The Hills, City of West Lake Hills, and Emergency Services District #6.

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

### SCOPE

The focus of the Plan Update is to identify activities to mitigate hazards classified as "high" or "moderate" risk, as determined through a detailed hazard risk assessment conducted for Travis County and the participating jurisdictions. The hazard classification enables the participating jurisdictions to prioritize mitigation actions based on hazards which can present the greatest risk to lives and property in the geographic scope.

### PURPOSE

The Plan Update was prepared by Travis County, participating jurisdictions, and H2O Partners, Inc. The purpose of the Plan Update is to protect people and structures and to minimize the costs of disaster response and recovery. The goal of the Plan Update is to minimize or eliminate long-term risks to human life, property, operations, and the environment from known hazards by identifying risks and implementing cost-effective hazard mitigation actions. The planning process is an opportunity for participating jurisdictions within Travis County, stakeholders, and the general public to evaluate and develop successful hazard mitigation actions to reduce future risk of loss of life and damage to property resulting from a disaster in Travis County.

The Mission Statement of the Plan Update is, *"Maintaining a secure and sustainable future through the revision and development of targeted hazard mitigation actions to protect life and property."*

Participating jurisdictions within Travis County, and planning participants identified eleven natural hazards to be addressed by the Plan Update. The specific goals of the Plan Update are to:

- Provide a comprehensive update to the 2017 HMAPs;
- Minimize disruption to participating jurisdictions within Travis County following a disaster;
- Streamline disaster recovery by articulating actions to be taken before a disaster strikes to reduce or eliminate future damage;
- Demonstrate a firm local commitment to hazard mitigation principles;
- Serve as a basis for future funding that may become available through grants and technical assistance programs offered by the State or Federal government. The Plan will enable participating jurisdictions within Travis County to take advantage of rapidly developing mitigation grant opportunities as they arise; and
- Ensure that participating jurisdictions within Travis County maintain eligibility for the full range of future Federal disaster relief.



## AUTHORITY



The Plan is tailored specifically for participating jurisdictions within Travis County and plan participants including Planning Team members, stakeholders, and the general public who participated in the Plan Update development process. The Plan complies with all requirements promulgated by the Texas Division of Emergency Management (TDEM) and all applicable provisions of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390), and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108-264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Additionally, the Plan complies with the Interim Final Rules for the Hazard Mitigation Planning and Hazard Mitigation Grant Program (44 CFR, Part 201), which specify the criteria for approval of mitigation plans required in Section 322 of the DMA 2000 and standards found in FEMA's "Local Mitigation Policy Guide" (Effective April 19, 2023), and the "Local Mitigation Planning Handbook" (March 2013).

## SUMMARY OF SECTIONS

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

Sections 4 through 15 present a hazard overview and information on individual natural hazards in the planning area. The hazards generally appear in order of priority based on potential losses to life and property, and other community concerns. For each hazard, the Plan Update presents a description of the hazard, a list of historical hazard events, and the results of the vulnerability and risk assessment process.

Section 16 presents hazard mitigation goals and objectives. Section 17 gives an analysis for the previous actions and Section 18 presents hazard mitigation actions for Travis County and the participating jurisdictions. Section 19 identifies Plan maintenance mechanisms.

The list of planning team members and stakeholders is located in Appendix A. Public survey results are analyzed and presented in Appendix B. Appendix C contains a detailed list of critical facilities for the area. Appendix D contains information regarding Dam locations within Travis County. Appendix E contains information regarding workshops and meeting documentation. Capability Assessment results for participating jurisdictions within Travis County are in Appendix F. Appendix G includes State and Federal Funding Opportunities.<sup>3</sup>

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<sup>3</sup> Information contained in some of these appendices are exempt from public release under the Freedom of Information Act (FOIA).





# SECTION 2

# PLANNING PROCESS



Plan Preparation and Development.....	1
Overview of the Plan .....	1
Planning Team .....	2
Planning Process.....	8
Kickoff Workshop.....	8
Hazard Identification.....	8
Risk Assessment .....	9
Mitigation Review and Development .....	9
Review and Incorporation of Existing Plans .....	10
Review .....	10
Incorporation of Existing Plans into the HMAP Process .....	10
Incorporation of the HMAP into Other Planning Mechanisms.....	12
Plan Review and Plan Update .....	14
Timeline for Implementing Mitigation Actions .....	14
Public and Stakeholder Involvement .....	15
Stakeholder Involvement .....	15
Public Meetings .....	18
Public Participation Survey .....	18

## PLAN PREPARATION AND DEVELOPMENT

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

### OVERVIEW OF THE PLAN

Travis County hired H2O Partners, Inc. (Consultant Team), to provide technical support and oversee the development of the Travis County Hazard Mitigation Action Plan Update 2023. The Consultant Team used the FEMA “Local Mitigation Planning Policy Guide” (Effective April 19, 2023), and the “Local Mitigation Planning Handbook” (March 2013) to develop the Plan Update. The overall planning process is shown in Figure 2-1 below.

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

Travis County, participating jurisdictions, and the Consultant Team met in November 2022 to begin organizing resources, identify Planning Team members, and conduct a Capability Assessment.

### PLANNING TEAM

Key members of H2O Partners, Inc. developed the Plan Update in conjunction with the Planning Team. The Planning Team was established using a direct representation model. Some of the responsibilities of the Planning Team included: completing Capability Assessment surveys, providing input regarding the identification of hazards, identifying mitigation goals, and developing mitigation strategies. An Executive Planning Team consisting of key personnel involved in hazard mitigation activities from each of the participating jurisdictions within Travis County, shown in Table 2-1, was formed to coordinate planning efforts and request input and participation in the planning process. Participation in this planning process is defined as being engaged in the process through attending meetings, providing data and related information, providing updates on previous actions, and reviewing and commenting on draft versions of the plan. Table 2-2 reflects the Advisory Planning Team, consisting of additional representatives from area organizations and departments from the participating jurisdictions within Travis County that participated throughout the planning process. All Executive and Advisory Planning Team members are involved in hazard mitigation activities; those with the authority to regulate development are identified with an asterisk next to their title.

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

ORGANIZATION / DEPARTMENT	TITLE
Travis County	Emergency Management Coordinator
Travis County	Deputy Emergency Management Coordinator (Mitigation and Resiliency)

ORGANIZATION / DEPARTMENT	TITLE
Travis County	Deputy Emergency Management Coordinator
Village of Briarcliff	City Administrator*
City of Creedmoor	City Administrator*
City of Creedmoor	Finance
City of Jonestown	City Manager*
City of Lago Vista	City Manager*
City of Lakeway	Emergency Management Coordinator
City of Manor	Police Lieutenant
City of Mustang Ridge	City Administrator*
City of Pflugerville	Emergency Management Coordinator
Village of Point Venture	Village Secretary
City of Rollingwood	Assistant Police Chief
Village of San Leanna	City Administrator*
City of Sunset Valley	Police Chief/Emergency Management Coordinator
Village of The Hills	Interim City Manager*
City of West Lake Hills	City Administrator*
Emergency Services District #6	Assistant Fire Chief/Fire Marshall

**Table 2-2. Advisory Planning Team**

ORGANIZATION / DEPARTMENT	TITLE
Travis County	Administrative Associate
Travis County	CDBG Planning Manager*
Travis County	CDBG Planner*
Travis County	Economic Development and Strategies Investments Director*
Travis County	Fire Mitigation Officer
Travis County	Floodplain Project Manager*
Travis County	HHS Chief Deputy

## SECTION 2: PLANNING PROCESS

Item 8.

ORGANIZATION / DEPARTMENT	TITLE
Travis County	Policy and Planning Manager*
Travis County	Transportation and Natural Resource - Assistant Public Works Director
Travis County	Transportation and Natural Resource - Community Resiliency
Travis County	Transportation and Natural Resource - Community Resiliency
Travis County	Transportation and Natural Resource - Division Director of Development Services & Long-Range Planning*
Travis County	Transportation and Natural Resource - Environmental Project Manager
Travis County	Transportation and Natural Resource - Environmental Quality Manager
Travis County	Transportation and Natural Resource - Floodplain Administrator / Permits Program Manager*
Travis County	Transportation and Natural Resource - GIS Manager
Travis County	Transportation and Natural Resource - Long Range Planning Manager*
Travis County	Transportation and Natural Resource - NREQ Division Director
Travis County	Transportation and Natural Resource - Program Manager
Travis County	Transportation and Natural Resource - Public Works Director*
Travis County	Transportation and Natural Resource - Senior Planner*
Village of Briarcliff	Mayor*
City of Lago Vista	Firewise Coordinator
City of Lago Vista	Mayor*
City of Lakeway	Assistant City Manager*
City of Manor	Assistant Chief of Police / Police Captain
City of Manor	Chief of Police
City of Manor	Community Program Officer
City of Mustang Ridge	City Secretary*
City of Mustang Ridge	Mayor*
City of Pflugerville	Assistant Chief of Police

ORGANIZATION / DEPARTMENT	TITLE
Village of Point Venture	Mayor Pro-Tem*
City of Rollingwood	City Administrator*
City of Rollingwood	Police Sergeant
Village of San Leanna	Mayor*
City of Sunset Valley	City Manager*
Village of the Hills	Mayor Pro-Tem*
City of West Lake Hills	Police Chief
Emergency Services District #6	Fire Chief
Emergency Services District #6	Wildfire Mitigation Specialist
Emergency Services District #6 (Lake Travis Fire Rescue)	Chairman of Steiner Ranch
Emergency Services District #6 (Lake Travis Fire Rescue)	Director of Communications

Additionally, a Stakeholder Group was invited via email to participate in the planning process by attending meetings, commenting on draft versions of the plan, and/or by providing data to inform the planning process. The Consultant Team, Planning Teams, and Stakeholder Group coordinated to identify mitigation goals, and develop mitigation strategies and actions for the Plan. Appendix A provides a complete listing of all participating Planning Team members and stakeholders from participating jurisdictions within Travis County by organization and title. Stakeholder involvement is discussed further below.

Based on results of completed Capability Assessment, participating jurisdictions within Travis County described methods for achieving future hazard mitigation measures by expanding existing capabilities. For example, each jurisdiction has an opportunity to identify opportunities for cross-training or increasing the technical expertise of staff by attending free training available through FEMA and the Texas Division of Emergency Management (TDEM) by monitoring classes and availability through [preparingtexas.org](http://preparingtexas.org). In addition, each jurisdiction can identify Planning Team members with the authority to monitor the Plan and identify grant funding opportunities for expanding staff. Other options for improving capabilities for each jurisdiction include the following:

**Table 2-3. Opportunities for Improving and Expanding Existing Capabilities by Jurisdiction**

JURISDICTION	OPPORTUNITIES
Travis County	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>



JURISDICTION	OPPORTUNITIES
Village of Briarcliff	<ul style="list-style-type: none"> <li>Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
City of Creedmoor	<ul style="list-style-type: none"> <li>Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
City of Jonestown	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
City of Lago Vista	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
City of Lakeway	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
City of Manor	<ul style="list-style-type: none"> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
City of Mustang Ridge	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
City of Pflugerville	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>

JURISDICTION	OPPORTUNITIES
Village of Point Venture	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Review current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> </ul>
City of Rollingwood	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
Village of San Leanna	<ul style="list-style-type: none"> <li>Develop a Capital Improvement Plan based on information in the risk assessment and identified mitigation projects within the HMAP.</li> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> </ul>
City of Sunset Valley	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> <li>Developing land use and building ordinances that will require all new developments to conform to the highest mitigation standards.</li> </ul>
Village of The Hills	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Developing land use and building ordinances that will require all new developments to confirm to the highest mitigation standards.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> </ul>
City of West Lake Hills	<ul style="list-style-type: none"> <li>Integrate risk information from HMAP into future updates to Comprehensive Plan.</li> <li>Developing land use and building ordinances that will require all new developments to confirm to the highest mitigation standards.</li> <li>Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.</li> </ul>
ESD #6	<ul style="list-style-type: none"> <li>Develop an all-hazards outreach program in coordination with Travis County and other ESDs in the County.</li> </ul>

Sample hazard mitigation actions developed with similar hazard risk were shared at the meetings. These important discussions resulted in the development of multiple mitigation actions that are included in the Plan Update to further mitigate risk from natural hazards in the future.

The Planning Team developed hazard mitigation actions for mitigating risk from all of the identified hazards within this Plan Update, including potential wildfire, tornado, drought, and extreme heat events. These actions include but are not limited to installing generators at critical facilities, developing a Community Wildfire Protection Plan (CWPP), and educating citizens to practice hazard mitigation techniques.

## SECTION 2: PLANNING PROCESS

### PLANNING PROCESS

The process used to prepare the Plan Update followed the four major steps included at Figure 2-1. After the Planning Team was organized, a capability assessment was developed and distributed at the Kick-Off Workshop. Hazards were identified and assessed, and results associated with each of the hazards were provided at the Risk Assessment Workshop. Based on Travis County's identified vulnerabilities, specific mitigation strategies were discussed and developed at the Mitigation Strategy Workshop. Finally, Plan maintenance and implementation procedures were developed and are included in Section 19. Participation of Planning Team members, stakeholders, and the public at each of the workshops is documented in Appendix E.

At the Plan development workshops held throughout the planning process described herein, the following factors were taken into consideration:

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

### KICKOFF WORKSHOP

The Kickoff Workshop was held on December 12, 2022 as a virtual Microsoft Teams meeting. The initial workshop informed participating officials and key department personnel about how the planning process pertained to their distinct roles and responsibilities and engaged stakeholder groups that focus on vulnerable populations and underserved communities including, but not limited to Capital Area Council of Governments, Lower Colorado River Authority, local medical partners, local ISDs, and surrounding counties. In addition to the kickoff presentation, participants received the following information:

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

A risk ranking exercise was conducted at the Kickoff Workshop to get input from the Planning Team and stakeholders pertaining to various risks from a list of natural hazards affecting the planning area. Participants ranked hazards high to low in terms of perceived level of risk, frequency of occurrence, and potential impact.

### HAZARD IDENTIFICATION

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

## SECTION 2: PLANNING PROCESS

### *RISK ASSESSMENT*

An initial risk assessment for participating jurisdictions within Travis County was completed in February 2023 and results were presented to Planning Team members at the Risk Assessment Workshop held on February 22, 2023, at the Travis County Administration Building. At the workshop, the characteristics and consequences of each hazard were evaluated to determine the extent to which the planning area would be affected in terms of potential danger to property and citizens.

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

The assessments were also used to set priorities for hazard mitigation actions based on potential loss of lives and dollar losses. A hazard profile and vulnerability analysis for each of the hazards can be found in Sections 4 through 15.

### *MITIGATION REVIEW AND DEVELOPMENT*

Developing the Mitigation Strategy for the Plan involved identifying mitigation goals and new mitigation actions. A Mitigation Workshop was held on April 10, 2023, at the Travis County Administration Building. In addition to the Planning Team, stakeholder groups were invited to attend the workshop. Regarding hazard mitigation actions, workshop participants emphasized the desire for wildfire projects. Additionally, the participating jurisdictions were proactive in identifying mitigation actions to lessen the risk of all the identified hazards included in the Plan Update.

An inclusive and structured process was used to develop and prioritize new hazard mitigation actions for the Plan Update. The prioritization method was based on FEMA's STAPLE+E criteria and included social, technical, administrative, political, legal, economic, and environmental considerations. As a result, each Planning Team Member assigned an overall priority to each hazard mitigation action. The overall priority of each action is reflected in the hazard mitigation actions found in Section 18.

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

Specifically, the process involved:

- Listing optional hazard mitigation actions based on information collected from previous plan reviews, studies, and interviews with federal, state, and local officials. Workshop participants reviewed the optional mitigation actions and selected actions that were most applicable to their area of responsibility, cost-effective in reducing risk, easily implemented, and likely to receive institutional and community support.

## SECTION 2: PLANNING PROCESS

- Workshop participants inventoried federal and state funding sources that could assist in implementing the proposed hazard mitigation actions. Information was collected, including the program name, authority, purpose of the program, types of assistance and eligible projects, conditions on funding, types of hazards covered, matching requirements, application deadlines, and a point of contact.
- Planning Team Members considered the benefits that would result from implementing the hazard mitigation actions compared to the cost of those projects. Although detailed cost-benefit analyses were beyond the scope of the Plan Update, Planning Team Members utilized economic evaluation as a determining factor between hazard mitigation actions.
- Planning Team Members then selected and prioritized mitigation actions.

Hazard mitigation actions identified in the process were made available to the Planning Team for review. The draft Plan Update was maintained on file by Travis County and participating jurisdictions and was made available to the general public for review.

## REVIEW AND INCORPORATION OF EXISTING PLANS

### REVIEW

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

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

### INCORPORATION OF EXISTING PLANS INTO THE HMAP PROCESS

A Capability Assessment was completed by key departments from the participating jurisdictions within Travis County which provided information pertaining to existing plans, policies, ordinances, and regulations to be integrated into the goals and objectives of the Plan Update. The relevant information was included in a master Capability Assessment, Appendix F.

Existing projects and studies were utilized as a starting point for discussing hazard mitigation actions among Planning and Consultant Team members. For example, Travis County has completed several actions, including fuel reduction projects throughout high-risk areas, enhancing GIS capabilities for high-risk flood, wildfire and dam inundation areas, increasing public



## SECTION 2: PLANNING PROCESS

awareness especially for flood risk, insurance and mitigation techniques, and implementing mitigation at multiple low-water crossings throughout the county. The Village of Briarcliff worked with their community to create defensible space to prevent the spread of wildfire, while also acquiring Firewise status. The City of Lago Vista enhanced their local codes by developing an ordinance for xeriscape, enhance floodplain management ordinance and subdivision requires for ingress and egress. The city is still in the progress of assessing and continuation to make necessary improvements to city-wide fire hydrants to enhance wildfire mitigation efforts. The City of Lakeway relocated their Police Department due to being adjacent to a stream that has subjected the department to high water inundation. In addition, the city has completed a fuel reduction project on the Hamilton Green Belt within the city limits. The City of Mustang Ridge has updated their floodplain management ordinance as well as continuation to promote education and awareness to their residents on mitigation techniques to reduce overall risk. The City of Pflugerville has begun multiple projects to address flooding within the community such as continuing to study and implement a drainage utility plan to enhance drainage operations and improvement throughout the community while also identifying actions to protect existing and future development from flooding and erosion which have been incorporated into the city's Comprehensive Plan updates. The city has also established a Flood Protection Plan Study which was published in April 2021 and ultimately will allow the city to incorporate into their drainage plans. The Village of Point Venture enhanced their flood ordinance and developed an emergency evacuation plan while continuing to promote education on mitigation measures residents can take. The Village of San Leanna obtained an alternative water source and still remains in the process of addressing stormwater management projects including expanding culverts and creating detention basing as funding becomes available. The City of Sunset Valley has adopted CRS and incorporated higher standard, in addition they are continuing to assess land and easement acquisition to reduce flood risk within designated special flood hazard areas throughout the community as property in the floodplain becomes available. The city has incorporated maintenance scheduling to address winterization of their outdoor and public facilities, assessment of stormwater system and necessary improvements, debris removal in ditches and tree trimming maintenance. The City of West Lake Hills installed an early warning system in conjunction with ESD #9 for wildfire alerts and updated their floodplain management ordinance.

In addition to completed projects, the Planning Team also discussed related mitigation projects that were recently awarded funding. For example, Travis County is utilizing a 2017 Bond to address multiple low water crossing improvements that have been identified in a county-wide engineering study.

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



### INCORPORATION OF THE HMAP INTO OTHER PLANNING MECHANISMS

Planning Team members will integrate implementation of the Plan Update with other planning mechanisms for Travis County, such as the Emergency Operations Plan. Existing plans for participating jurisdictions will be reviewed and incorporated into the Plan Update, as appropriate. This section discusses how the Plan will be implemented by the participating jurisdictions within Travis County. It also addresses how the Plan will be evaluated and improved over time, and how the public will continue to be involved in the hazard mitigation planning process.

Participating jurisdictions within Travis County will be responsible for implementing hazard mitigation actions contained in Section 18. Each hazard mitigation action has been assigned to a specific County, City, Village, or special district department that is responsible for tracking and implementing the action.

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

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

Upon formal adoption of the Plan Update, Planning Team members from the participating jurisdictions will review existing plans along with building codes to guide development and ensure that hazard mitigation actions are implemented. Each of the jurisdictions will be responsible for coordinating periodic review of the Plan Update with members of the Advisory Planning Team to ensure integration of hazard mitigation strategies into these planning mechanisms and codes. The Planning Team will also conduct periodic reviews of various existing planning mechanisms and analyze the need for any revisions or updates in light of the approved Plan Update. Participating jurisdictions within Travis County will ensure that future long-term planning objectives will contribute to the goals of the Plan to reduce the long-term risk to life and property from moderate and high-risk hazards. Within one year of formal adoption of the Plan, existing planning mechanisms will be reviewed and analyzed as they pertain to the Plan Update.

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

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

Table 2-4 identifies types of planning mechanisms and examples of methods for incorporating the Plan into other planning efforts.

**Table 2-4. Examples of Methods of Incorporation**

Planning Mechanism	Incorporation of Plan
Annual Budget Review	Various departments and key personnel that participated in the planning process for participating jurisdictions within Travis County will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.
Capital Improvement Plans	Several participating jurisdictions within Travis County have a Capital Improvement Plan (CIP) in place or under development. Prior to any revisions to the CIP, County, City, Village, and special district departments will review the risk assessment and mitigation strategy sections of the HMAP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Comprehensive Plans	Several participating jurisdictions within Travis County have Long-term Comprehensive Development Plans in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.
Floodplain Management Plans	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 9 of this Plan Update discussing the people and property at risk to flood will be reviewed and revised when participating jurisdictions within Travis County update their management plans or develops new plans.
Grant Applications	The Plan will be evaluated by participating jurisdictions within Travis County when grant funding is sought for mitigation projects. If a project is not in the Plan Update, a Plan Revision may be necessary to include the action in the Plan.
Regulatory Plans	Currently, several participating jurisdictions within Travis County have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County, City, Village, and special district

Planning Mechanism	Incorporation of Plan
	departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.

Appendix F Capability Assessment provides an overview of Planning Team members' existing planning and regulatory capabilities. These existing capabilities provide the mechanisms to implement the mitigation strategy objectives. For example, the adoption of building codes and implementation of land use regulations have been demonstrated to help communities avoid losses from natural hazard events. Every participating municipality has building codes in place, refer to Appendix F for a complete inventory of each participating jurisdiction's capabilities.

It should be noted for the purposes of the Plan Update that the HMAP has been used as a reference when reviewing and updating all plans and ordinances for the entire planning area, including all participating jurisdictions. The Emergency Management Plans developed for Travis County, City of Creedmoor, City of Lakeway, City of Manor, City of Pflugerville, Village of Point Venture, City of Rollingwood, City of Sunset Valley, Village of The Hills, City of West Lake Hills, and ESD #6 are updated every 5 years and incorporates goals, objectives and actions identified in the mitigation plan.

## PLAN REVIEW AND PLAN UPDATE

As with the development of Plan Update, participating jurisdictions within Travis County will oversee the review and update process for relevance and if necessary, make adjustments. At the beginning of each fiscal year, Planning Team Members will meet to evaluate the Plan and review other planning mechanisms to ensure consistency with long-range planning efforts. In addition, planning participants will also meet once a year, by conference call or presentation, to re-evaluate prioritization of the hazard mitigation actions. The plan may be amended to include additional hazard mitigation actions as they are developed.

## TIMELINE FOR IMPLEMENTING MITIGATION ACTIONS

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

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

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

PUBLIC AND STAKEHOLDER INVOLVEMENT

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

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

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

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

STAKEHOLDER INVOLVEMENT

Stakeholder involvement is essential to hazard mitigation planning since a wide range of stakeholders can provide input on specific topics and from various points of view. Throughout the planning process, members of community groups, local businesses, neighboring jurisdictions, schools, and hospitals were invited to participate in development of the Plan Update. The Stakeholder Group (Table A-3 in Appendix A, and Table 2-4, below), included a broad range of representatives from both the public and private sector and served as a key component in Travis County’s outreach efforts for development of the Plan Update. Documentation of stakeholder meetings is found in Appendix E. A list of organizations invited to attend via email is found in Table 2-5.

Table 2-5. Stakeholder Working Group

AGENCY	TITLE	PARTICIPATED
Austin Independent School District	Emergency Management Coordinator	
Bastrop County	Emergency Management Coordinator	
Burnet County	Emergency Management Coordinator	

## SECTION 2: PLANNING PROCESS

Item 8.

AGENCY	TITLE	PARTICIPATED
Caldwell County	Chief/Emergency Management Coordinator	
Capital Area Council of Governments	Burnet County Commissioner	
Capital Area Council of Governments	Executive Director	
Capital Area Trauma Regional Advisory Council	Executive Director	
Central Health	Director of Public Health Strategy, Policy, and Disaster Response	
City of Austin Water Utility	Representative	
City of Round Rock	Representative	
County Commissioner Assistants	County Commissioner Assistants (5)	
County Commissioner	Precinct 2 Commissioner	
County Commissioner	Precinct 3 Commissioner	
County Emergency Services	Representative	
County Emergency Services	Executive Director	
County Fire Marshal's Office	Fire Marshal	
County Judge's Office	County Judge	
Environmental Protection Agency, Region 6	Regional Administrator	
Hays County	Director, Office of Emergency Services	
Integral Care	Director of Accountable Care Systems	
Llano County	Emergency Management Coordinator	
Lower Colorado River Authority	Mid-Basin Regional Affairs	
National Weather Service	Warning Coordination Meteorologist	
NOAA	Chief of Policy, Planning & Communications	
Pflugerville ISD	Director, Office of Emergency Management	
Pflugerville ISD	Executive Director of Health, Safety, Crisis, and Emergency Management	

## SECTION 2: PLANNING PROCESS

Item 8.

AGENCY	TITLE	PARTICIPATED
Texas A&M Agrilife Extension, District 10	District Extension Administrator	
Texas A&M Forest Service	La Grange Office Mitigation & Prevention Coordinator	
Texas Commission on Environmental Quality	Region 11 Director	
Texas Department of Health Services	Deputy Chief Press Officer	
Texas Department of Housing and Community Affairs	Director, Community Affairs Division	
Texas Department of Transportation	Austin District Engineer	
Texas Development Water Board	Region K Project Manager	
Texas Division of Emergency Management	District Coordinator	
Texas Floodplain Management	Region 5 Director	
Travis County	ESD #2 Accountability Officer	X
Travis County	ESD #2 Battalion Chief	X
Travis County	ESD #12 Battalion Chief	X
Travis County	ESD #12 Assistant Chief	X
Travis County	ESD #12 Commissioner	X
Travis County	ESD #12 Public Information Officer	X
Travis County	FMD Director	
Travis County	Intergovernmental Relations Officer	
Travis County	Public Information Officer	
Travis County Parks	Parks Assistant Division Director	
Travis County Parks	Park Land Manager	
Williamson County	Director/Emergency Management Coordinator	

Stakeholders and participants from neighboring communities that attended the Planning Team and public meetings played a key role in the planning process. For example, communication and hazard preparedness were two of the biggest concerns to stakeholders, so participating jurisdictions included actions to promote early warning and communication, community education on mitigation efforts, and establishing partnerships to promote response efforts and extreme weather event.



### PUBLIC MEETINGS

A series of public meetings were held throughout the planning area to collect public and stakeholder input. Topics of discussion included the purpose of hazard mitigation, discussion of the planning process, and types of natural hazards. Each participating jurisdiction within Travis County released information regarding the public meetings in their area to increase public participation in the Plan Update development process, through posting on their website, on social media sources including Facebook and Twitter, through the local media, and/or posting the information on bulletin boards in public facilities. A sampling of these notices can be found in Appendix E, along with the documentation on the public meetings. Representatives from area neighborhood associations and area residents were invited to participate.

Public meetings were held on the following dates:

- March 28, 2023, City of Manor City Hall
- April 12, 2023, Creedmoor Community Center
- April 17, 2023, City of Lago Vista City Hall
- April 27, 2023, City of Lakeway Police Department
- May 2, 2023, City of Pflugerville Municipal Court

### PUBLIC PARTICIPATION SURVEY

In addition to public meetings, the Planning and Consultant Teams developed a public survey designed to solicit public input during the planning process from citizens and stakeholders and to obtain data regarding the identification of any potential hazard mitigation actions or problem areas. The survey was promoted by local officials and a link to the survey was posted on participating jurisdictions' websites. A total of 273 surveys were completed online. The survey results are analyzed in Appendix B. Participating jurisdictions within Travis County reviewed the input from the surveys and decided which information to incorporate into the Plan as hazard mitigation actions. For example, results indicate that wildfire and winter storm are the hazards of highest concern for the public and community education and preparedness as well as implementing burn bans were the actions indicated that the local government should take to mitigate risk to these hazards. As a result, the Planning Team has included mitigation actions related to public education around severe weather and wildfire risk, developing a Community Wildfire Protection Plan (CWPP) for those participating jurisdictions without one, as well as installing warning signs at hazardous bridges and roadways subject to ice.





# SECTION 3

# COUNTY PROFILE



Overview.....	1
Population and Demographics .....	4
Emergency Services District.....	5
Population Growth .....	7
Economic Impact .....	8
Natural, Cultural, and Historic Resources.....	9
Existing Land Use and Development Trends .....	12
Future Growth and Development .....	14

## OVERVIEW

Travis County is located in Central Texas, 150 miles inland from the Gulf of Mexico. The City of Austin is the state capital and county seat and is located at the intersection of Interstate Highway 35 and U.S. highways 183 and 290, one hundred miles southwest of the City of Waco and seventy-five miles northeast of the City of San Antonio. Travis County is the fifth-most populous county in Texas.

The County is comprised of 994 square miles of land<sup>1</sup> with an elevation ranging from 400 to 1,300 feet above sea level. It is located on the eastern edge of the Edwards Plateau and is divided by the Balcones Escarpment. The land west of the escarpment is more arid than to the east, and the vegetation varies accordingly, ranging from juniper, mesquite, and scrub brush to oak, cottonwood, redbud, and pecan trees. Between twenty-one and thirty percent of the land is considered prime farmland. The Colorado River, which bisects the county from northwest to southeast, flows from the Hill Country onto the Coastal Plain and provides drainage for the entire area. The climate is subtropical, with an average low temperature in January of 38°F and an average high in July of 96°F. The average yearly rainfall is thirty-two inches, and the growing season is 270 days a year.<sup>2</sup>

In 1840, the Congress of the Republic of Texas chose Waterloo as the site of the new capital, which was renamed Austin in honor of Stephen F. Austin and approved on January 19, 1840. A few days later the Congress established Travis County, naming it in honor of William Barrett Travis and making Austin its county seat. The initial boundaries of Travis County included roughly 40,000 square miles. Counties that were later carved from Travis County include Callahan, Coleman, Comal, Gillespie, Hays, Burnet, Brown, Lampasas, Eastland, Runnels, and Taylor.<sup>3</sup>

Travis County offers many recreational and cultural activities for its residents and visitors, including hunting, boating, and fishing, the South by Southwest film and music festivals in the spring, Austin's Sixth Street entertainment and music district, the Bob Bullock Texas State History Museum, and the Lady Bird Johnson Wildflower Center.

<sup>1</sup> U.S. Census Bureau <https://www.census.gov/quickfacts/traviscountytexas>

<sup>2</sup> Smyrl, Vivian Elizabeth, Travis County, Texas Almanac <https://www.texasalmanac.com/places/travis-county>

<sup>3</sup> Smyrl, Vivian Elizabeth, Travis County, Texas State Historical Association <https://www.tshaonline.org/handbook/entries/travis-county>

Figure 3-1 shows the general location of Travis County along with the Cities and Villages that are located within the County.

**Figure 3-1. Location of Travis County**

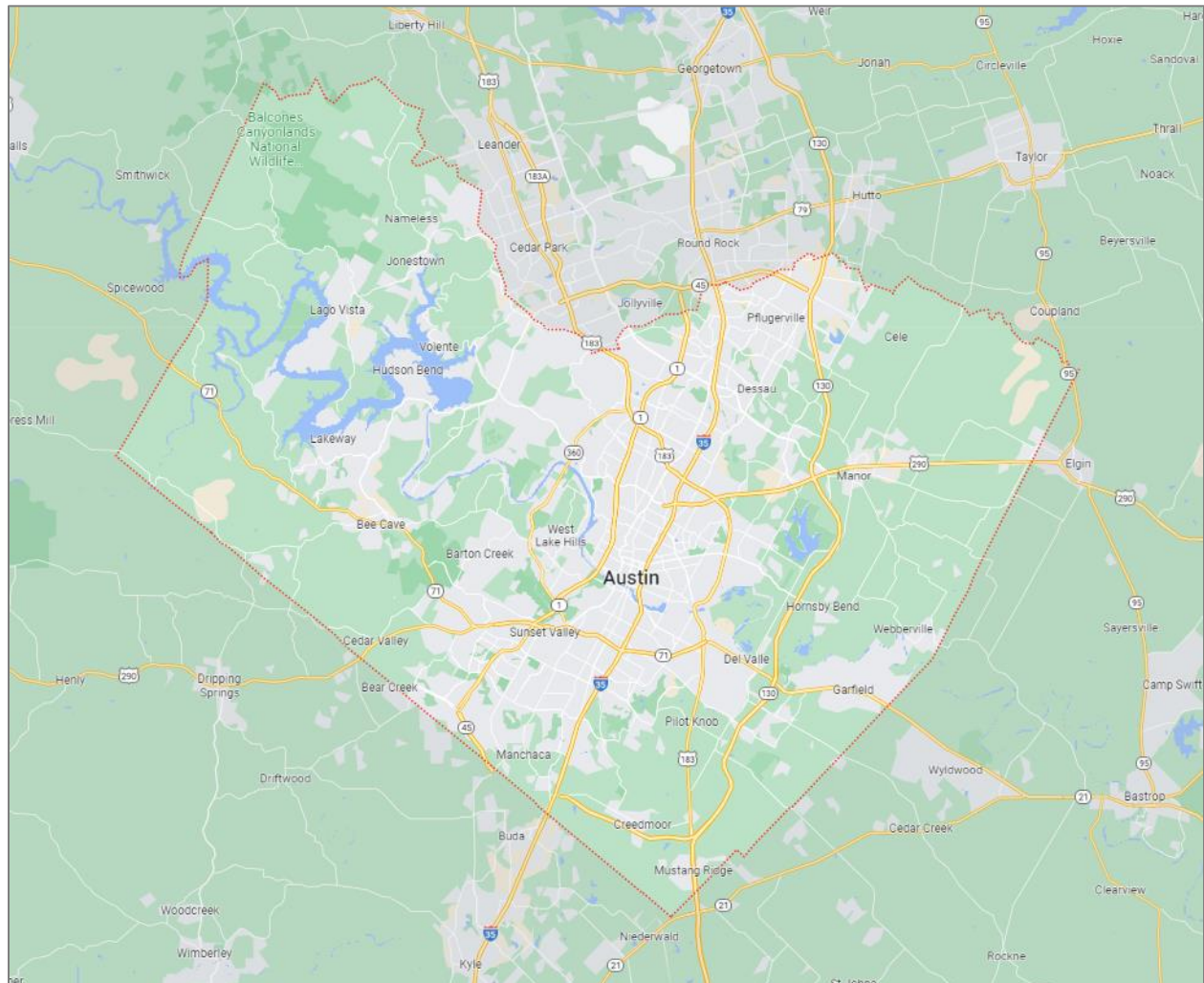
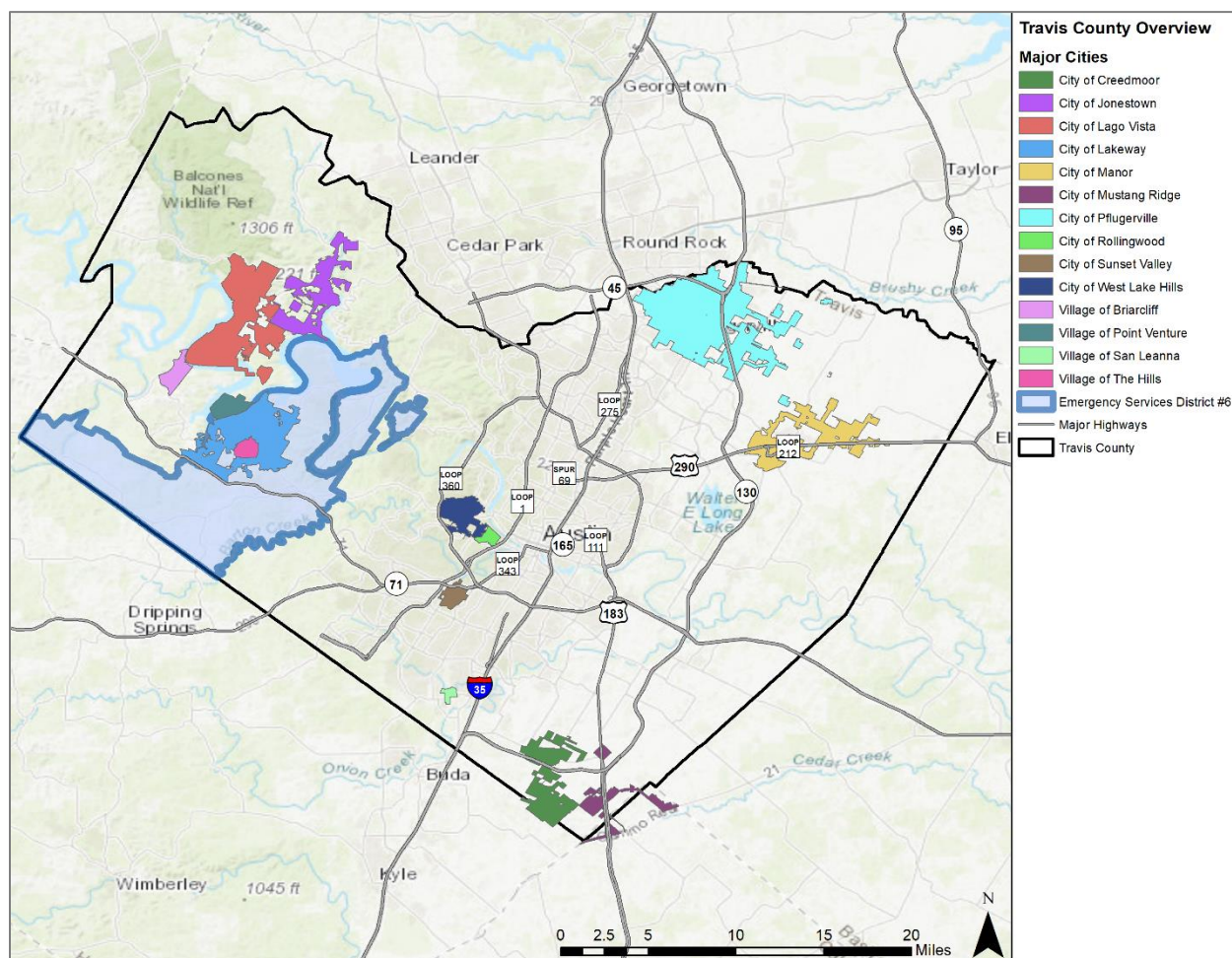


Figure 3-2 shows the participating jurisdictions within Travis County that are covered in the risk assessment analysis of the Plan Update. The participating Emergency Services District (ESD) can be seen in Figure 3-3 below.

### Figure 3-2. Travis County Planning Area



Provided in Table 3-1 below is a listing of the jurisdictions and special district in Travis County that participated in the Travis County Hazard Mitigation Action Plan Update 2023.

### Table 3-1. Participating Jurisdictions

PARTICIPATING JURISDICTIONS	
Travis County	City of Pflugerville
Village of Briarcliff	Village of Point Venture
City of Creedmoor	City of Rollingwood
City of Jonestown	Village of San Leanna
City of Lago Vista	City of Sunset Valley
City of Lakeway	Village of The Hills
City of Manor	City of West Lake Hills
City of Mustang Ridge	Emergency Services District #6

## POPULATION AND DEMOGRAPHICS

According to the 2020 Census population count, Travis County has an official population of 1,290,188 residents, a 26 percent increase since the 2010 census. Table 3-2 summarizes select characteristics of vulnerable or sensitive populations in Travis County and the participating jurisdictions using data from the U.S. Census Bureau 2021 American Community Survey (ACS) five-year estimates. Note that in some cases the 2021 ACS estimates may differ from the 2020 Census counts; the ACS estimates are used throughout this section for consistency.<sup>4</sup>

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

**Table 3-2. Population Distribution by Jurisdiction**

JURISDICTION	TOTAL 2010 POPULATION	TOTAL 2021 POPULATION	PERCENTAGE (based on 2021 Population)	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS <sup>5</sup>		
				Youth (Under 5)	Elderly (Over 65)	Below Poverty Level
Village of Briarcliff	1,438	2,202	0.17%	173	277	66
City of Creedmoor	202	349	0.03%	0	95	60
City of Jonestown	1,834	2,484	0.20%	39	525	229
City of Lago Vista	6,041	8,769	0.69%	275	2,477	316
City of Lakeway	11,391	18,471	1.46%	686	4,154	554
City of Manor	5,037	13,928	1.10%	1,821	345	975
City of Mustang Ridge	861	1,302	0.10%	123	105	85
City of Pflugerville	46,936	64,007	5.05%	4,718	6,009	3,392
Village of Point Venture	800	1,531	0.12%	40	279	47
City of Rollingwood	1,412	1,397	0.11%	42	238	0
Village of San Leanna	497	483	0.04%	28	132	9
City of Sunset Valley	749	554	0.04%	28	169	26
Village of The Hills	2,472	2,602	0.21%	109	857	62

<sup>4</sup> Source: <https://demographics.texas.gov/Data/Decennial/2010/>, <https://www.census.gov/en.html> and <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2021/>

<sup>5</sup> The Estimated Vulnerable or Sensitive Populations are based off the 2021 American Community Survey 5-Year Estimates Data Profiles.



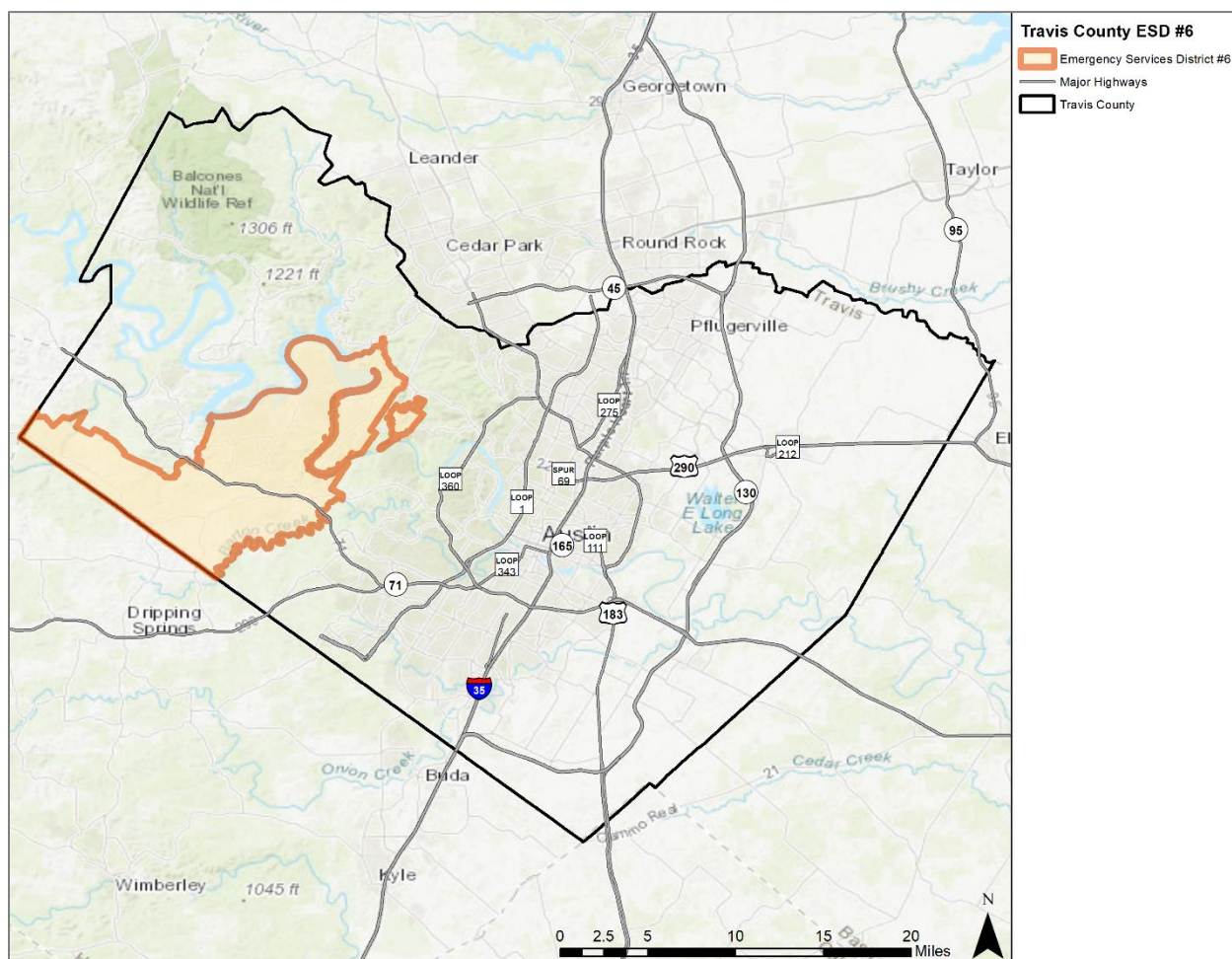
JURISDICTION	TOTAL 2010 POPULATION	TOTAL 2021 POPULATION	PERCENTAGE (based on 2021 Population)	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS <sup>5</sup>		
				Youth (Under 5)	Elderly (Over 65)	Below Poverty Level
City of West Lake Hills	3,063	3,373	0.27%	68	799	209
City of Austin <sup>6</sup>	790,390	944,658	74.51%	55,111	88,203	118,083
Unincorporated Travis County	151,143	201,685	15.90%	12,693	21,816	11,541
<b>Travis County</b>	<b>1,024,266</b>	<b>1,267,795</b>	<b>100%</b>	<b>75,954</b>	<b>126,480</b>	<b>135,654</b>

### EMERGENCY SERVICES DISTRICT

Figure 3-3 shows the participating Emergency Services District within Travis County that is covered in the risk assessment analysis of the Plan Update.

<sup>6</sup> The City of Austin is not participating in the Travis County Hazard Mitigation Plan Update but has been included on the *Population Distributed by Jurisdiction* table. For the purposes of this plan, the City of Austin is being considered only within the total population of Travis County.

**Figure 3-3. Participating ESD within the Travis County Planning Area**



In 1995, Travis County Emergency Services District #6 was formed, and could provide the citizens of Lake Travis with firefighters and state-of-the-art equipment to ensure the level of fire protection was adequate. In 2008, Travis County ESD #6 Commissioners changed the name of the department from Hudson Bend Fire Department to Lake Travis Fire Rescue. Their mission is to minimize loss of life and property through Emergency Response, Prevention and Community Involvement. Their success is built upon the foundation of their commitment to Professionalism, Leadership, Integrity, Respect, Compassion and Safety. Their vision is that their organization is recognized by those they serve as exceptional and innovative.

Table 3-3 provides the number of people employed by ESD #6.

**Table 3-3. ESD Population**

EMERGENCY SERVICES DISTRICT	EMPLOYEES	POPULATION SERVED	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS
			Staff Works Outdoors
ESD #6	134	70,000	108

## POPULATION GROWTH

The official 2020 Travis County population is 1,290,188. Overall, Travis County experienced an increase in population between 1980 and 2020 of 208 percent, or an increase by 879,615 residents. Between 2010 and 2020, the City of Sunset (-9%) was the only jurisdiction to experience a population decline, while the other participating jurisdictions, including Travis County experienced a population growth. Table 3-4 provides historic growth rates in Travis County.

**Table 3-4. Population Growth by Jurisdictions 1980-2020<sup>7</sup>**

JURISDICTIONS	1980	1990	2000	2010	2020	POP CHANGE 1980- 2020	PERCENT OF CHANGE	POP CHANGE 2010- 2020	PERCENT OF CHANGE
Village of Briarcliff	-	335	895	1,438	2,062	-	-	624	43%
City of Creedmoor	-	194	211	202	458	-	-	256	127%
City of Jonestown	-	1,250	1,681	1,834	2,365	-	-	531	29%
City of Lago Vista	-	2,199	4,507	6,041	8,896	-	-	2,855	47%
City of Lakeway	790	4,044	8,002	11,391	19,189	18,399	2,329%	7,798	68%
City of Manor	1,044	1,041	1,204	5,037	13,652	12,608	1,208%	8,615	171%
City of Mustang Ridge	-	257	409	861	944	-	-	83	10%
City of Pflugerville	745	4,444	16,335	46,936	65,191	64,446	1,450%	18,255	39%
Village of Point Venture	-	-	-	800	1,260	-	-	460	58%
City of Rollingwood	1,027	1,388	1,403	1,412	1,467	440	43%	55	4%
Village of San Leanna	290	325	384	497	522	232	80%	25	5%
City of Sunset Valley	420	327	365	749	683	263	63%	-66	-9%
Village of The Hills	-	-	1,492	2,472	2,613	-	-	141	6%
City of West Lake Hills	2,166	2,542	3,166	3,063	3,444	1,278	59%	381	12%
City of Austin <sup>8</sup>	345,890	465,622	656,562	790,390	961,855	615,965	178%	171,465	22%
Unincorporated Travis County	67,201	92,439	115,714	151,143	205,587	138,386	206%	54,444	36%
<b>Travis County</b>	<b>419,573</b>	<b>576,407</b>	<b>812,280</b>	<b>1,024,266</b>	<b>1,290,188</b>	<b>870,615</b>	<b>208%</b>	<b>265,922</b>	<b>26%</b>

<sup>7</sup> U.S. Census Bureau

<sup>8</sup> The City of Austin is not participating in the Travis County Hazard Mitigation Plan Update but has been included on the *Population Growth by Jurisdictions, 1980-2020* table.

## ECONOMIC IMPACT

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

Based on the American Community Survey 2021 estimates, 70 percent of the population 16 years and over is employed in the labor force. The per capita income is \$49,191 and the median household income countywide is \$85,043. It is estimated that 28.5 percent of households have incomes below \$50,000. Families with incomes below the poverty level in 2021 made up 7.5 percent of all families. Of families that have children under 18 years old, 10.6 percent are below the poverty level.

Table 3-5 and Table 3-6 show the various occupations and industries within Travis County, according to the 2021 estimates by the American Community Survey.

**Table 3-5. Occupations of Employed Population in Travis County<sup>9</sup>**

OCCUPATION	ESTIMATE	PERCENT
Civilian employed population 16 years and over	717,250	-
Management, business, science, and arts occupations	379,331	52.9%
Sales and office occupations	141,073	19.7%
Service occupations	96,658	13.5%
Production, transportation, and material moving occupations	53,244	7.4%
Natural resources, construction, and maintenance occupations	46,944	6.5%

**Table 3-6. Industries of Employed Population in Travis County<sup>10</sup>**

INDUSTRY	ESTIMATE	PERCENT
Civilian employed population 16 years and over	717,250	-
Educational services, and health care and social assistance	141,687	19.8%
Professional, scientific, and management, and administrative and waste management services	141,612	19.7%

<sup>9</sup> 2021 American Community Survey 5-Year Estimates Data Profiles.

<sup>10</sup> 2021 American Community Survey 5-Year Estimates Data Profiles.

INDUSTRY	ESTIMATE	PERCENT
Arts, entertainment, and recreation, and accommodation and food services	66,706	9.3%
Retail trade	65,386	9.1%
Manufacturing	53,714	7.5%
Finance and insurance, and real estate and rental and leasing	51,679	7.2%
Construction	48,684	6.8%
Public administration	41,299	5.8%
Other services, except public administration	33,192	4.6%
Transportation and warehousing, and utilities	28,753	4.0%
Information	25,901	3.6%
Wholesale trade	14,389	2.0%
Agriculture, forestry, fishing and hunting, and mining	4,248	0.6%

## NATURAL, CULTURAL, AND HISTORIC RESOURCES

Travis County's territory is composed of 994 square miles of land with an elevation ranging from 400 to 1,300 feet above sea level. Travis County is almost totally within the watershed of the Colorado River. The county's water resources include not only the Colorado River, aquifers, springs, and lakes, but also the creeks, streams, and storm water drainage channels that flow to them. The rain and runoff collect into tributaries of the Colorado watershed, including the Pedernales River Barton Creek, Onion Creek, Williamson Creek, Big Sandy Creek, Cow Creek, Gilleland Creek, Walnut Creek, Wilbarger Creek, and other waterways that converge into the Colorado River as they flow towards the Texas Coastal Plain.<sup>11</sup>

Travis County is underlain by significant groundwater aquifers that supply approximately 27,500 acre-feet of fresh water per year for domestic, agricultural, and industrial usage. Groundwater in Travis County emerges at springs and water courses providing critical habitat to biological communities that support endangered and other aquatic species. These underground freshwater sources of groundwater include Barton Springs and Northern Segments of the Edwards Aquifer, Trinity Group Aquifers, and Colorado River Alluvial Aquifer. The recharge of water into these aquifers is almost completely dependent upon rainfall and the flow of surface water in streams that pass over surface outcrops of these aquifers.<sup>12</sup>

Travis County is located within three ecoregions: the Edwards Plateau in the southwest portion, Cross Timbers and Prairies in the northwest and central portions, and the Blackland Prairies in

<sup>11</sup> Travis County, <https://www.traviscountytx.gov/tnr/environmental-quality/water-quality/colorado-river-watershed>

<sup>12</sup> Travis County, <https://www.traviscountytx.gov/tnr/environmental-quality/water-quality/travis-county-aquifers>



## SECTION 3: COUNTY PROFILE

the eastern portion of the county. The Edwards Plateau comprises the Texas Hill Country and has many springs, stony hills and steep canyons. The Edwards Plateau region also contains several rare plants and animals, and the soil is shallow and underlain by limestone. The Edwards Aquifer is a major asset of the Edwards Plateau ecoregion. Areas in southern Travis County are considered to be both contributing and recharge zones for the Edwards Aquifer. The Cross Timbers and Prairies ecoregion is comprised of high density of trees and irregular plains and prairies. Soil within the ecoregion is mostly sandy to loamy. The Blackland Prairie ecoregion is underlain by Upper Cretaceous chinks, marls and limestone which yield high alkalinity soils making them ideal for cropland, grazing and agricultural use. Common trees that inhabit this region include pecan, cedar elm, various oaks and mesquite.

Natural resources are an important asset to the Travis County planning area. Travis County parks system encompass 9,666 acres of parkland and 26 parks that offer a variety of activities for the public to enjoy.<sup>13</sup> While the park system has evolved over the years, recent focus has been on natural resource-based recreation. The 2016 Travis County Parks Master Plan, along with a 2005 and 2011 voter-approved bonds, established a capital improvement program with priorities for acquiring parkland and implementing capital improvement projects.<sup>14</sup>

Two important natural assets to the planning area are the Balcones Canyonlands Preserve (BCP) and the Balcones Canyonlands National Wildlife Refuge. The Balcones Canyonlands Preserve (BCP) is located in western Travis County and is among the largest urban preserves in the United States, encompassing over 33,000 acres and 50 square miles. The Preserve was created in 1996 because of the rapid growth in the City of Austin and surrounding areas, that resulted in habitat loss for eight federally endangered species. The Preserve is comprised of 140 individual tracts managed by public and private partners, including Travis County.<sup>15</sup> The Balcones Canyonlands National Wildlife Refuge was established in 1992 and is managed by U.S. Fish and Wildlife Service to protect the nesting grounds of the black-capped vireo and the golden-cheeked warbler.<sup>16</sup> In total the National Wildlife Refuge protects 27,000 acres and together with the Balcones Canyonlands Preserve provides protected habitat areas for natural resources and federally endangered animals in Travis, Burnet, and Williamson Counties.

To further understand natural resources that may be vulnerable to a hazard event, as well as those that need consideration when implementing mitigation activities, it is important to identify at-risk species (i.e., endangered species) in the planning area. A federally endangered species is any species of fish, plant life, or wildlife that is in danger of extinction throughout all or most of its range. A threatened species is a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Both endangered and threatened species are protected by federal law and any future hazard mitigation projects are subject to these laws. Candidate species are plants and animals that have been proposed as endangered or threatened but are not currently listed.

<sup>13</sup> Travis County Parks Master Plan Executive Summary, [https://parks.traviscountytexas.gov/files/docs/1\\_parks\\_master\\_plan\\_summary.pdf](https://parks.traviscountytexas.gov/files/docs/1_parks_master_plan_summary.pdf)

<sup>14</sup> Travis County Parks Master Plan (2016), [https://parks.traviscountytexas.gov/files/docs/2\\_parks\\_master\\_plan.pdf](https://parks.traviscountytexas.gov/files/docs/2_parks_master_plan.pdf)

<sup>15</sup> Travis County, <https://www.traviscountytexas.gov/tnr/nr/bcp>

<sup>16</sup> U.S. Fish & Wildlife Service, <https://www.fws.gov/refuge/balcones-canyonlands/about-us>



## SECTION 3: COUNTY PROFILE

Item 8.

According to the U.S. Fish and Wildlife Service, as of May 2023, there are twenty-two federally endangered, threatened, or candidate species in Travis County, listed in Table 3-8.

**Table 3-8. Endangered Species in Travis County<sup>17</sup>**

TYPE of SPECIES	COMMON NAME	SCIENTIFIC NAME	SPECIES STATUS
Amphibians	Barton Springs Salamander	Eurycea sosorum	Endangered
Amphibians	Austin Blind Salamander	Eurycea waterlooensis	Endangered
Amphibians	Jollyville Plateau Salamander	Eurycea tonkawae	Threatened
Amphibians	Georgetown Salamander	Eurycea naufragia	Threatened
Arachnids	Bone Cave Harvestman	Texella reyesi	Endangered
Arachnids	Tooth Cave Spider	Tayshaneta myopica	Endangered
Arachnids	Bee Creek Cave Harvestman	Texella reddelli	Endangered
Arachnids	Tooth Cave Pseudoscorpion	Tartarocreagris texana	Endangered
Birds	Whooping Crane	Grus americana	Endangered
Birds	Red Knot	Calidris canutus rufa	Threatened
Birds	Golden-cheeked warbler	Setophaga chrysoparia	Endangered
Birds	Piping Plover	Charadrius melodus	Threatened
Clams	Texas Fawnsfoot	Truncilla macrodon	Proposed Threatened
Clams	Guadalupe Orb	Cyclonaias necki	Proposed Endangered
Clams	False Spike	Fusconaia mitchelli	Proposed Endangered
Clams	Texas Pimpleback	Cyclonaias petrina	Proposed Endangered
Clams	Texas Fatmucket	Lampsilis bracteate	Proposed Endangered
Flowering Plants	Bracted Twistflower	Streptanthus bracteatus	Threatened
Insects	Monarch Butterfly	Danaus plexippus	Candidate
Insects	Kretschmarr Cave Mold Beetle	Texamaurops reddelli	Endangered
Insects	Tooth Cave Ground Beetle	Rhadine Persephone	Endangered

<sup>17</sup> U.S. Fish and Wildlife Service, Environmental Conservation Online System <https://ecos.fws.gov/ecp/report/species-listings-by-current-range-county?fips=48453>

TYPE of SPECIES	COMMON NAME	SCIENTIFIC NAME	SPECIES STATUS
Mammals	Tricolored Bat	Perimyotis Subflavus	Proposed Endangered

Travis County has a rich history that is preserved through its designated historic buildings and sites. Throughout the County there are over 200 buildings and sites listed on the National Register of Historic Places, a majority of which are in the City of Austin.<sup>18</sup> Historic buildings are vulnerable to natural hazards as their construction pre-dates modern building codes. There are also historic preservation considerations and requirements for historic structures when they are included in mitigation or recovery projects.

**Table 3-9. Historic Properties Listed on the National Register of Historic Places<sup>19</sup>**

PROPERTY NAME	LOCATION	ADDRESS
East Main Street Historic District	City of Pflugerville	111, 113, 115, & 117 East Main Street

## EXISTING LAND USE AND DEVELOPMENT TRENDS

Zoning ordinance sets forth regulations and standards related to the extent of uses of land and structures that are allowed in certain areas. A zoning map shows the areas within a community where the various zoning districts and standards are located and gives an overall picture of what types of development are located in a community and how a community intends to continue to grow. The following jurisdictions have a zoning ordinance: Travis County, Village of Briarcliff, City of Creedmoor, City of Jonestown, City of Lago Vista, City of Lakeway, City of Manor, City of Mustang Ridge, City of Pflugerville, City of Rollingwood, Village of San Leanna, City of Sunset Valley, and the City of West Lake Hills.

A review of building permits can also give a picture of the built environment and the number of buildings that are being constructed in the County and each jurisdiction. Table 3-10 lists the number of residential buildings and total units authorized through a permit from each jurisdiction, where data was available, between 2017 and 2021. The data includes total buildings and total units permitted. Permits are reported annually in September and the data includes that from 2017 through 2021 to demonstrate growth. Of the residential building permits issued in this period, over 90 percent were for single-family buildings and 5 percent for multi-family buildings. Housing type can also be an indication of an individual's ability to recover from a disaster.

<sup>18</sup> The City of Austin has 205 buildings and sites listed on the National Register of Historic Places, which have not been included within this Plan Update.

<sup>19</sup> National Register of Historic Places

## SECTION 3: COUNTY PROFILE

Item 8.

Table 3-10. Building Permits, By Jurisdiction, 2017-2021<sup>20</sup>

JURISDICTION	2017		2018		2019		2020		2021	
	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units	Total Buildings	Total Units
Unincorporated Travis County	2,573	3,229	2,705	3,907	2,832	4,496	4,070	5,682	3,332	8,316
Village of Briarcliff*	-	-	-	-	-	-	-	-	-	-
City of Creedmoor	4	4	0	0	1	1	0	0	0	0
City of Jonestown	18	18	35	35	64	64	79	79	125	125
City of Lago Vista	204	206	287	299	264	270	325	330	390	394
City of Lakeway	312	312	256	267	238	251	324	327	367	397
City of Manor	633	633	549	957	690	690	731	1,597	526	526
City of Mustang Ridge	3	3	1	1	11	13	11	15	0	0
City of Pflugerville	417	657	716	716	867	867	727	1,333	449	503
Village of Point Venture	52	52	27	27	32	32	28	28	16	27
City of Rollingwood	13	13	13	13	6	6	6	6	18	18
Village of San Leanna	1	1	1	1	4	4	5	5	7	7
City of Sunset Valley	0	0	1	1	1	1	2	2	2	2
Village of The Hills	3	3	2	2	3	3	4	4	2	2
City of West Lake Hills	15	19	11	11	10	10	12	12	13	13
City of Austin <sup>21</sup>	4,632	11,579	4,692	13,283	4,916	14,709	4,495	17,690	4,581	18,722
<b>Grand Total</b>	<b>8,880</b>	<b>16,729</b>	<b>9,296</b>	<b>19,520</b>	<b>9,939</b>	<b>21,417</b>	<b>10,819</b>	<b>27,110</b>	<b>9,828</b>	<b>29,052</b>

\*Data for jurisdiction was not included in the database

<sup>20</sup> U.S. Census Bureau, Building Permit Survey, 1992-2021, <https://www.census.gov/construction/bps/><sup>21</sup> The City of Austin is not participating in the Travis County Hazard Mitigation Plan Update but has been included on the *Building Permits, By Jurisdiction, 2017-2021* table.

## FUTURE GROWTH AND DEVELOPMENT

To better understand how future growth and development in the County might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. This section includes an analysis of the projected population change and economic impacts.

Population projections from 2010 to 2050 are listed in Table 3-11, as provided by the Office of the State Demographer, Texas State Data Center, and the Institute for Demographic and Socioeconomic Research. Population projections are based on a 0.5 scenario growth rate, which is 50 percent of the population growth rate that occurred during 2000-2010. This information is only available at the County level; however, the population projection shows an increase in population density for the County, which would mean overall growth for the County.

**Table 3-11. Travis County Population Projections<sup>22</sup>**

LAND AREA (SQ MI)	2010		2020		2030		2040		2050	
	Population									
	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)
994	1,024,266	1,030.4	1,291,502	1,299.3	1,540,812	1,550.1	1,775,204	1,785.9	1,980,918	1,992.9

Comprehensive Plans are guiding documents in a community that sets forth a vision, goals, policies, and guidelines to direct future physical, social and economic development that will occur within a jurisdiction. Comprehensive Plans are part of a continuous process to provide an environment for the citizens and to consider the general desire of the community to conserve, preserve, and protect the natural environment of their jurisdiction. These plans are used to guide city staff, decision-makers, and citizens in making decisions which affect the community with the understanding of the long-term effects. The following is a summary of a sample of Comprehensive Plans participating jurisdictions in Travis County have in place. Refer to Appendix F Capability Assessment for a complete list of participating jurisdictions with Comprehensive Plans.

The City of Lago Vista 2030 Comprehensive Plan was adopted on May 5, 2016 and will be used as a guiding document for the future growth and development of the city, to make decisions and set policies. The plan contains elements and recommendation topics, including: a city snapshot; land use; housing and neighborhood livability; transportation; parks, recreation, and open space; city facilities and services; along with implementation.

The City of Lakeway 2020 Comprehensive Plan, adopted in 2020, reflects the community vision for quality of life. It describes Lakeway's current issues, goals, objectives, and makes policy and action recommendations to progress toward achieving those goals. The recommendations in the plan should be used to guide city leaders in decisions regarding community identity, environment, land use, transportation strategies, infrastructure, community recreational and cultural programs,

<sup>22</sup> Office of the State Demographer, Texas State Data Center, and the Institute for Demographic and Socioeconomic Research

## SECTION 3: COUNTY PROFILE

community facilities and parks, business and economic development, and principles for working cooperatively with neighbors with a commitment to long-term planning.

The City of Manor comprehensive plan Destination 2050 focuses on areas of transportation, infrastructure, land use, library/recreation/parks, economic development, community branding, and more. This plan will be a useful development tool to help establish key economic development strategies to expand tax base and create jobs for high-tech and manufacturing industries. This plan will allow the residents of the City of Manor to create a shared vision of what they want the community to become. Additionally, it provides recommendations for how the City of Manor can effectively implement this vision.

The City of Pflugerville 2040 Aspire Comprehensive Plan was adopted on April 26, 2022 and provides direction, vision and an outline to continue to improve the city. The community goals and aspirations are utilized by the city to express public policy initiatives regarding land use, community character, parks and recreation, neighborhood vitality, economic development, transportation, utilities, community facilities and public service.

The Village of Point Venture Comprehensive Plan 2020 includes, but is not limited to, provisions on land use, transportation, and public facilities, and is to be used to coordinate and guide the development regulations of the village, its extraterritorial jurisdiction and future growth areas that is consistent with and supportive of the residents' expectations and desires for the village.

The City of Rollingwood Comprehensive Plan, approved on May 19, 2022, outlines a long-term vision that provides a framework for decision-makers to guide development and future growth of Rollingwood. The process of comprehensive planning determines the aspirations and goals of a community in terms of development, as well as social, economic, and environmental ambitions. This forms the basis for the policies and recommendations within the plan. The plan's recommendations should be used to guide city leaders in decisions regarding community identity, land use, parks & recreation, public facilities & infrastructure, economic development, and mobility.

The City of Sunset Valley Comprehensive Plan reflects the desire of the city of preserve the rural history and pleasant quality of life while balancing the complementary current and future needs of residents, commercial businesses, and visitors to the city. The comprehensive plan guides all other development regulations within the city.

The City of West Lake Hills Master Plan is designed to achieve the following general goals: provide for the health, safety, and public welfare of our citizens; preserve the natural, wooded, rural character of West Lake Hills and its wildlife; protect the unique environment and quality of life enjoyed by its residents; permit reasonable and appropriate development consistent with these goals; provide the services of a city in these circumstances; promote cooperation with other political subdivisions in this area; and promulgate the need for cleanliness of the street rights-of-way and beautification throughout the area.





# SECTION 4

# RISK OVERVIEW



Hazard Description .....	1
Disaster Declaration History .....	4
Natural Hazards and Climate Change .....	6
Overview of Hazard Analysis .....	8
Hazard Ranking .....	10

## HAZARD DESCRIPTION

Section 4 is the first phase of the Risk Assessment, providing background information for the hazard identification process and descriptions for the hazards identified. The Risk Assessment continues with Sections 5 through 15, which include hazard descriptions and vulnerability assessments.

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

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

Hydrologic hazards are events or incidents associated with water-related damage and account for over 75 percent of federal disaster declarations in the United States. Hydrologic hazards identified as significant for the planning area include flood and drought.

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

For the Risk Assessment, the wildfire and expansive soils hazards are considered “other,” since these hazards are not considered atmospheric, hydrologic, nor technological.

Table 4-1. Hazard Descriptions

HAZARD	DESCRIPTION
ATMOSPHERIC	
<b>Extreme Heat</b>	Extreme heat is the condition whereby temperatures hover ten degrees or more above the average high temperature in a region for an extended period of time.
<b>Hail</b>	Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and subsequent cooling of the air mass.
<b>Lightning</b>	Lightning is a sudden electrostatic discharge that occurs during an electrical storm. This discharge occurs between electrically charged regions of a cloud, between two clouds, or between a cloud and the ground.
<b>Thunderstorm Wind</b>	A thunderstorm occurs when an observer hears thunder. Radar observers use the intensity of the radar echo to distinguish between rain showers and thunderstorms. Lightning detection networks routinely track cloud-to-ground flashes, and therefore thunderstorms.
<b>Tornado</b>	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. The destruction caused by tornadoes ranges from light to catastrophic, depending on the location, intensity, size, and duration of the storm.
<b>Winter Storm</b>	Severe winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 mph, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads, and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.
HYDROLOGIC	
<b>Drought</b>	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality.

HAZARD	DESCRIPTION
<b>Flood</b>	The accumulation of water within a body of water, which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, and shallow flooding.
<b>OTHER</b>	
<b>Expansive Soils</b>	Expansive soils are soils and soft rock that tend to swell or shrink due to changes in moisture content. Changes in soils volume present a hazard primarily to structures built on top of expansive soils.
<b>Wildfire</b>	A wildfire is an uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase the risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors.
<b>TECHNOLOGICAL</b>	
<b>Dam Failure</b>	Dam failure is the collapse, breach, or other failure of a dam structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam.

Hazards that were not considered significant and were not included in the Plan Update are located in Table 4-2, along with the evaluation process used for determining the significance of each of these hazards. Hazards not identified for inclusion at this time may be addressed during future evaluations and updates.

**Table 4-2. Other Hazards Deferred**

HAZARD CONSIDERED	REASON FOR DETERMINATION
<b>Coastal Erosion</b>	The planning area is not located on the coast, therefore coastal erosion does not pose a risk.
<b>Earthquake</b>	According to the State Plan, an earthquake occurrence for the Travis County planning area is considered exceedingly rare. Although a small event is possible, it would pose little to no risk for the area. There is no history of impact to critical structures, systems, populations or other community assets or vital services as a result of earthquake and none is expected in the future.

HAZARD CONSIDERED	REASON FOR DETERMINATION
<b>Hurricane Wind</b>	The planning area is not located within 200 miles of the coast; therefore, direct hurricane wind impacts do not pose a risk. Any remnants of a hurricane or tropical storm system would only include secondary impacts such as thunderstorm winds and rainfall and would be covered under thunderstorm wind or flood mitigation measures.
<b>Land Subsidence</b>	There are no historical occurrences of land subsidence for the planning area and it is located in an area where occurrences are considered rare. There is no history of impact to critical structures, systems, populations or other community assets or vital services as a result of land subsidence and none is expected in the future.

## DISASTER DECLARATION HISTORY

One method of understanding hazards that pose a risk to Travis County is to identify past hazard events that triggered federal or state disaster declarations. Federal and state declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. Table 4-3 lists state and federal disaster declarations received by Travis County. Many of the disaster events were regional or statewide.

Between 1953 and January 2023 Travis County received 36 federal disaster declarations. Out of the 36 federally declared disasters, a majority (11) were related to wildfire, followed by declarations for hurricane (8), flood (6), severe storms (5), winter weather (3), biological (2), and drought (1).

In addition to the 36 federally declared disaster there have been 31 U.S. Department of Agriculture (USDA) Secretarial disaster designations between 2013 and 2022. The Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans available to producers suffering losses in those counties and in counties that are contiguous to a designated county.<sup>1</sup> Of the USDA designations 29 have been for drought, 1 for winter weather and 1 for excessive moisture.

**Table 4-3. Disaster Declaration History in Travis County, 1953-2022**

YEAR	DECLARATION TITLE	HAZARD	DECLARATION TYPE	DISASTER No.
1991	Severe Thunderstorms	Flood	DR	DR-930
1993	Extreme Fire Hazard	Drought	EM	EM-3113
1996	Extreme Fire Hazard	Fire	EM	EM-3117
1997	Severe Storms and Flooding	Flood	DR	DR-1179

<sup>1</sup> United States Department of Agriculture [https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/emergency\\_disaster\\_designation\\_declaration\\_process-factsheet.pdf](https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/emergency_disaster_designation_declaration_process-factsheet.pdf)

## SECTION 4: RISK OVERVIEW

Item 8.

YEAR	DECLARATION TITLE	HAZARD	DECLARATION TYPE	DISASTER No.
1998	Tropical Storm Charley	Severe Storm	DR	DR-1239
1998	TX-Flooding 10/18/98	Flood	DR	DR-1257
1999	Extreme Fire Hazards	Fire	EM	EM-3142
2002	Severe Storms and Flooding	Flood	DR	DR-1425
2005	Hurricane Katrina Evacuation	Hurricane	EM	EM-3216
2005	Hurricane Rita	Hurricane	EM	EM-3261
2005	Hurricane Rita	Hurricane	DR	DR-1606
2006	Extreme Wildfire Threat	Fire	DR	DR-1624
2006	Moore Road Fire	Fire	FM	FM-2675
2007	Severe Storms, Tornadoes, and Flooding	Severe Storm	DR	DR-1709
2007	Hurricane Dean	Hurricane	EM	EM-3277
2008	Wildfires	Fire	EM	EM-3284
2008	Hurricane Gustav	Hurricane	EM	EM-3290
2008	Hurricane Ike	Hurricane	EM	EM-3294
2011	Pinnacle Fire	Fire	FM	FM-2898
2011	Grand Mesa Fire	Fire	FM	FM-2922
2011	Hodde Fire	Fire	FM	FM-2957
2011	Steiner Ranch Fire	Fire	FM	FM-2960
2011	Pedernales Bend Fire	Fire	FM	FM-2959
2011	Wildfires	Fire	DR	DR-4029
2014	Severe Storms and Flooding	Severe Storm	DR	DR-4159
2015	Severe Storms, Tornadoes, Straight-line Winds and Flooding	Severe Storm	DR	DR-4223
2016	Severe Storms, Tornadoes, Straight-line Winds, and Flooding	Severe Storm	DR	DR-4245
2016	Severe Storms and Flooding	Flood	DR	DR-4272

YEAR	DECLARATION TITLE	HAZARD	DECLARATION TYPE	DISASTER No.
2017	Hurricane Harvey	Hurricane	DR	DR-4332
2019	Severe Storms and Flooding	Flood	DR	DR-4416
2020	COVID-19	Biological	EM	EM-3458
2020	COVID-19 Pandemic	Biological	DR	DR-4485
2020	Tropical Storms Marco and Laura	Hurricane	EM	EM-3540
2021	Severe Winter Storm	Severe Ice Storm	EM	EM-3554
2021	Severe Winter Storms	Severe Ice Storm	DR	DR-4586
2023	Texas Severe Winter Storm	Winter Storm	DR	DR-4705

## NATURAL HAZARDS AND CLIMATE CHANGE

Climate change is defined as a long-term shift in temperature and weather patterns. These shifts can increase or decrease the risk of natural hazards. Global climate change is expected to exacerbate the risks of certain types of natural hazards impacted through rising sea levels, warmer ocean temperatures, higher humidity, the possibility of stronger storms, and an increase in wind and flood damages due to storm surges. Texas is considered one of the more vulnerable states in the U.S. to both abrupt climate changes and to the impact of gradual climate changes to the natural and built environments.

Climate change is expected to lead to an increase in average temperatures as well as an increase in frequency, duration, and intensity of extreme heat events. With no reductions in emissions worldwide, the state of Texas is projected to experience an additional 30 to 60 days per year above 100°F than what is experienced now.<sup>2</sup>

The State Climatologist's *Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036* identifies ongoing and likely future trends out to the year 2036 based on analysis of historic observations of temperatures, precipitation, and extreme weather. Table 4-4 highlights future trends in extreme weather from the report.

<sup>2</sup> Kloesel, K., B. Bartush, J. Banner, D. Brown, J. Lemery, X. Lin, C. Loeffler, G. McManus, E. Mullens, J. Nielsen-Gammon, M. Shafer, C. Sorensen, S. Sperry, D. Wildcat, and J. Ziolkowska, 2018: Southern Great Plains. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 987–1035. doi: 10.7930/NCA4.2018.CH23. <https://nca2018.globalchange.gov/chapter/23/>



**Table 4-4. Future Trends in Extreme Weather in Texas<sup>34</sup>**

HAZARDS	EXPECTED TRENDS
Extreme Temperatures	<ul style="list-style-type: none"> <li>The average annual surface temperature in 2036 is expected to be 3.0°F warmer than the 1950-1999 average and 1.8°F warmer than the 1991-2020 average.</li> <li>Nearly double the number of 100°F days by 2036 compared to 2001-2020.</li> <li>Higher frequency of 100°F days in urban areas.</li> <li>The number of nighttime temperatures below 32°F are expected to decrease.</li> <li>The number of frost days per year are expected to decrease.</li> <li>The coolest days of the summer are expected to continue becoming warmer.</li> <li>The number of heatwaves per year and number of days per year classified as heatwaves are expected to increase.</li> </ul>
Precipitation	<ul style="list-style-type: none"> <li>Precipitation has increased by 10 percent or more in eastern Texas, but little trend is present in western Texas.</li> <li>Precipitation trends to 2036 are likely to be dominated by natural variability.</li> <li>Extreme precipitation is expected to increase in intensity on average statewide by 6-10 percent compared to the 1950-1999 averages and 2-3 percent relative to the 2001-2020 averages.</li> <li>This translates to an increase in the frequency of extreme rain of 30-50 percent relative to the climatological expected frequency in 1950-1999 and 10-15 percent relative to 2001-2020.</li> <li>Annual precipitation is projected to increase while the number of extreme precipitation (&gt;2") will remain relatively consistent.</li> </ul>
Drought	<ul style="list-style-type: none"> <li>Increasing temperatures, rainfall variability, and other factors will on balance decrease water availability, but impact changes will vary strongly across applications.</li> <li>Impact trends to be highly sector-specific, with the impacts possibly smaller for agriculture than for surface water supply.</li> </ul>
Flood	<ul style="list-style-type: none"> <li>No long-term river flooding trend has been identified in the observations, nor is such a trend projected at this point, except perhaps for the most extreme floods and areas with normally high rainfall.</li> <li>Urban flooding is projected to increase, both as a simple matter of urban population increase and because of the projected increase of precipitation intensity, which drives</li> </ul>

<sup>3</sup> Gammon-Nielsen, John, Holman, Sara, Buley, Austin and Jorgensen, Savannah. Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, 2021 Update. Texas A&M University Office of the Texas State Climatologist. October 7, 2021. <https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021Update>

<sup>4</sup> University of Texas at Austin, February 2023, Austin Future Climate, Climate Change Predictions for the City of Austin 2022, Technical Report.

HAZARDS	EXPECTED TRENDS
	<p>flooding in fast-response drainages like those usually found in urban areas.</p> <ul style="list-style-type: none"> <li>The climate-driven trend in urban flood frequency should be similar to the climate-driven trend in extreme precipitation frequency: 30-50 percent in 2036 relative to 1950-1999 and 10-15 percent relative to 2001-2020.</li> <li>Areas already experiencing flooding are likely to see an increase in frequency and magnitude of events.</li> </ul>
Winter Weather	<ul style="list-style-type: none"> <li>As the climate warms, the likelihood of winter weather decreases.</li> <li>Both extreme cold and snowfall either become less frequent or are expected to do so.</li> <li>Widespread snowfall events in Texas such as the one that took place in February 2021 are extremely rare.</li> <li>Fewer cold spells are projected to occur per year, but the length of cold spells will be longer when they do occur.</li> </ul>
Thunderstorms (Wind, Hail, Lightning)	<ul style="list-style-type: none"> <li>Historical trend data is unreliable.</li> <li>Indirect evidence supports an increase in the number of days capable of producing severe thunderstorms and an increase in the frequency of very large hail in early springtime, but these possible trends are too uncertain to quantify.</li> </ul>
Wildfire	<ul style="list-style-type: none"> <li>Weather and climate 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.</li> </ul>

## OVERVIEW OF HAZARD ANALYSIS

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

Records retrieved from National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA) were reported for participating jurisdictions within Travis County. Remaining records identifying the occurrence of hazard events in the planning area and the maximum recorded magnitude of each event were also evaluated.

The use of geographic information system (GIS) technology to identify and assess risks for Travis County and evaluate community assets and their vulnerability to the hazards.

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

Frequency of return was calculated by dividing the number of events in the recorded time period for each hazard by the overall time period that the resource database was recording events. Frequency of return statements are defined in Table 4-5, and impact statements are defined in Table 4-6 below.

**Table 4-5. Frequency of Return Statements**

PROBABILITY	DESCRIPTION
<b>Highly Likely</b>	Event is probable in the next year.
<b>Likely</b>	Event is probable in the next three years.
<b>Occasional</b>	Event is probable in the next five years.
<b>Unlikely</b>	Event is probable in the next ten years.

**Table 4-6. Impact Statements**

POTENTIAL SEVERITY	DESCRIPTION
<b>Substantial</b>	Multiple deaths. Complete shutdown of facilities for 30 days or more. More than 50 percent of property destroyed or with major damage.
<b>Major</b>	Injuries and illnesses resulting in permanent disability. Complete shutdown of critical facilities for at least two weeks. More than 25 percent of property destroyed or with major damage.
<b>Minor</b>	Injuries and illnesses do not result in permanent disability. Complete shutdown of critical facilities for more than one week. More than 10 percent of property destroyed or with major damage.
<b>Limited</b>	Injuries and illnesses are treatable with first aid. Shutdown of critical facilities and services for 24 hours or less. Less than 10 percent of property destroyed or with major damage.

Each of the hazard profiles includes a description of a general Vulnerability Assessment. Vulnerability is the total of assets that are subject to damages from a hazard, based on historic recorded damages. Assets in the region were inventoried and defined in hazard zones where appropriate. The total amount of damages, including property and crop damages, for each hazard is divided by the total number of assets (building value totals) in that community to determine the percentage of damage that each hazard can cause to the community. Risk and consequences will be addressed and covered within each hazard profile under the Vulnerability and Impact section as well as under the Assessment of Impact sections, where applicable.

To better understand how future growth and development in the Travis County region might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. Hazard vulnerability for all participating jurisdictions within Travis County was reviewed based on recent development changes that occurred throughout the planning area. The population of Travis County has grown by 26 percent between 2010 and 2020, according to the

U.S. Census Bureau, therefore the vulnerability to the population, infrastructure, and buildings has increased for hazards that do not have a geographical boundary.

Once loss estimates and vulnerability were known, an impact statement was applied to relate the potential impact of the hazard on the assets within the area of impact.

## HAZARD RANKING

During the 2023 planning process, the Planning Team conducted a risk raking exercise to get input from the Planning Team and stakeholders. Table 4-7 portrays the results of the risk assessment analysis including the frequency of occurrence and potential severity and the Planning Team's self-assessment for hazard ranking, based on local knowledge of past hazard events and impacts for each of the identified hazards. The definitions for frequency of occurrence and potential severity can be found in Table 4-5 and Table 4-6.

**Table 4-7. Hazard Risk Ranking**

HAZARD	FREQUENCY OF OCCURENCE	POTENTIAL SEVERITY	RANKING
Wildfire	Highly Likely	Minor	High
Lightning	Highly Likely	Substantial	High
Drought	Likely	Limited	High
Extreme Heat	Highly Likely	Substantial	High
Flood	Highly Likely	Substantial	Moderate
Thunderstorm Wind	Highly Likely	Substantial	Moderate
Hail	Highly Likely	Limited	Moderate
Winter Storm	Highly Likely	Substantial	Moderate
Tornado	Highly Likely	Substantial	Low
Dam Failure	Unlikely	Substantial	Low
Expansive Soils	Likely	Limited	Low



# SECTION 5 WILDFIRE

Hazard Description .....	1
Location .....	2
Extent .....	18
Historical Occurrences .....	37
Significant Events .....	41
Probability of Future Events .....	42
Vulnerability and Impact .....	42
Assessment of Impacts .....	65
Climate Change Considerations .....	67

## HAZARD DESCRIPTION

Wildfire is an unplanned fire burning in natural or wildland areas such as forests, shrub lands, grasslands, or prairies.<sup>1</sup> Texas is one of the fastest growing states in the Nation, with much of this growth occurring adjacent to metropolitan areas. This increase in population across the state will impact counties and communities that are located within the Wildland Urban Interface (WUI). The WUI is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk from wildfire. In Texas nearly 85 percent of wildfires occur within two miles of a community. The Travis County planning area has an estimated 45.1 percent of the total planning area population that live within the WUI.<sup>2</sup>

Wildfires have the potential to spread quickly given the right environmental conditions, particularly within the wildland urban interface and intermix. Most ignition sources for wildfires are a result of human activities, such as an electrical line sparking dry grasses, an improperly discarded cigarette, burning debris, or arson.

Development has increased drastically in central Texas, resulting in more populated areas within the wildland interface/intermix. Additionally, the area is experiencing hotter, drier climatic conditions. These factors combine to make central Texas at risk from wildfires. While the planning area is continually at some risk for wildfires, that risk is elevated during two periods each year: the winter wildfire season (February through April) and the summer wildfire season (August through October).<sup>3</sup>

The Austin/Travis County Community Wildfire Protection Plan indicates the City of Austin population is expected to double in the next 30 years with continued outward expansion into and urbanization of previously rural, undeveloped lands throughout Travis County. Continued housing development in the WUI will continue to put more people at a greater risk of catastrophic wildfire and put more pressure on land managers and fire department personnel to mitigate fire risk.

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<sup>1</sup> Source: FEMA: <https://hazards.fema.gov/nri/wildfire>

<sup>2</sup> Source: Texas A&M Forest Service, Texas Wildfire Risk Assessment Summary Report, Travis County: <https://texaswildfirerisk.com/>

<sup>3</sup> Austin American Statesman, "Winter wildfire risk is rising in Central Texas. Here's what you should know." January 2023: <https://www.statesman.com/story/news/environment/2023/01/30/wildfire-risk-is-rising-in-central-texas-what-you-should-know/69845234007/>



## SECTION 5: WILDFIRE

Wildfires spread based on the type and quantity of fuel that surrounds it. Fuel can include everything from trees, underbrush and dry grassy fields to homes. The amount of flammable material that surrounds a fire is referred to as the fuel load. Conditions in the weather and environment, such as drought, winds and extreme heat, can cause a fire to spread more quickly.<sup>4</sup> Wildfires in the Travis County planning area are often ground level and fast moving. A wildfire event often begins unnoticed and spreads quickly, lighting brush, trees, and homes on fire. For example, a wildfire may be started by a campfire that was not doused properly, a tossed cigarette, burning debris, or arson.

Texas has seen a significant increase in the number of wildfires in the past 30 years, which included wildland, urban interface, or intermix fires. Wildland fires are fueled almost exclusively by natural vegetation, while interface or intermix fires are urban/wildland fires in which vegetation and the built environment provide the fuel.

### LOCATION

A wildfire incident can face devastating consequence due to human activities, drought conditions, lightning, or wind event, if the conditions allow. Wildfires can vary greatly in terms of size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in open grasslands. The Texas State Fire Marshal's Office (SFMO) collects data on fire incidents through the Texas Fire Incident Reporting System. Documented incident types in Travis County were nearly equally distributed between natural vegetation fires, wildland fires, brush and grass-mixture fuel fires, and grass fires.<sup>5</sup>

The Texas A&M Forest Service Wildfire Risk Assessment Portal (TxWRAP) provides historical wildfire data for Texas counties along with mapping resources that includes data layers on the WUI, ignition density, and fire intensity scales for communities throughout the Travis County planning area, along with multiple tips, recommendations and mitigation solutions for communities and residents. The TxWRAP portal was utilized to produce the maps found in this profile.

The threat to people and property from a wildfire event is greater in the fringe areas where developed areas meet open grass lands, such as the Wildland Urban Interface (WUI) (Figures 5-1 through 5-16). It is estimated that 45 percent of the total population in the Travis County planning area live within the WUI. However, the entire planning area is at some risk for wildfires.

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<sup>4</sup> NOAA Weather Forecasting: <https://scijinks.gov/wildfires/>

<sup>5</sup> Austin Travis County Community Wildfire Protection Plan: <https://www.traviscountytexas.gov/emergency-services/community-wildfire-protection-plan>

Figure 5-1. Wildland Urban Interface Map – Travis County

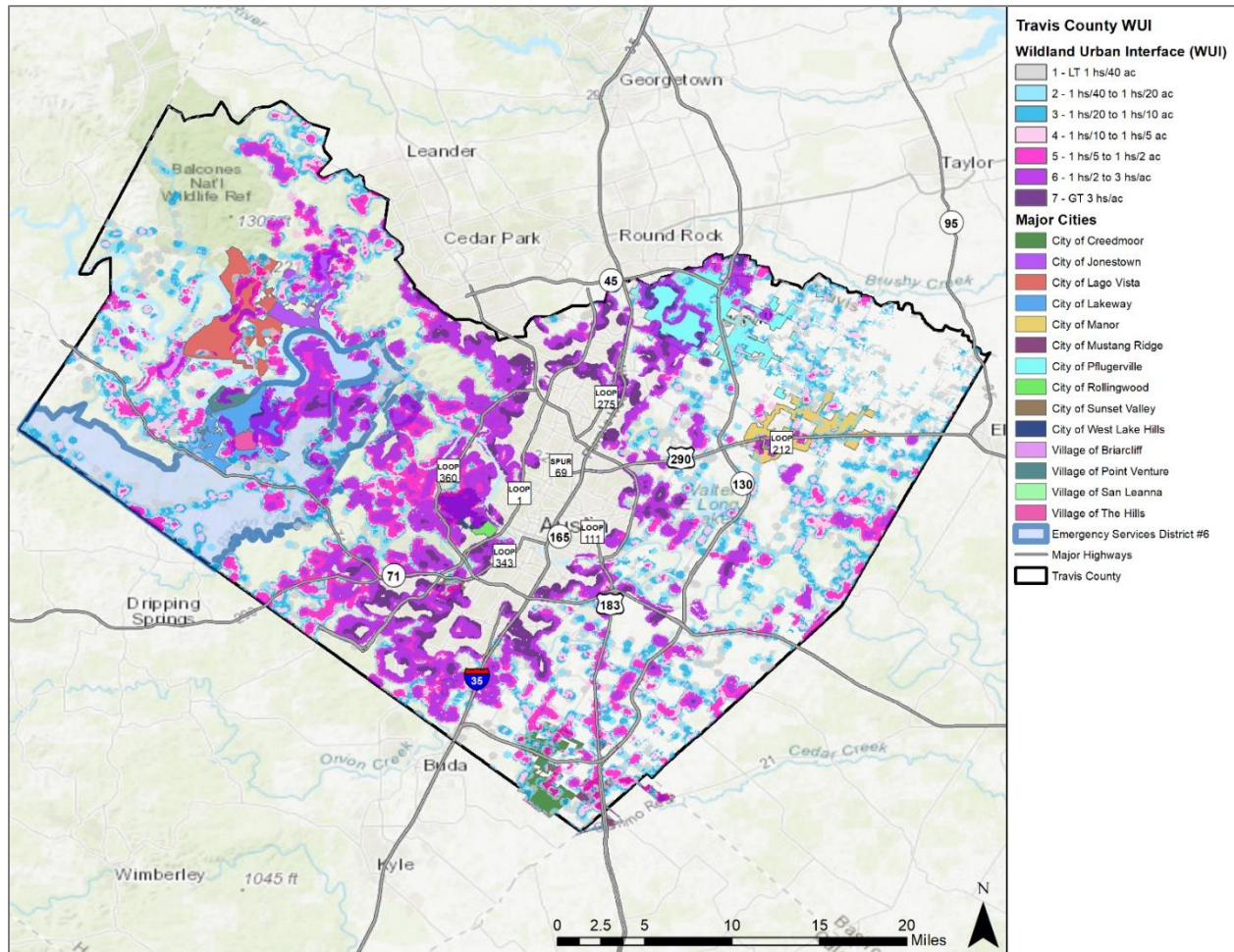
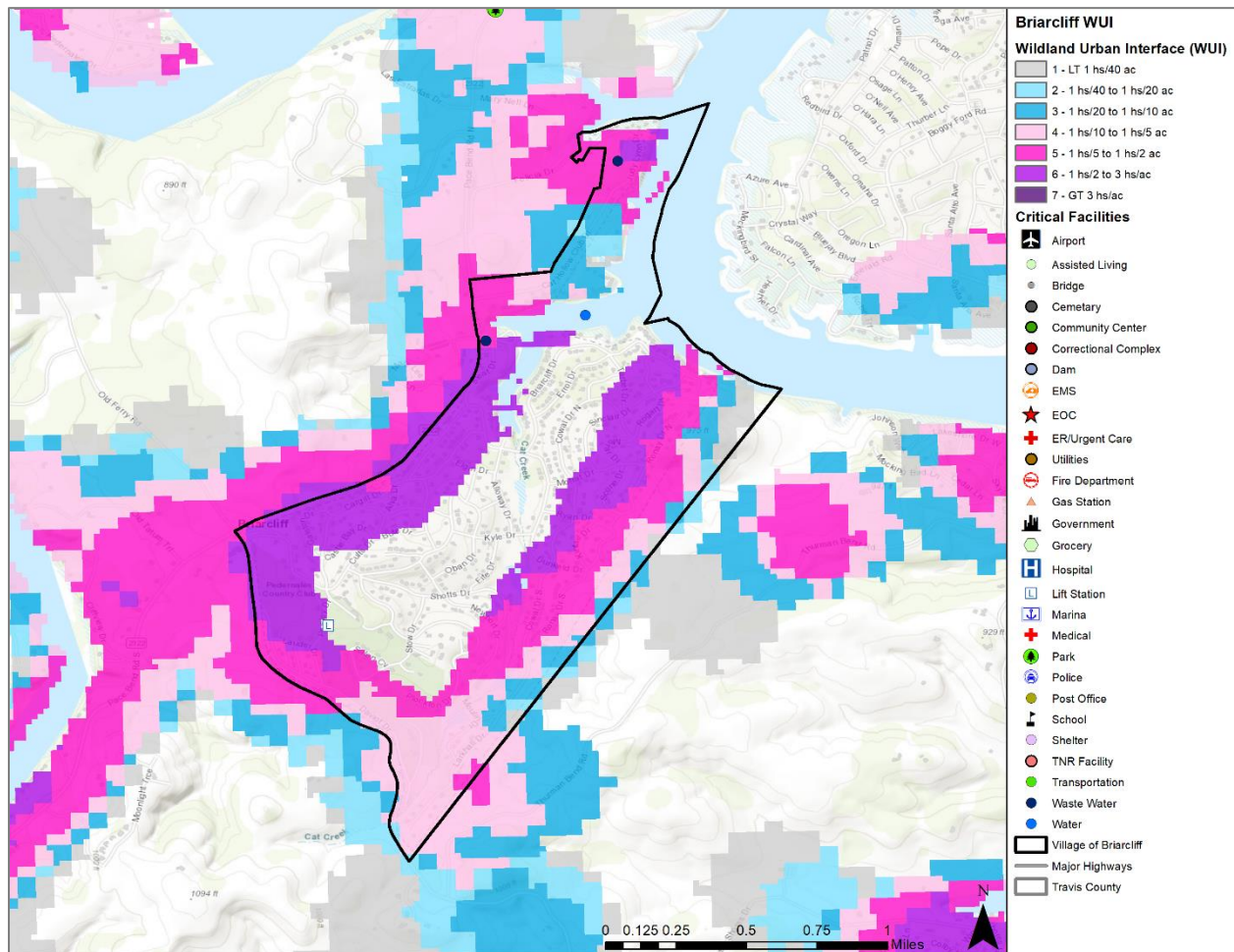


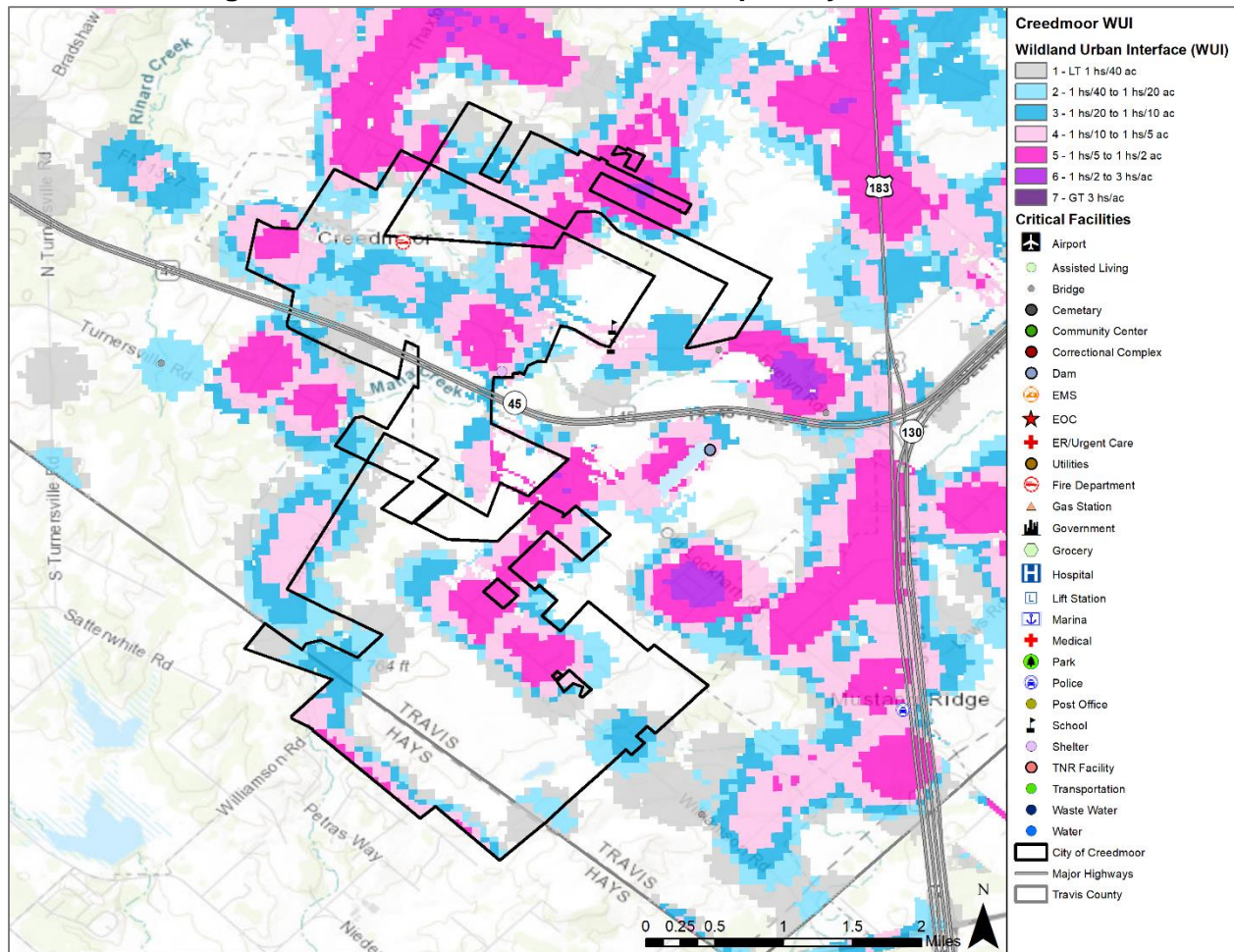
Figure 5-2. Wildland Urban Interface Map – Village of Briarcliff



It is estimated that 59 percent of the total population in the Village of Briarcliff live within the WUI. However, the entire village is at some risk for wildfires.

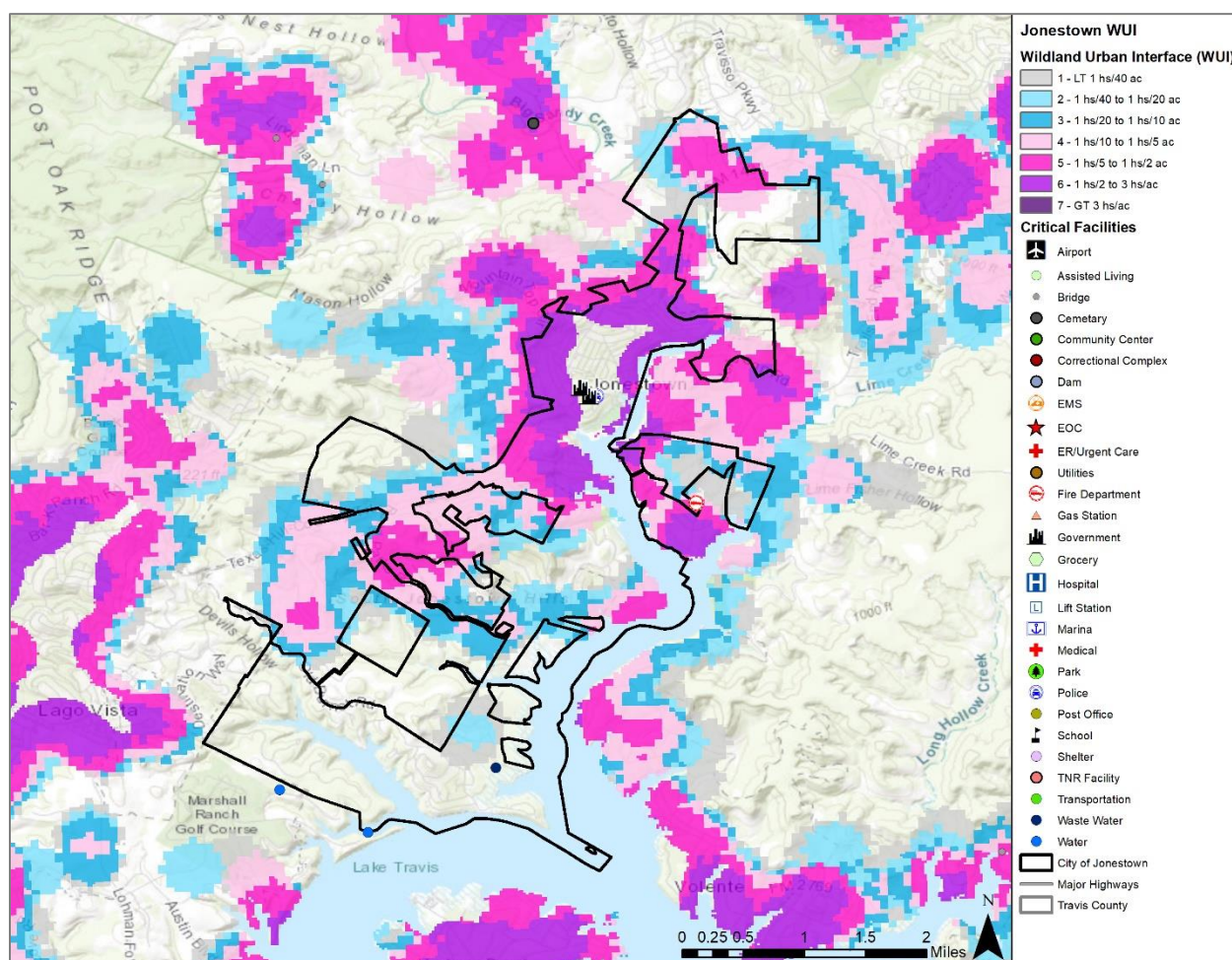


Figure 5-3. Wildland Urban Interface Map – City of Creedmoor



It is estimated that 96 percent of the total population in the City of Creedmoor live within the WUI. However, the entire city is at some risk for wildfires.

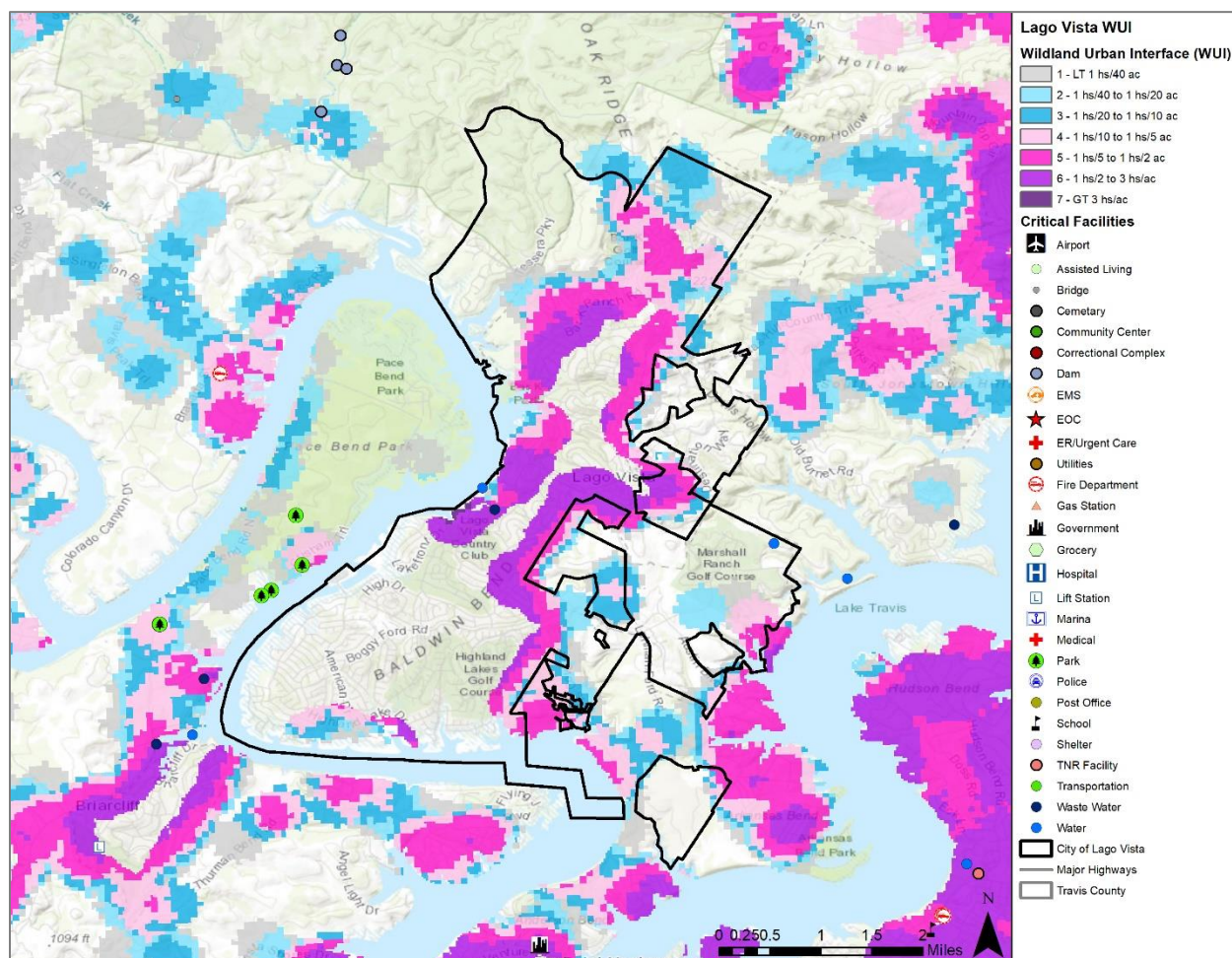
Figure 5-4. Wildland Urban Interface Map – City of Jonestown



It is estimated that 69 percent of the total population in the City of Jonestown live within the WUI. However, the entire city is at some risk for wildfires.



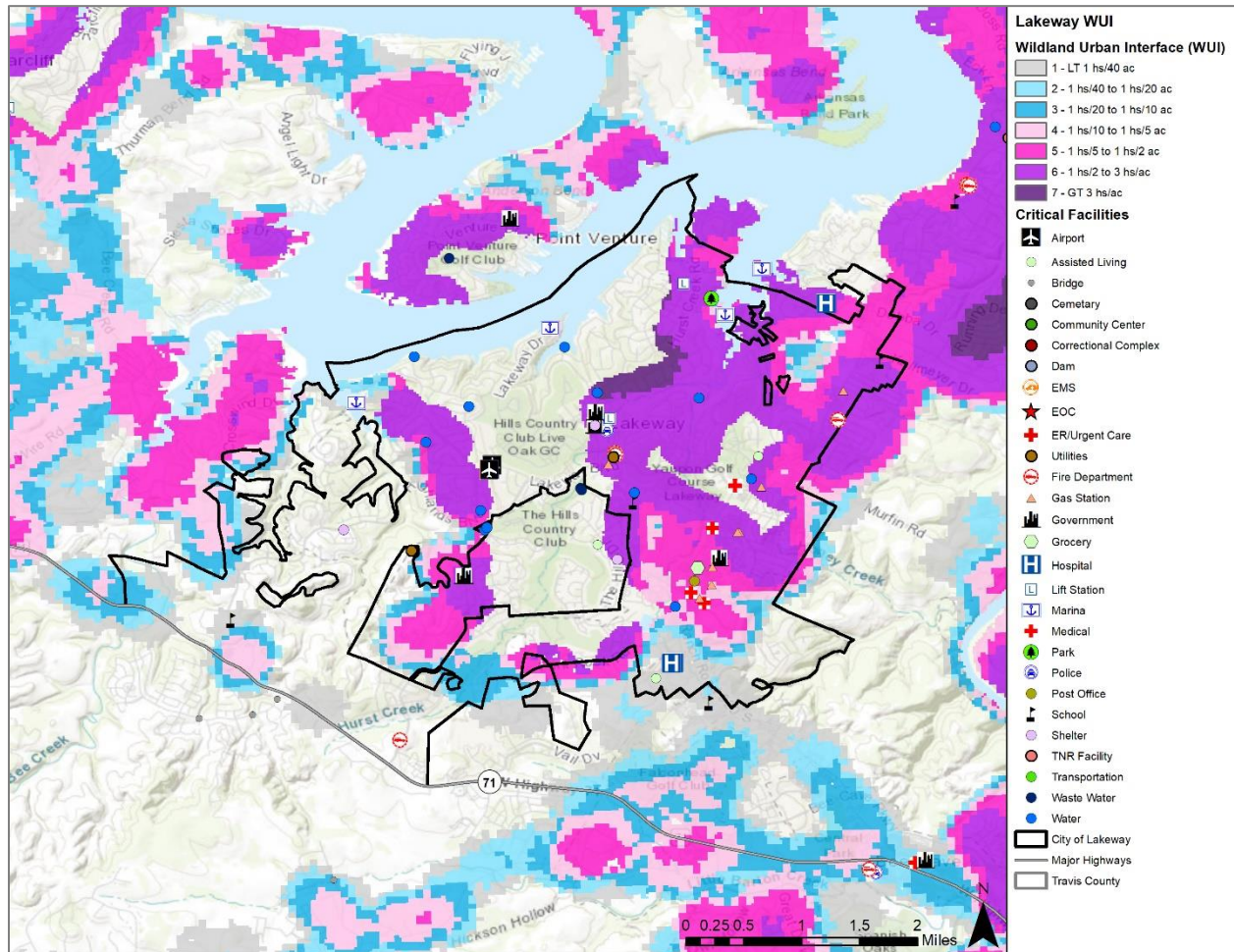
Figure 5-5. Wildland Urban Interface Map – City of Lago Vista



It is estimated that 34 percent of the total population in the City of Lago Vista live within the WUI. However, the entire city is at some risk for wildfires.

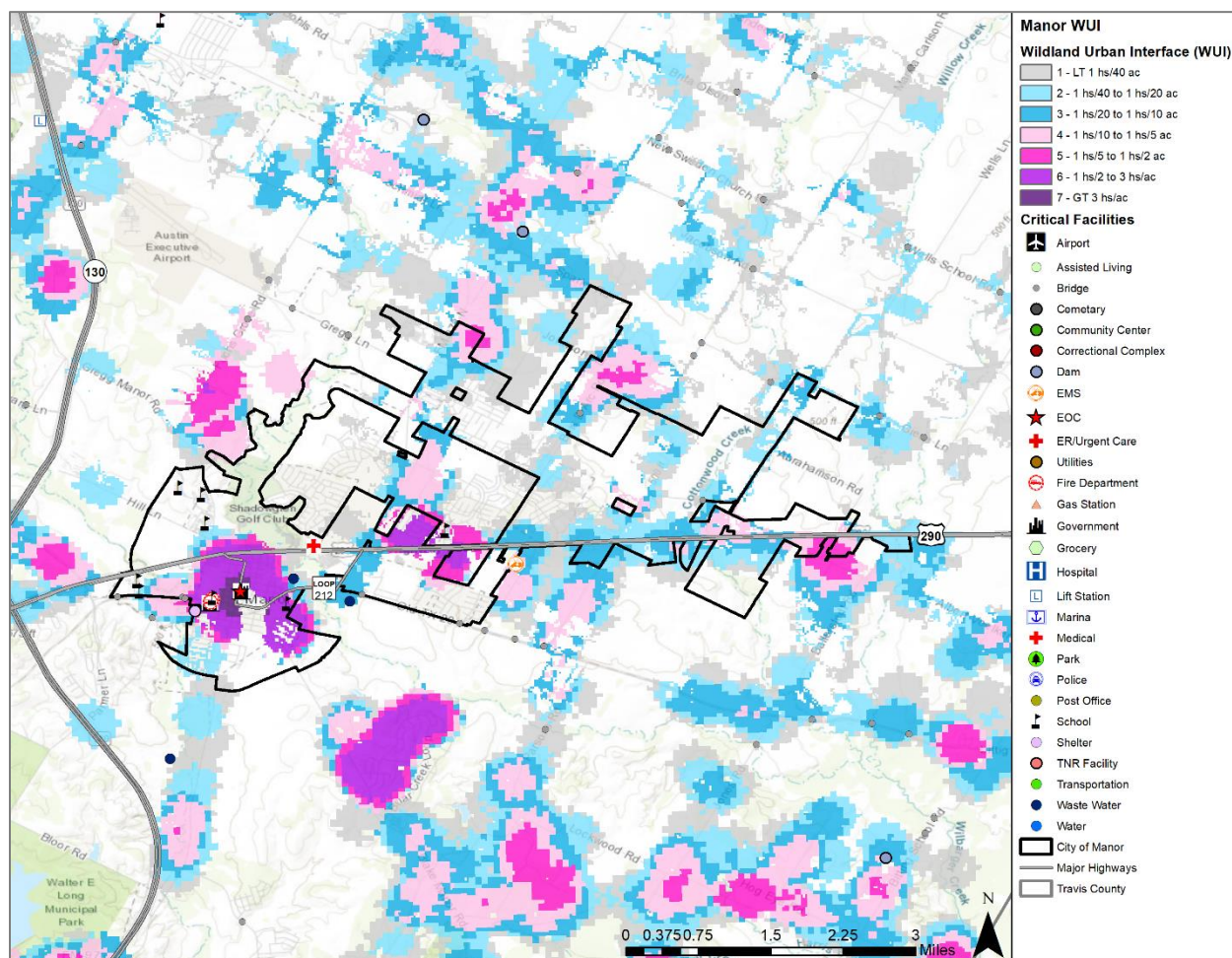


Figure 5-6. Wildland Urban Interface Map – City of Lakeway



It is estimated that 55 percent of the total population in the City of Lakeway live within the WUI. However, the entire city is at some risk for wildfires.

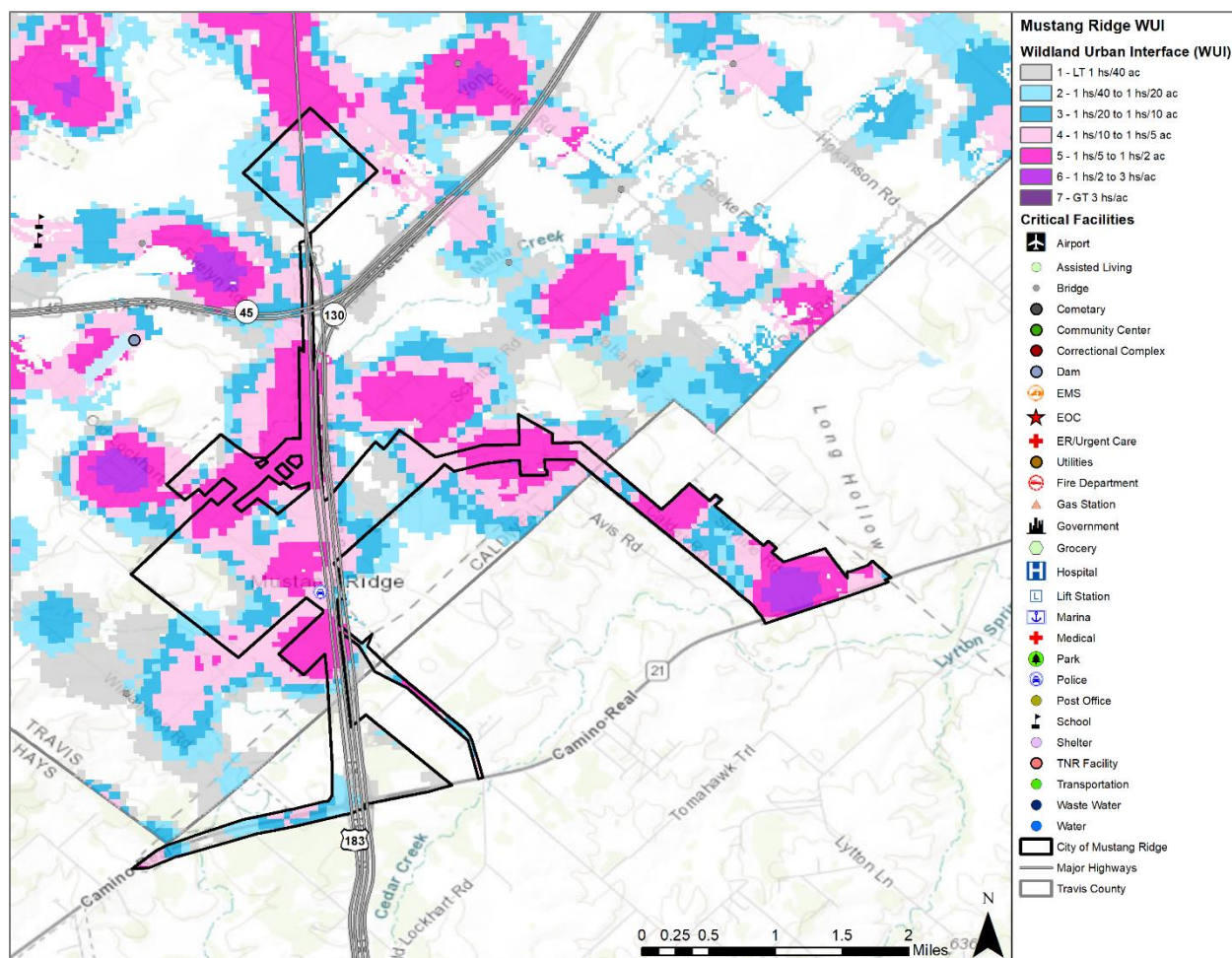
Figure 5-7. Wildland Urban Interface Map – City of Manor



It is estimated that 79 percent of the total population in the City of Manor live within the WUI. However, the entire city is at some risk for wildfires.

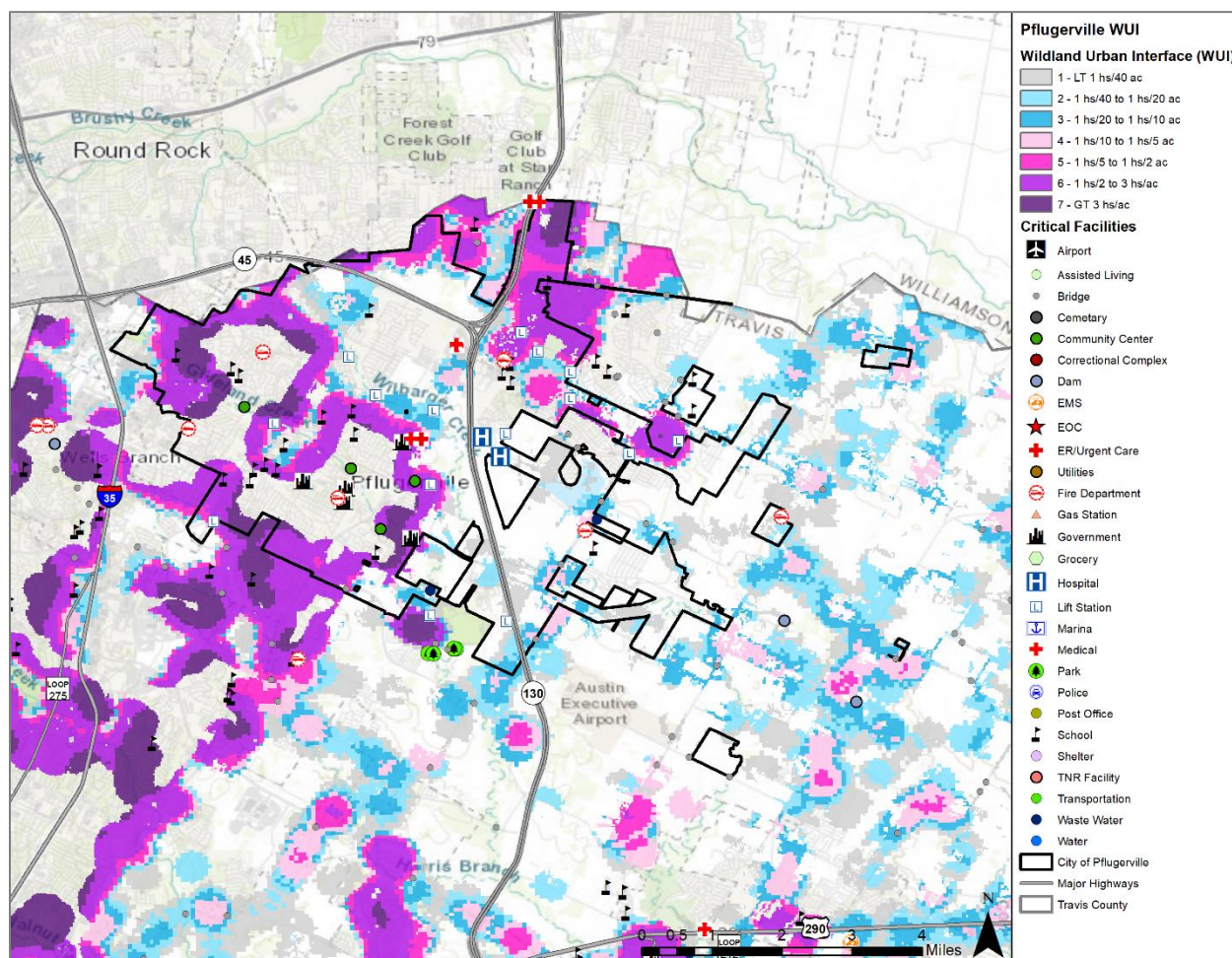


Figure 5-8. Wildland Urban Interface Map – City of Mustang Ridge



It is estimated that 99 percent of the total population in the City of Mustang Ridge live within the WUI.

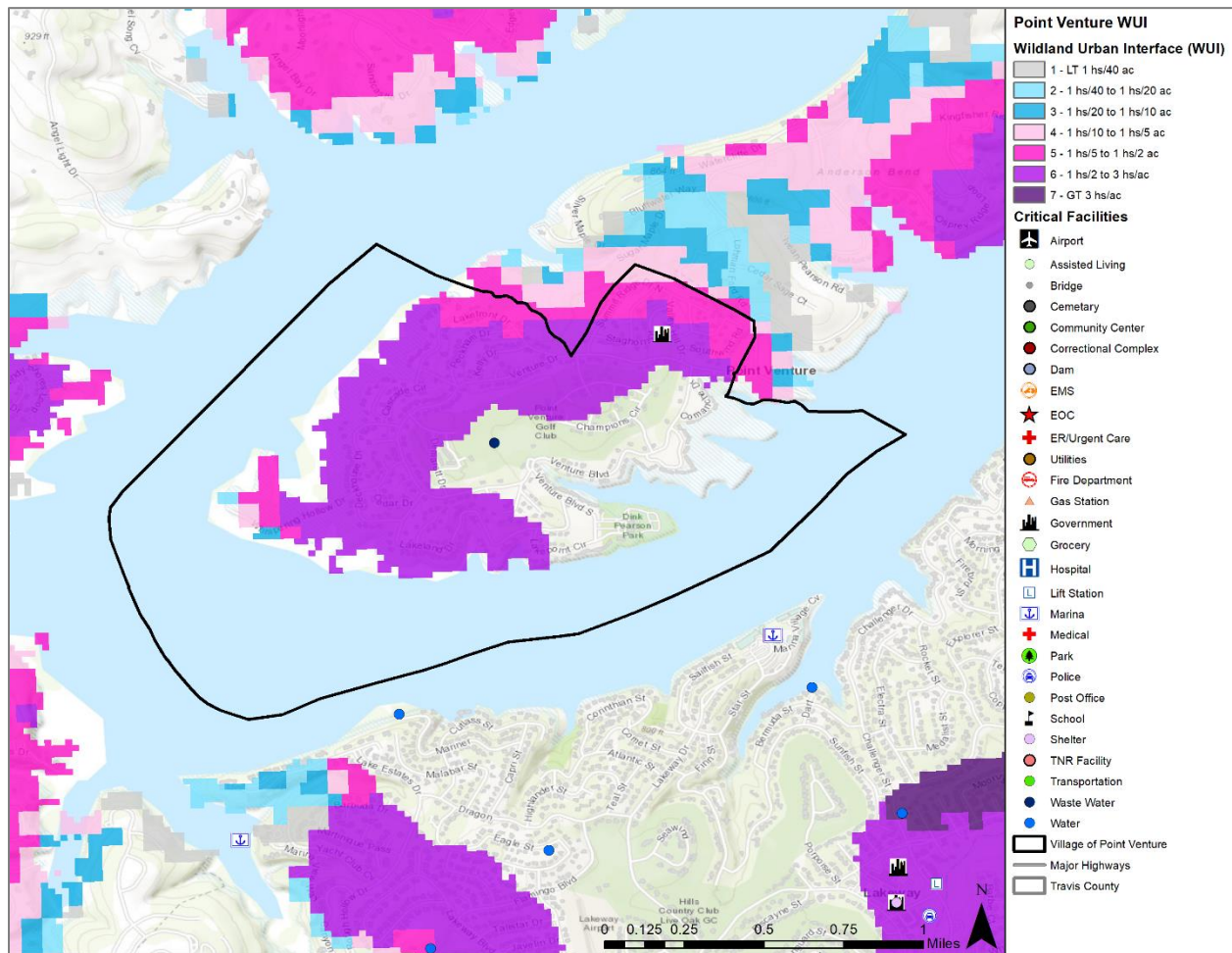
Figure 5-9 Wildland Urban Interface Map – City of Pflugerville



It is estimated that 48 percent of the total population in the City of Pflugerville live within the WUI. However, the entire city is at some risk for wildfires.

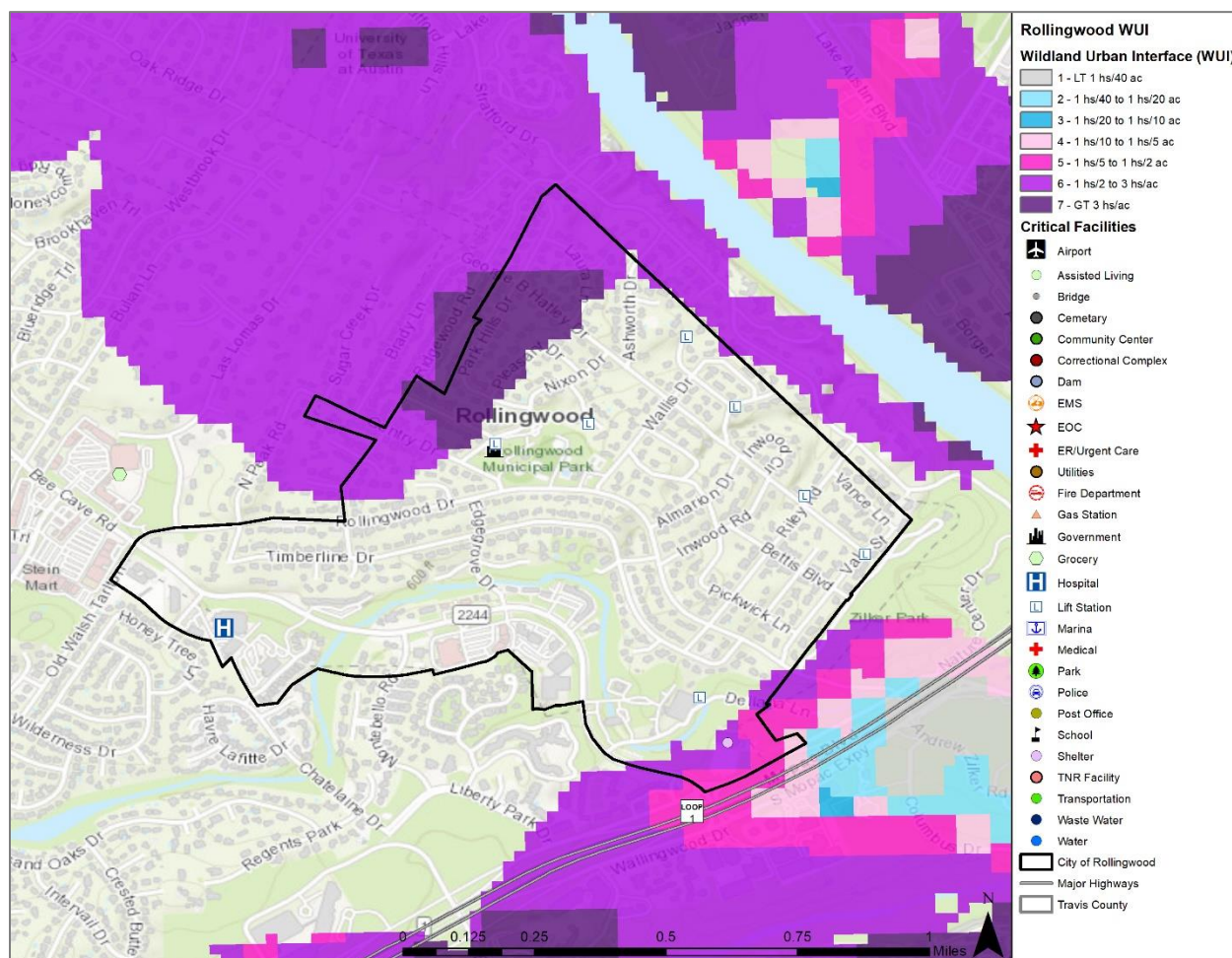


Figure 5-10. Wildland Urban Interface Map – Village of Point Venture



It is estimated that 65 percent of the total population in the Village of Point Venture live within the WUI. However, the entire village is at some risk for wildfires.

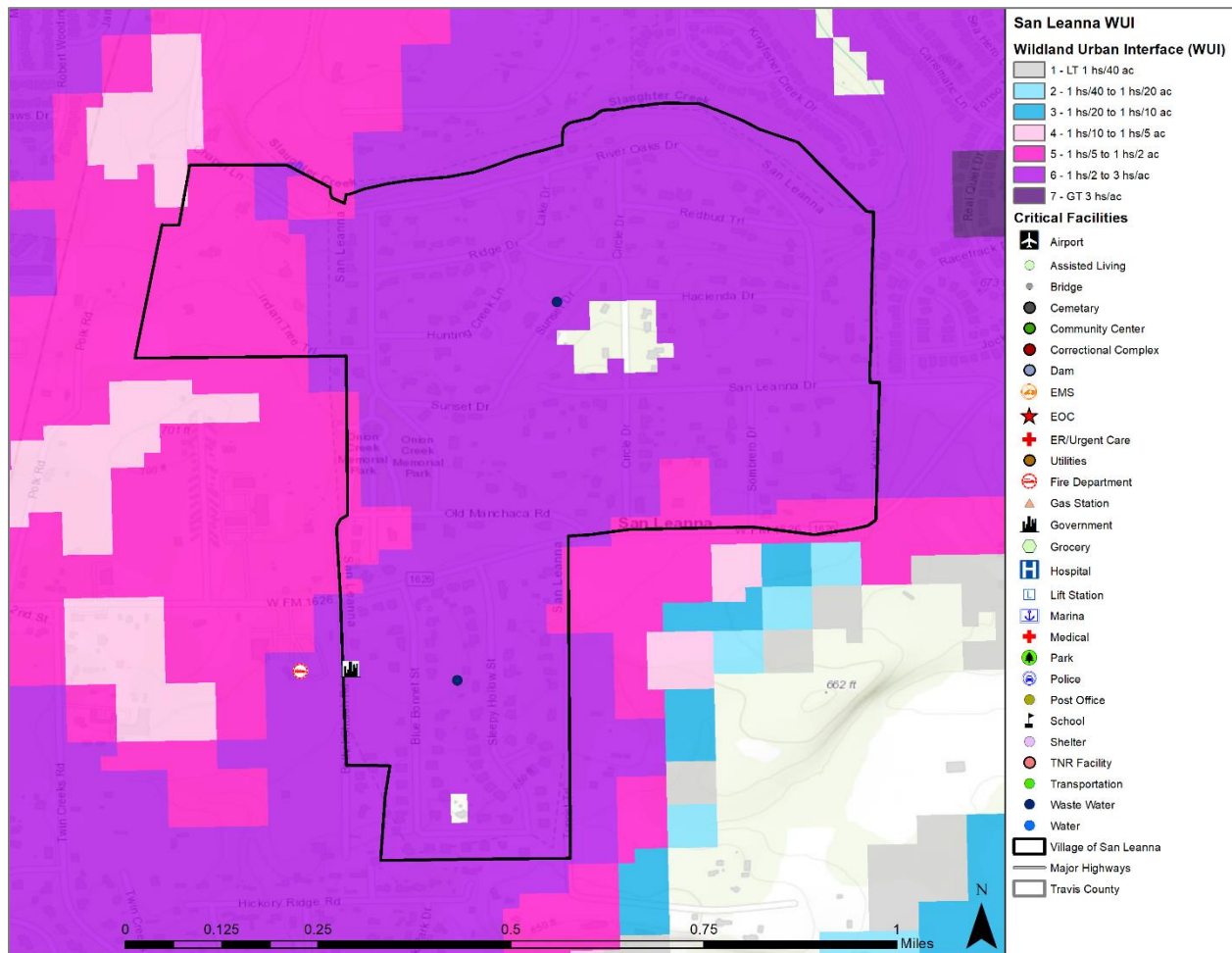
Figure 5-11. Wildland Urban Interface Map – City of Rollingwood



It is estimated that 19 percent of the total population in the City of Rollingwood live within the WUI. However, the entire city is at some risk for wildfires.

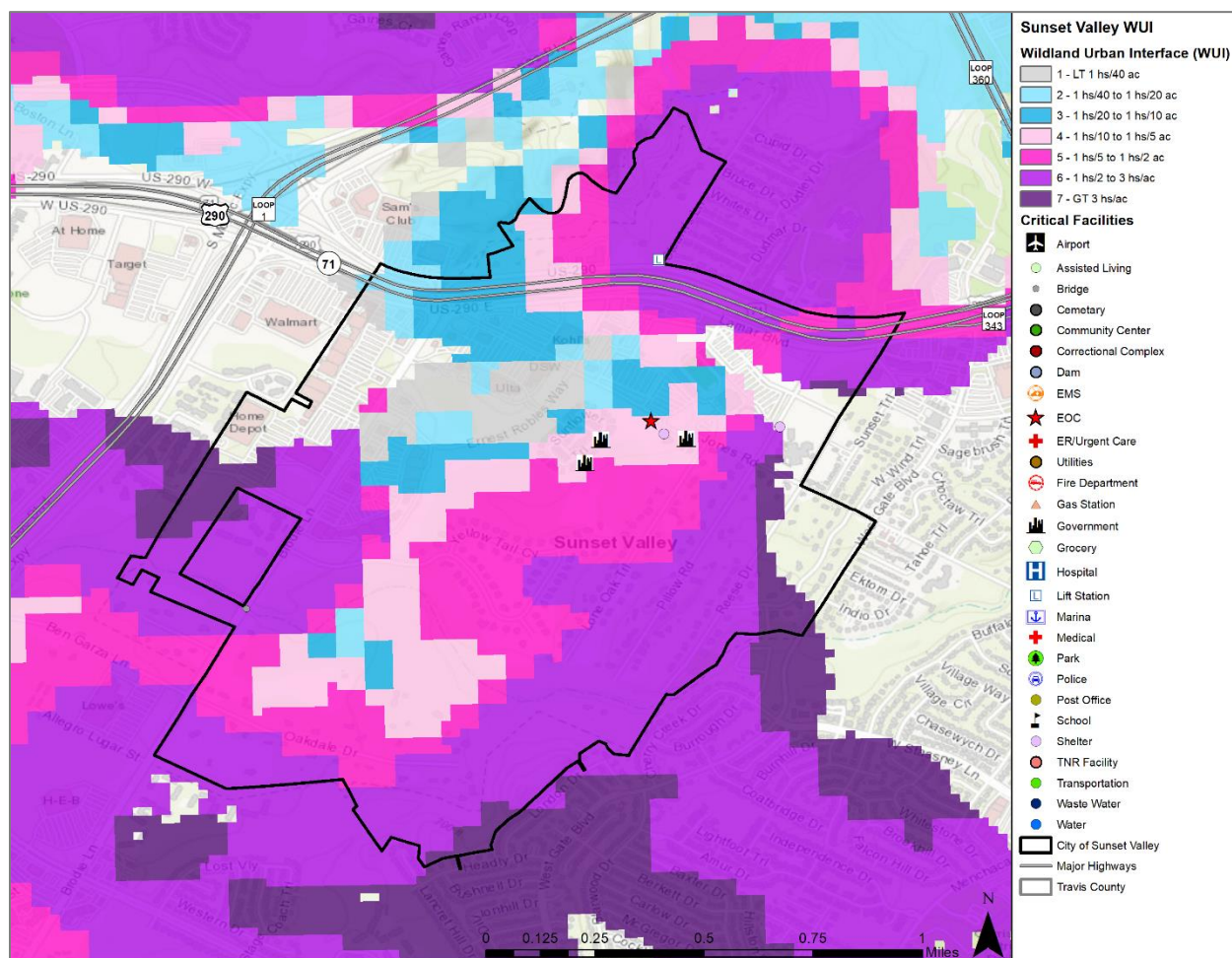


Figure 5-12. Wildland Urban Interface Map – Village of San Leanna



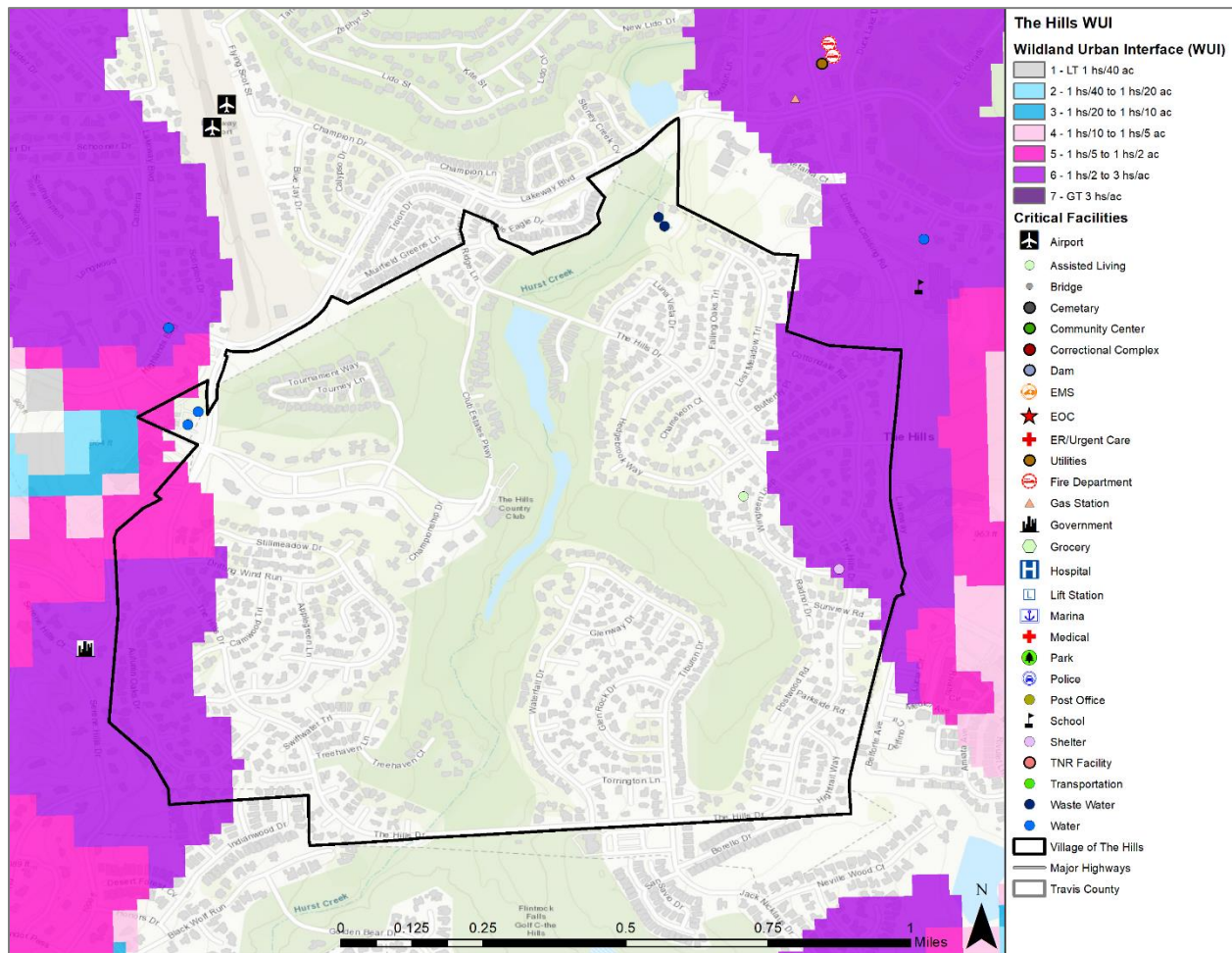
It is estimated that 97 percent of the total population in the Village of San Leanna live within the WUI. However, the entire village is at some risk for wildfires.

Figure 5-13. Wildland Urban Interface Map – City of Sunset Valley



It is estimated that 77 percent of the total population in the City of Sunset Valley live within the WUI. However, the entire city is at some risk for wildfires.

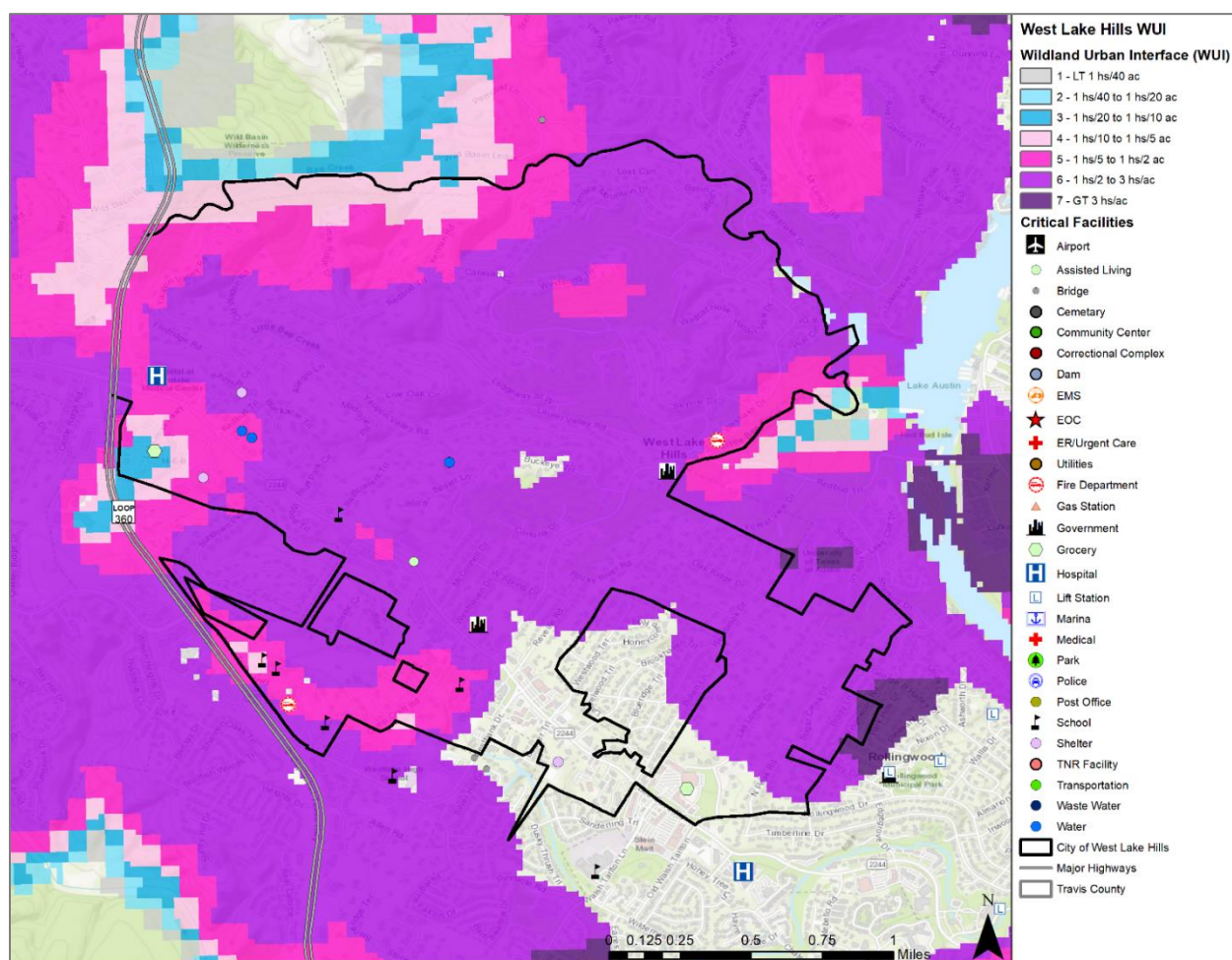
Figure 5-14. Wildland Urban Interface Map – Village of The Hills



It is estimated that 17 percent of the total population in the Village of The Hills live within the WUI. However, the entire village is at some risk for wildfires.

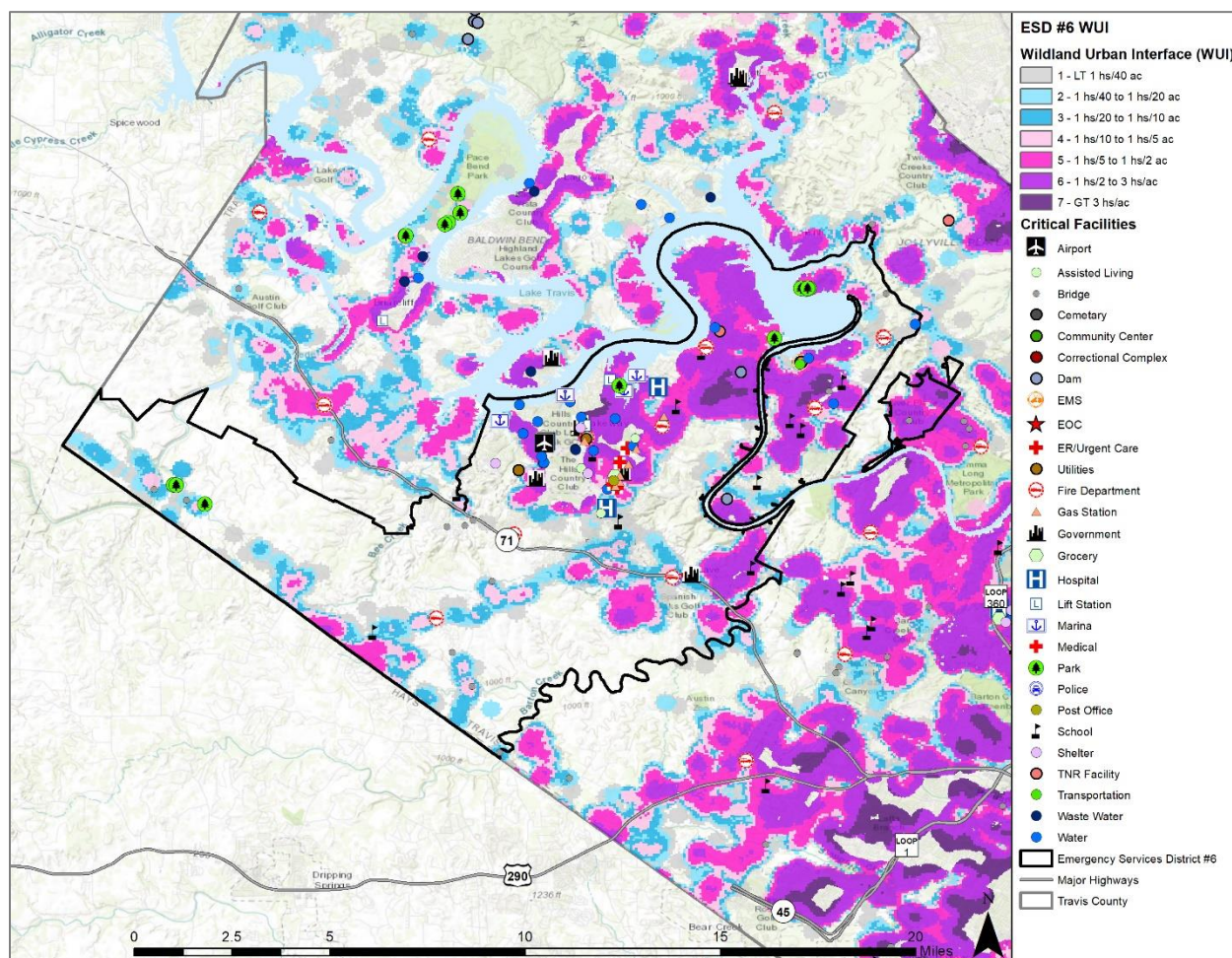


Figure 5-15. Wildland Urban Interface Map – City of West Lake Hills



It is estimated that 93 percent of the total population in the City of West Lake Hills live within the WUI. However, the entire city is at some risk for wildfires.

Figure 5-16. Wildland Urban Interface Map – Emergency Services District #6



All seven fire station facilities in ESD #6 are located in the WUI. In addition, an estimated 80 percent of the total population within the Travis County ESD #6 boundaries live within the WUI. However, the entire district is at some risk for wildfires.

## EXTENT

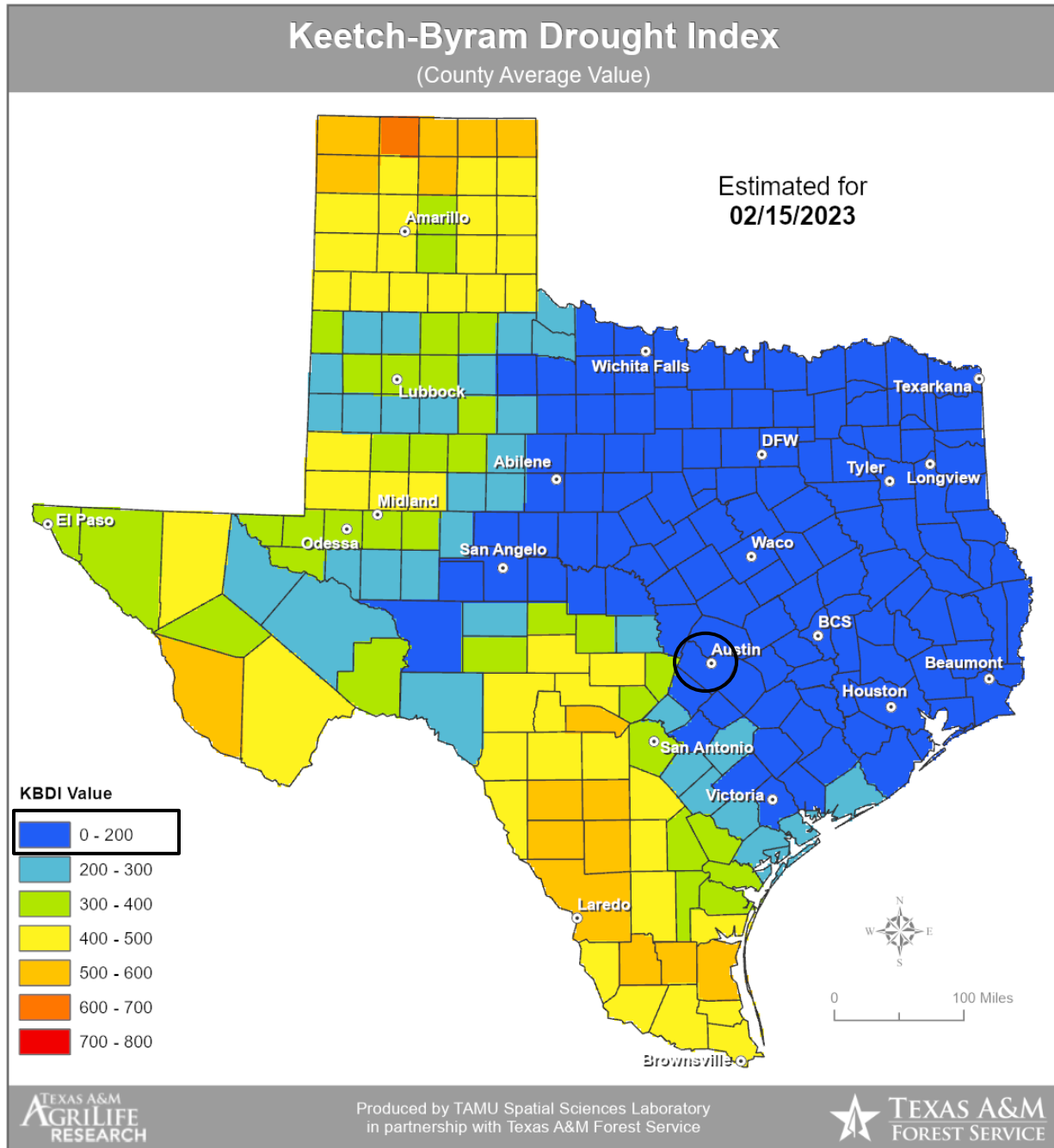


Risk for a wildfire event is measured in terms of magnitude and intensity using the Keetch Byram Drought Index (KBDI), a mathematical system for relating current and recent weather conditions to potential or expected fire behavior. The KBDI determines forest fire potential based on a daily water balance, derived by balancing a drought factor with precipitation and soil moisture (assumed to have a maximum storage capacity of eight inches), and is expressed in hundredths of an inch of soil moisture depletion.

Each color in Figure 5-17 and 5-18 represents the drought index at that location, by date. The drought index ranges from 0 to 800. A drought index of 0 represents no moisture depletion, and a drought index of 800 represents absolutely dry conditions.



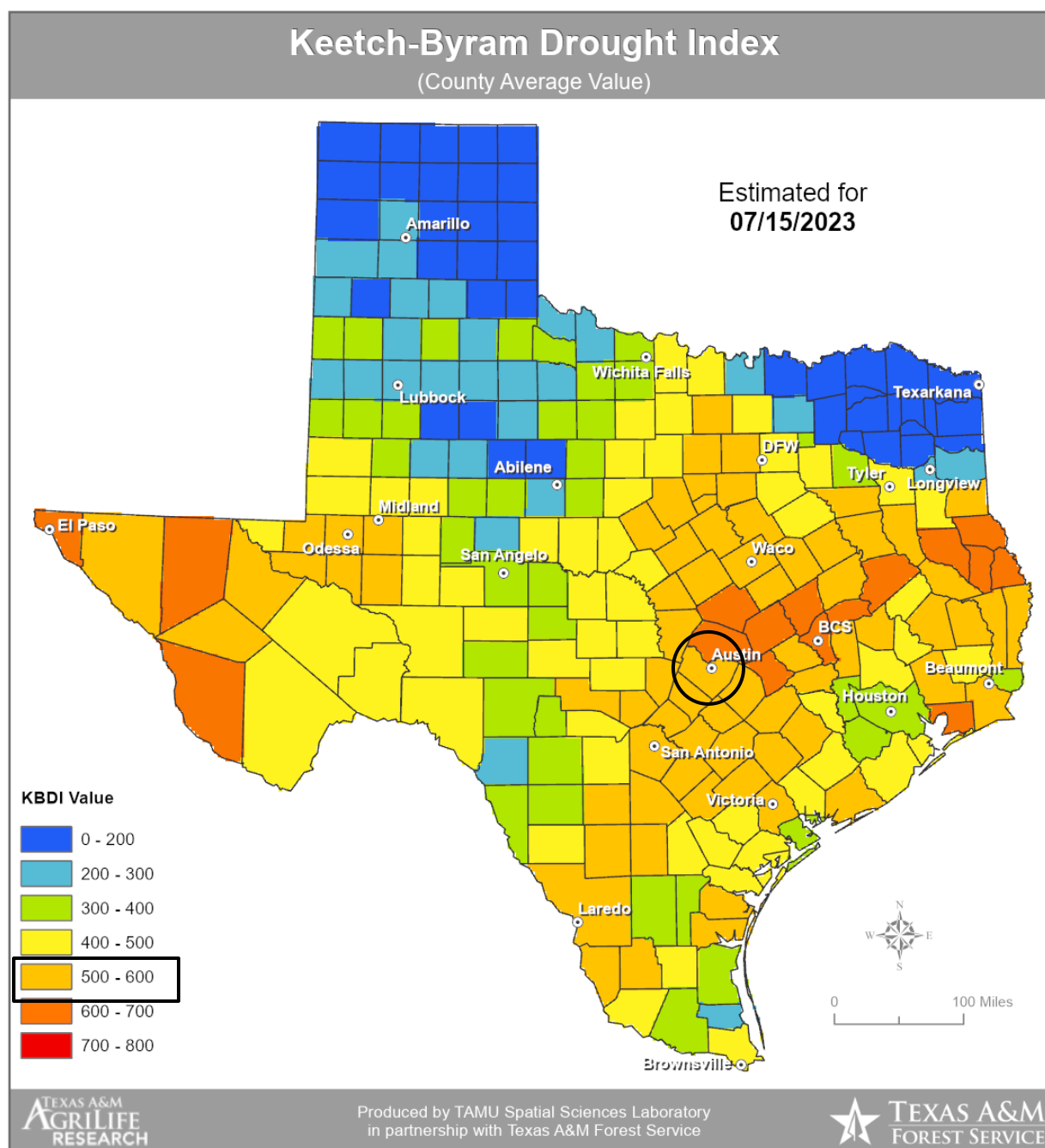
Figure 5-17. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2/15/2023<sup>6</sup>



<sup>6</sup> Travis County planning area is located within the black circle.



Figure 5-18. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2023



Fire behavior can be categorized at four distinct levels on the KBDI:

- **0 -200:** Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.
- **200 -400:** Fires more readily burn and will carry across an area with no gaps. Heavier fuels will not readily ignite and burn. Expect smoldering and the resulting smoke to carry into and possibly through the night.

## SECTION 5: WILDFIRE

- **400 -600:** Fires intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
- **600 -800:** Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

The KBDI is a good measure of the readiness of fuels for a wildfire event. It should be referenced as the area experiences changes in precipitation and soil moisture, while caution should be exercised in dryer, hotter conditions.

The range of intensity for the Travis County planning area, including participating jurisdictions and ESD #6, in a wildfire event is within 600 to 700. The average extent to be mitigated for the planning area, is a KBDI of 575. At this level, fire intensity begins to significantly increase. Fire will readily burn in all directions exposing mineral soils in some locations. It is also noted that at this level Travis County burn bans are initiated. Based on historical occurrences and readily available fuel, the planning area can anticipate a KBDI range from 15 to 780. At the high end of this range fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

The Texas Forest Service's Fire Intensity Scale identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on weighted average of four percentile weather categories. The Travis County planning area has a potential for limited to moderate wildfire intensities. Figure 5-19 through 5-34 identifies the wildfire intensity for the planning area, including participating jurisdictions and ESD #6.

Figure 5-19. Fire Intensity Scale Map – Travis County

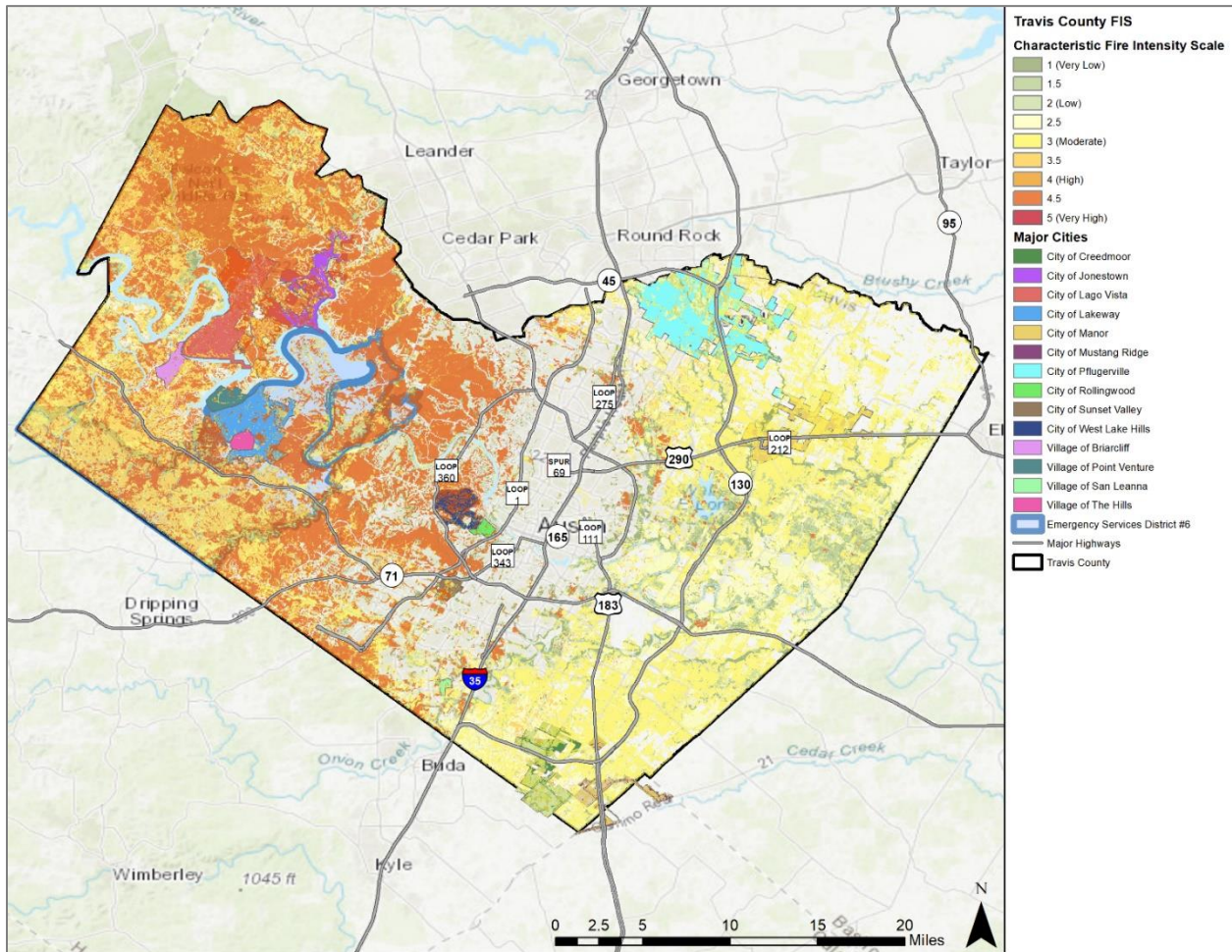




Figure 5-20. Fire Intensity Scale Map – Village of Briarcliff

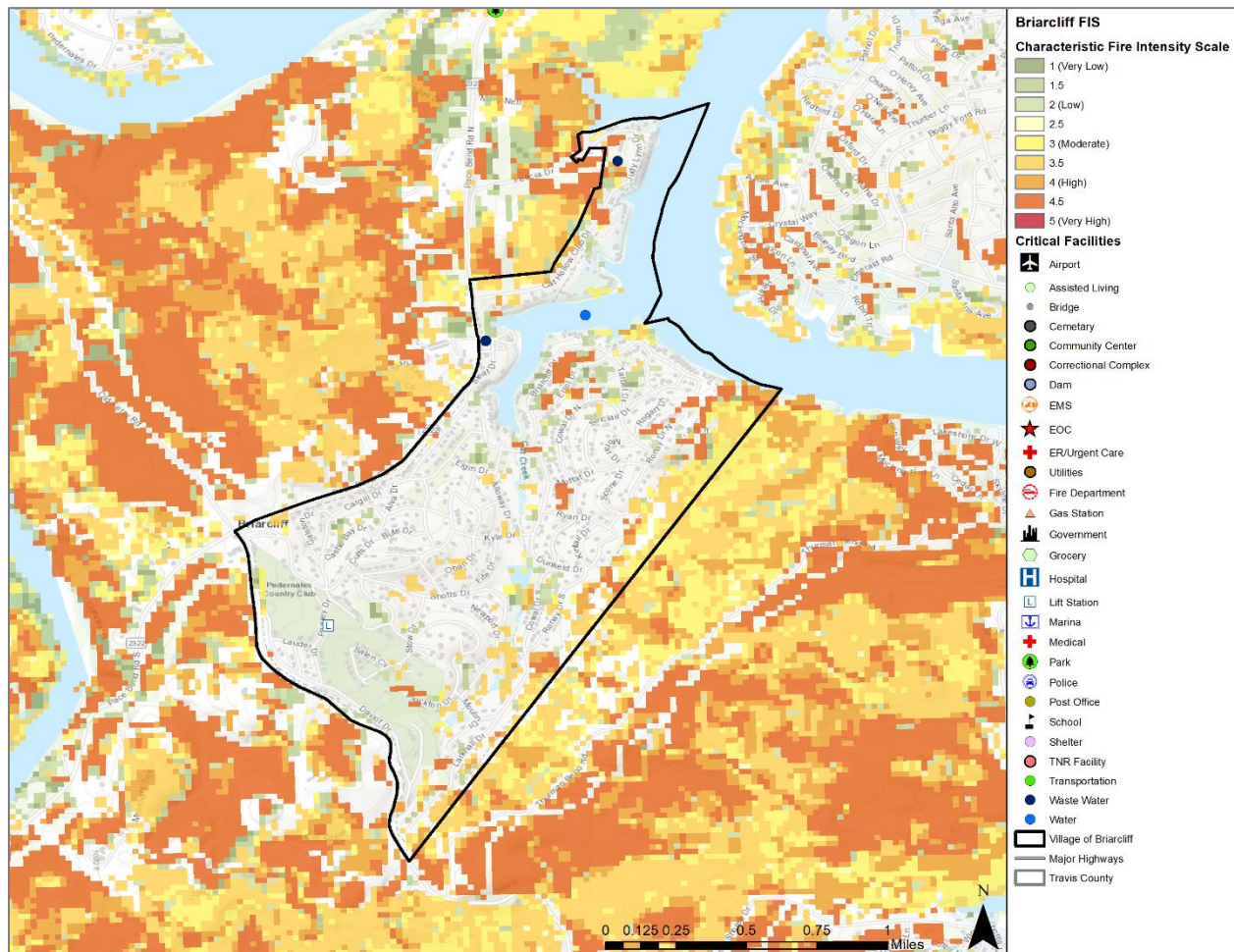


Figure 5-21. Fire Intensity Scale Map – City of Creedmoor

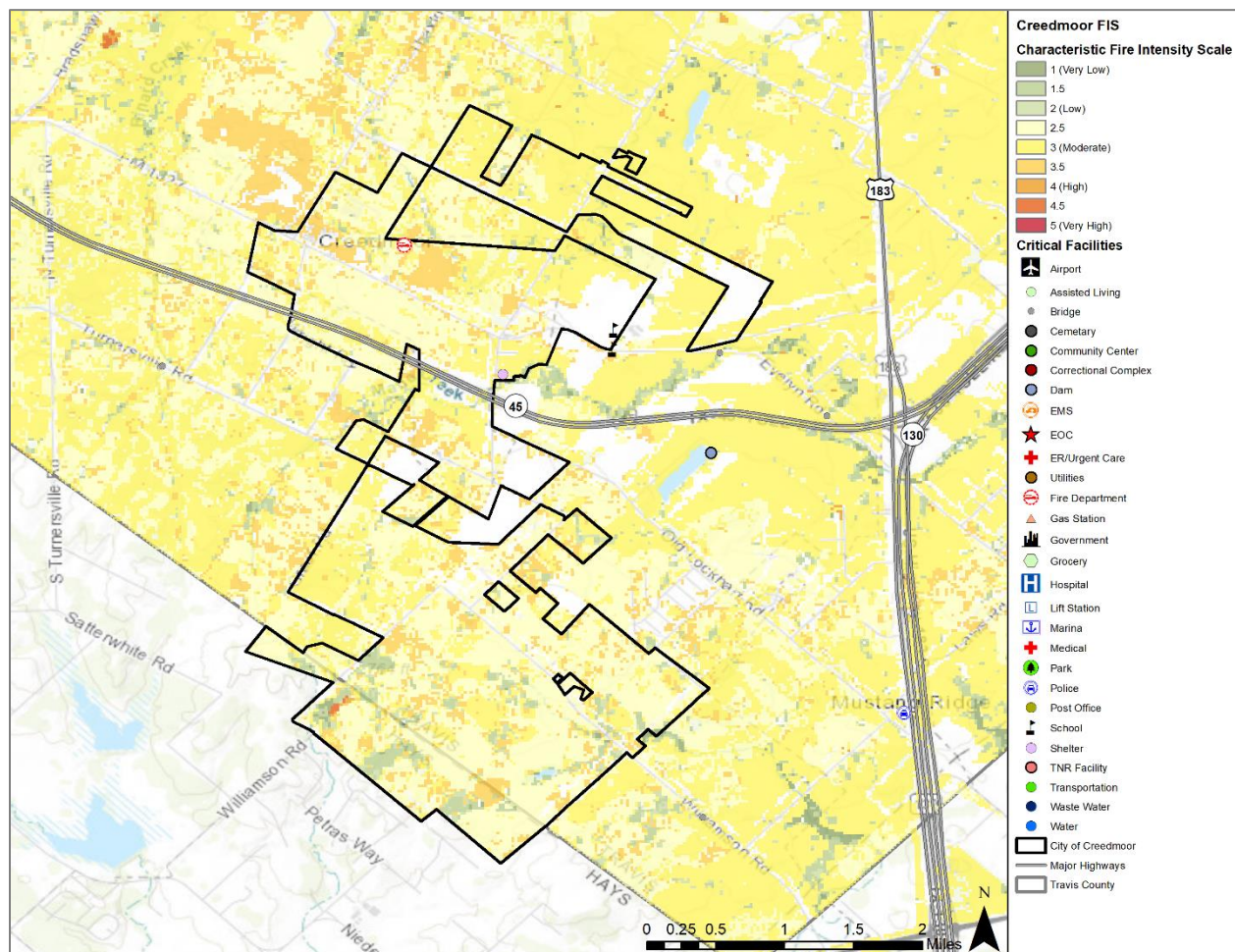




Figure 5-22. Fire Intensity Scale Map – City of Jonestown

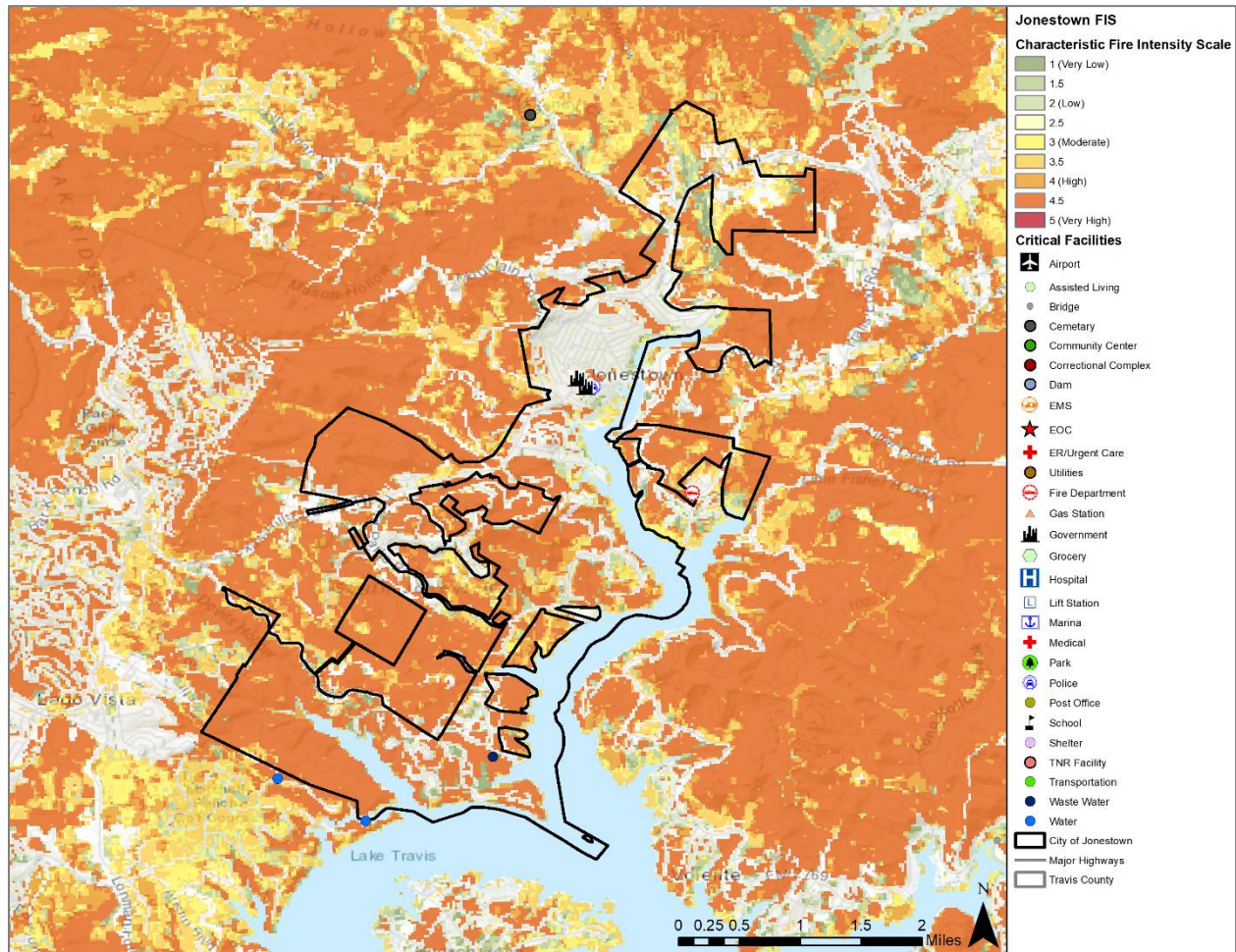


Figure 5-23. Fire Intensity Scale Map – City of Lago Vista

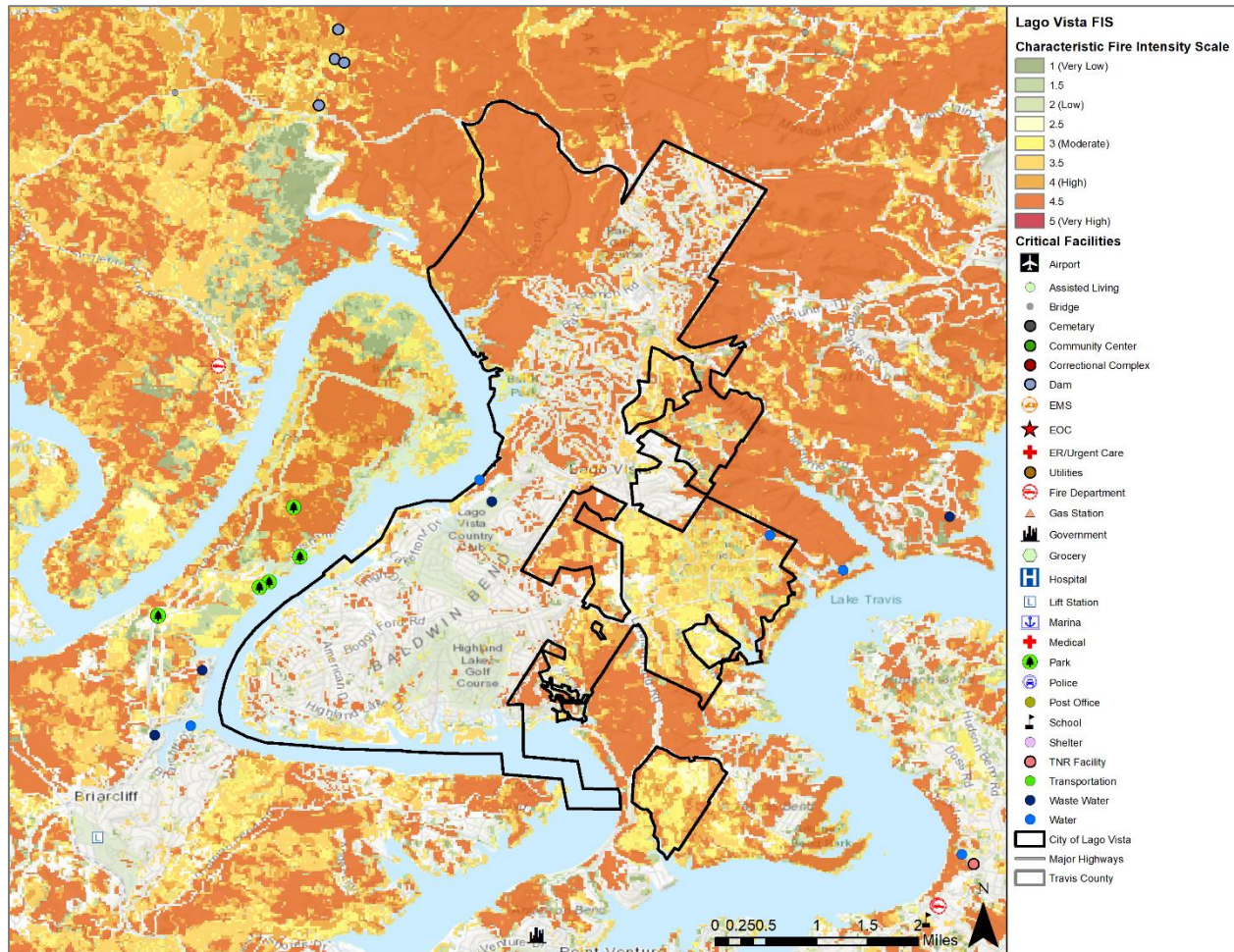




Figure 5-24. Fire Intensity Scale Map – City of Lakeway

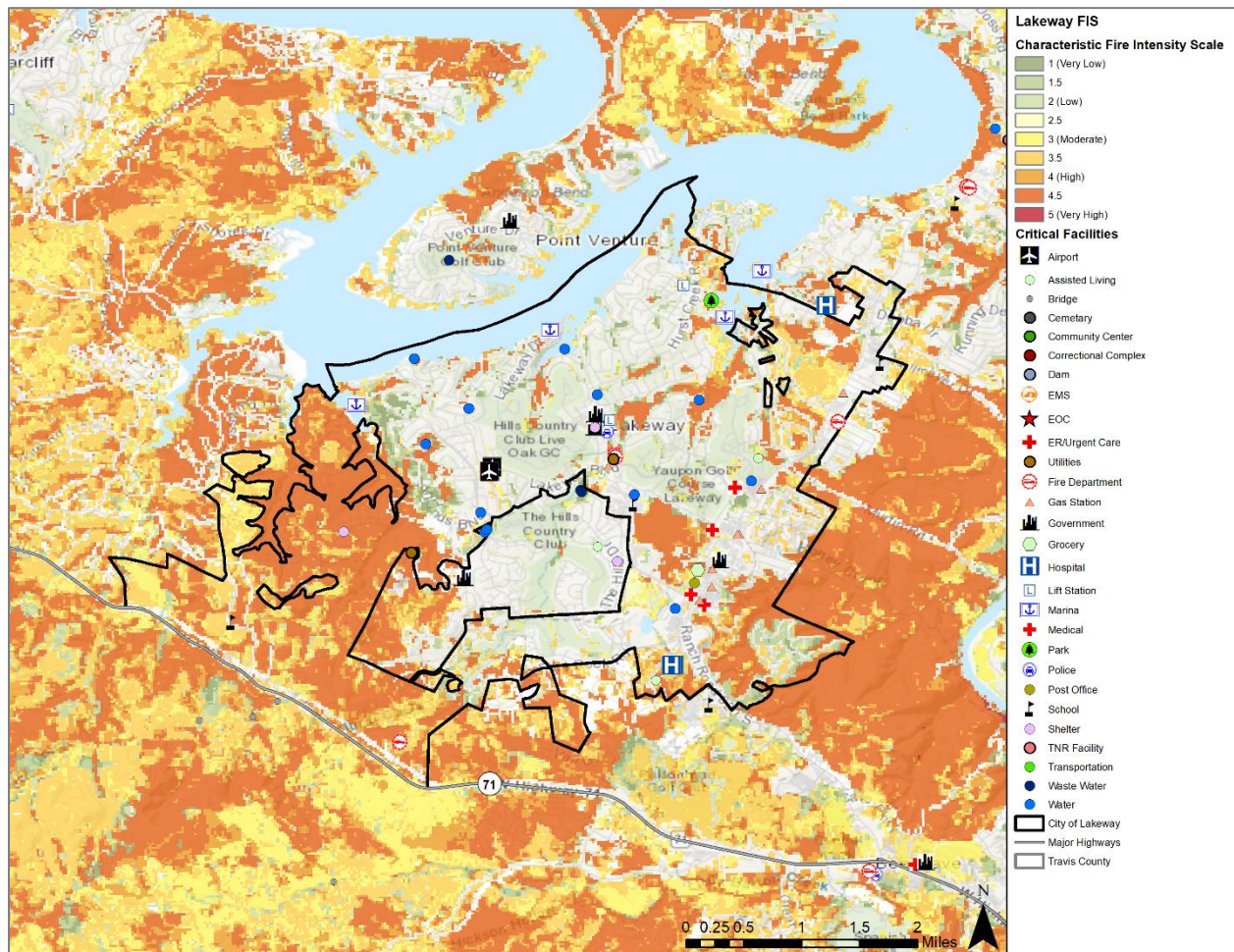


Figure 5-25. Fire Intensity Scale Map – City of Manor

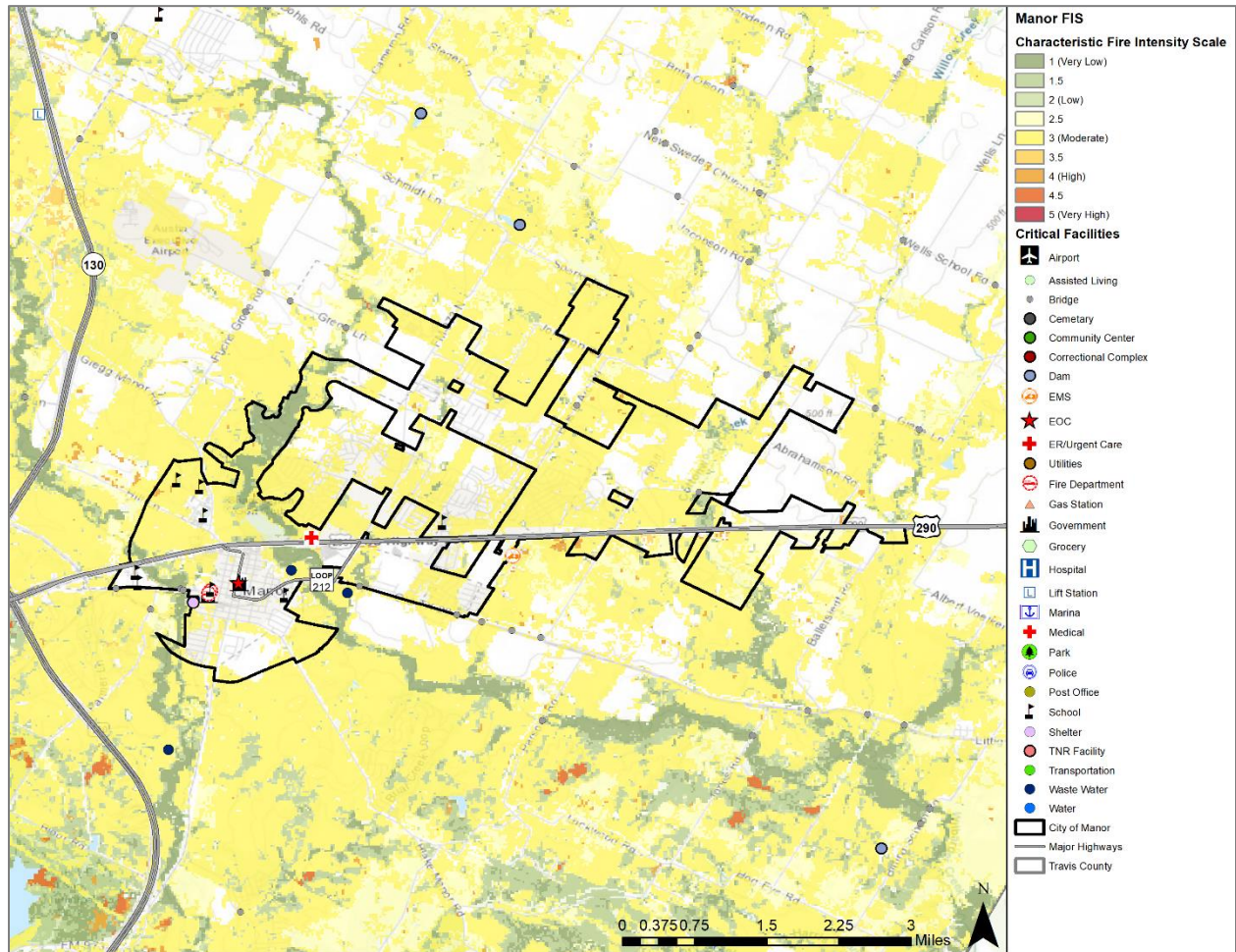




Figure 5-26. Fire Intensity Scale Map – City of Mustang Ridge

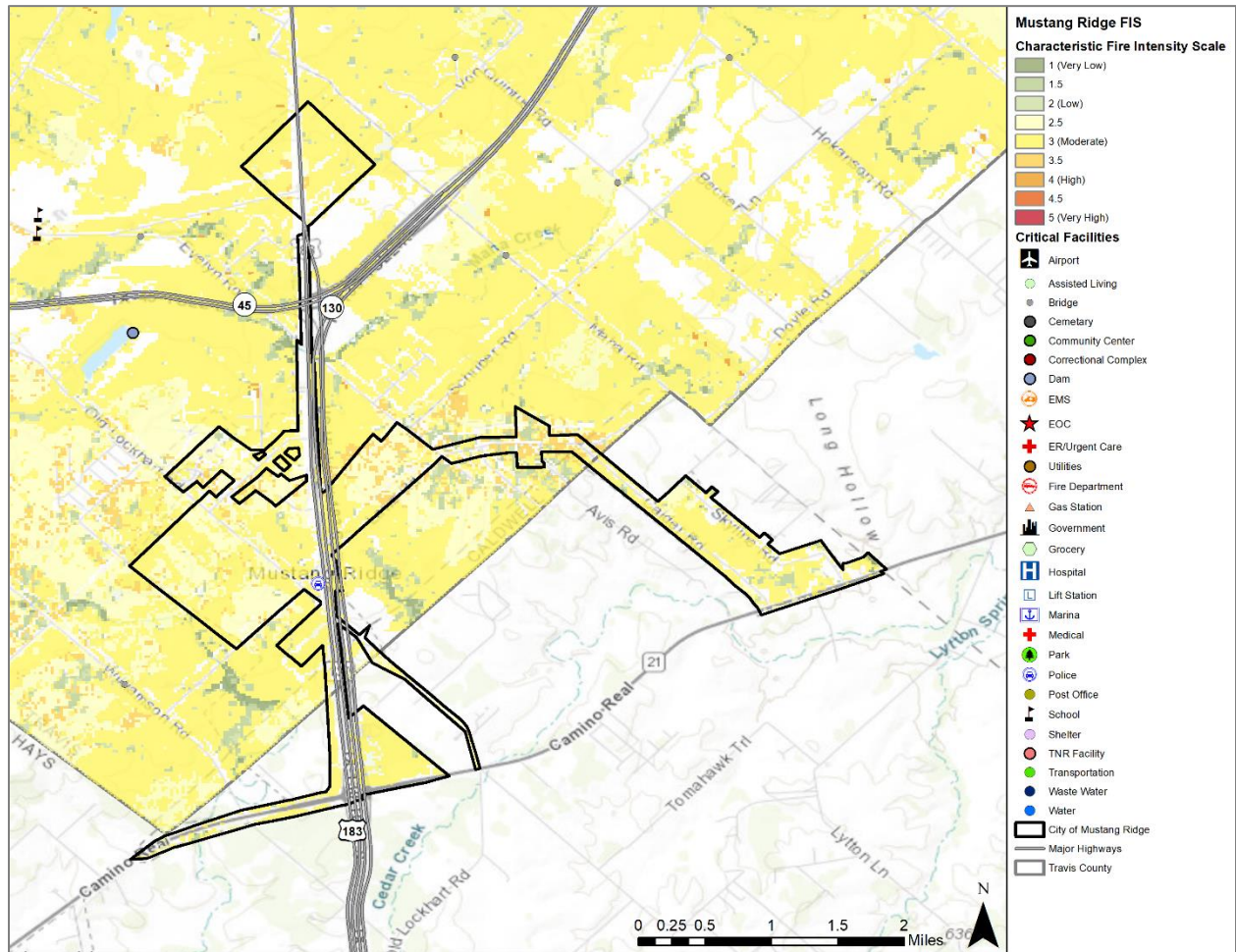




Figure 5-27. Fire Intensity Scale Map – City of Pflugerville

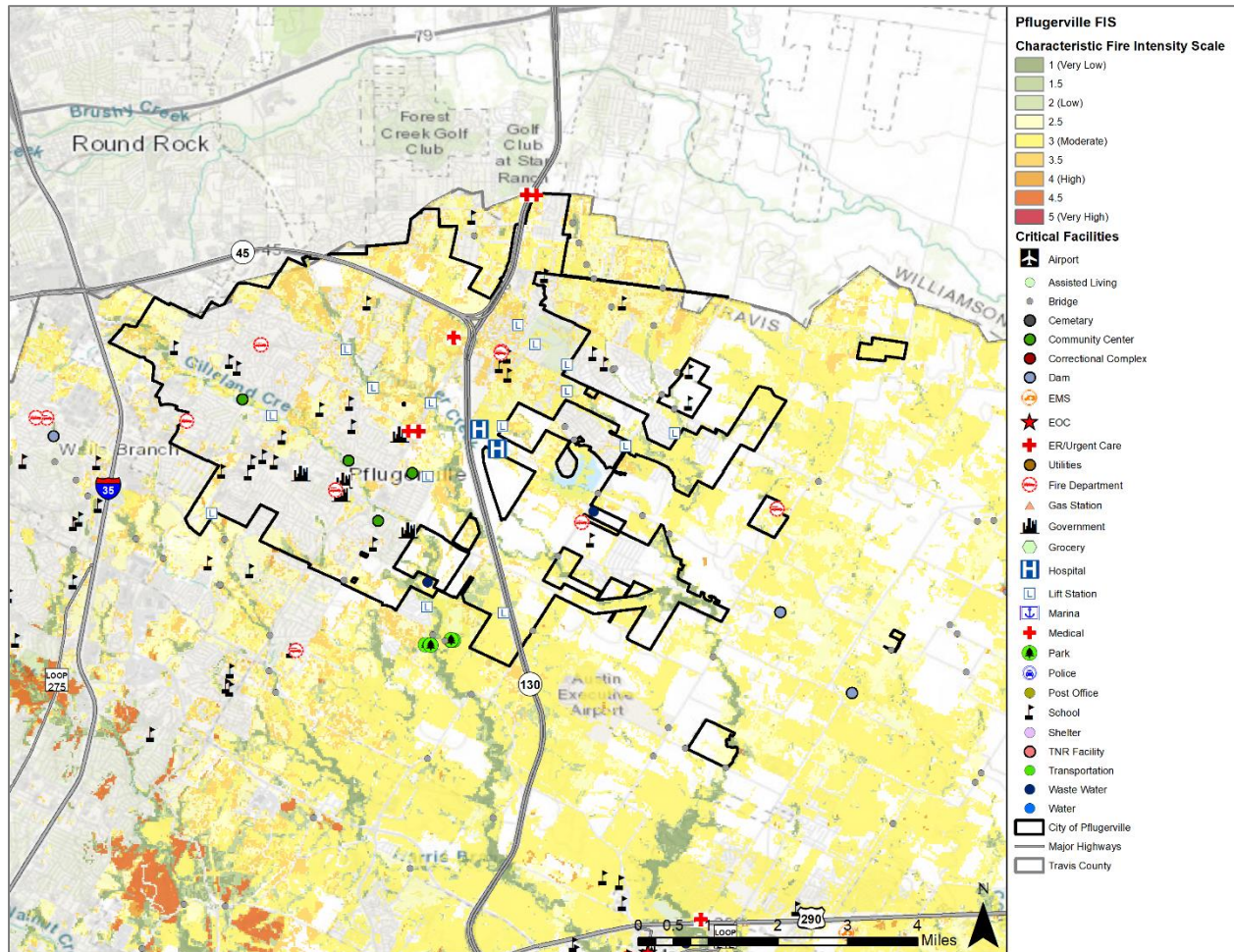


Figure 5-28. Fire Intensity Scale Map – Village of Point Venture

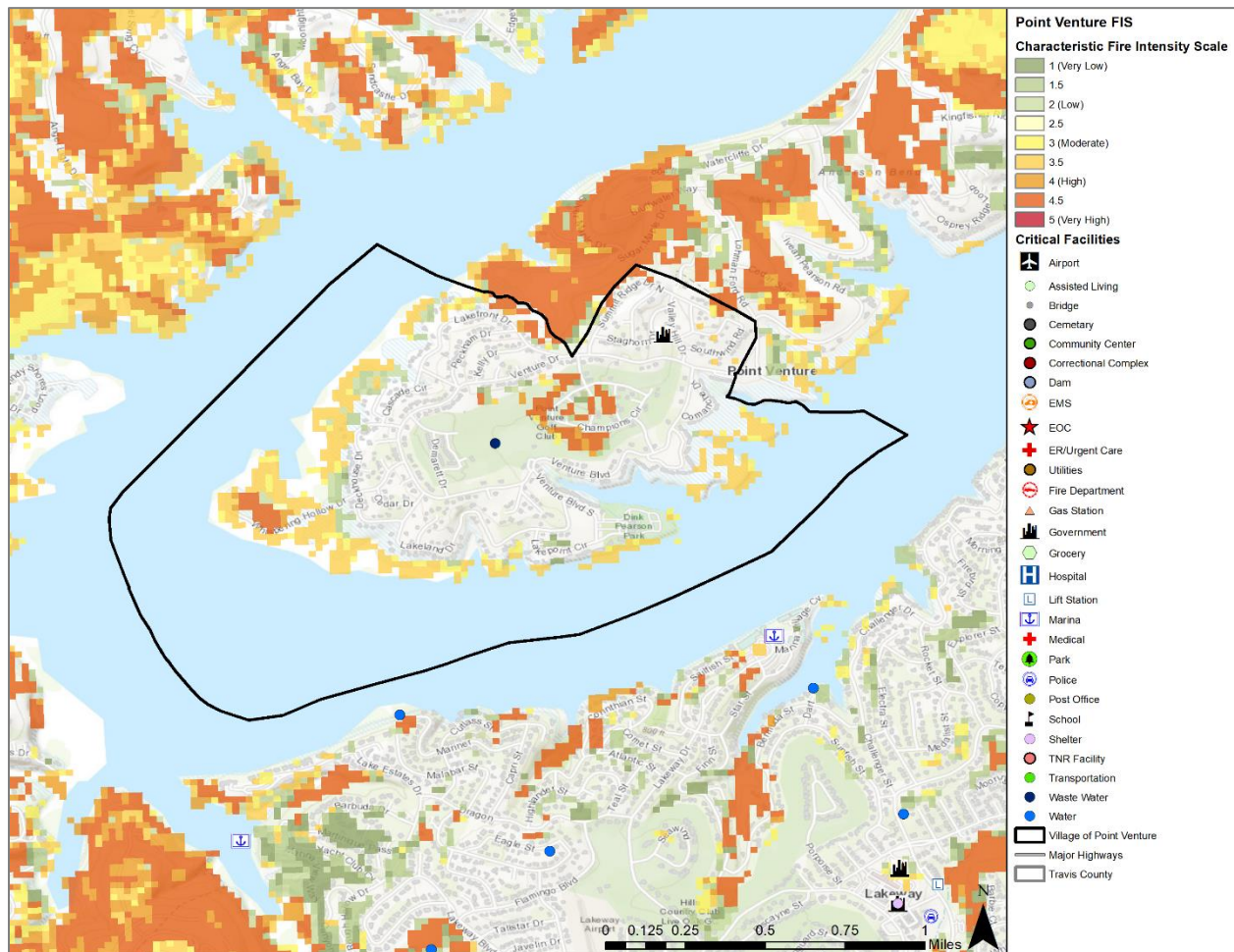




Figure 5-29. Fire Intensity Scale Map – City of Rollingwood

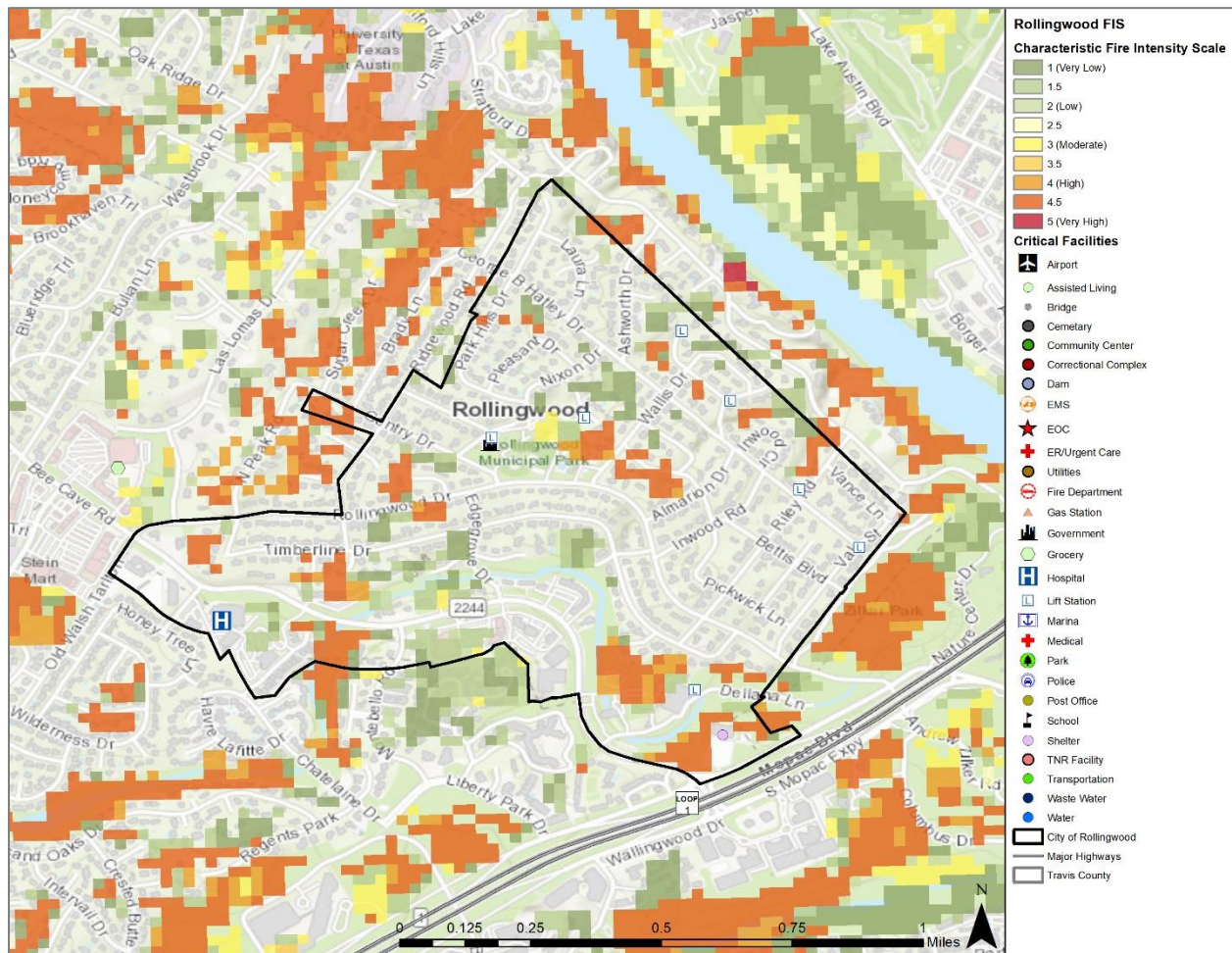


Figure 5-30. Fire Intensity Scale Map – Village of San Leanna

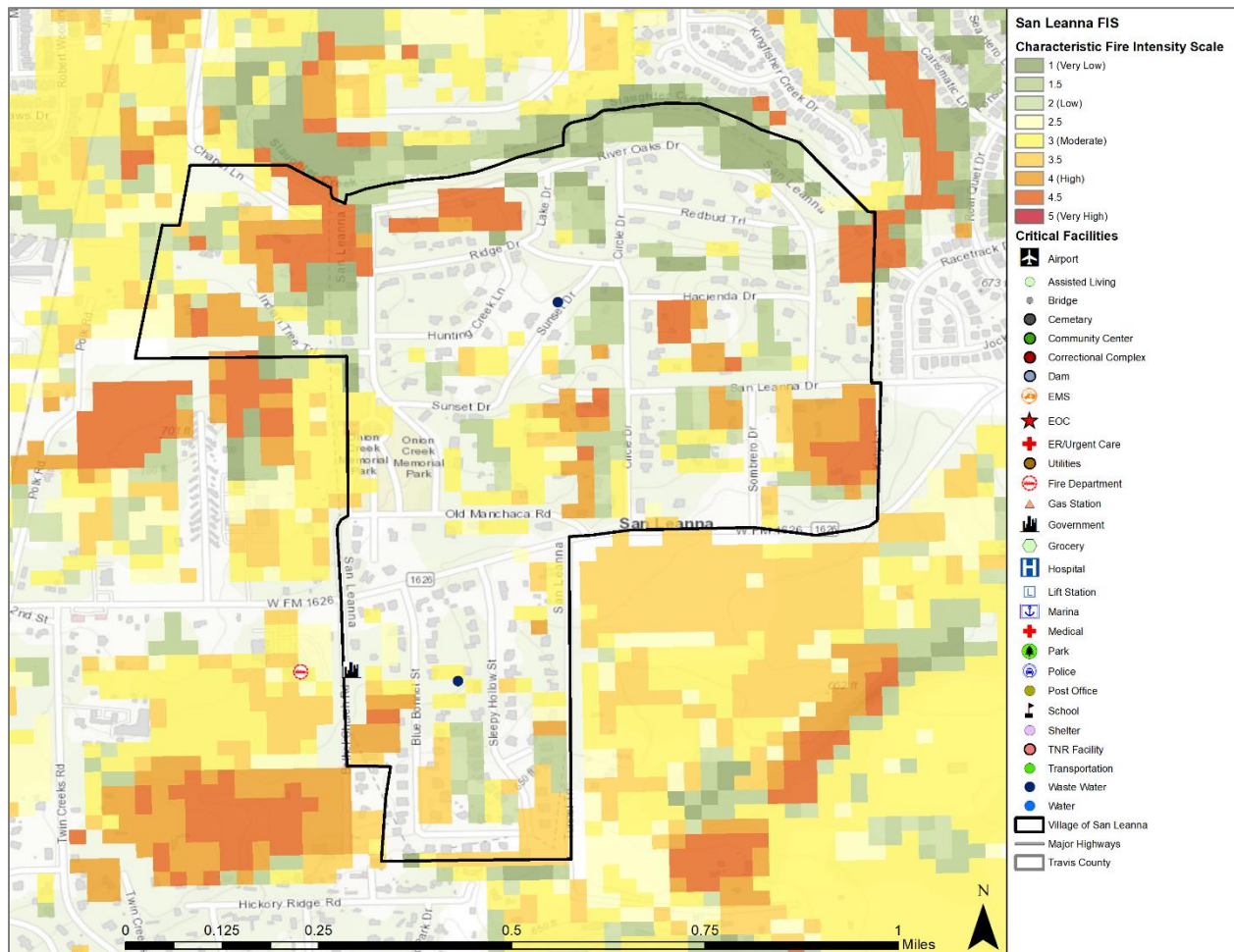




Figure 5-31. Fire Intensity Scale Map – City of Sunset Valley

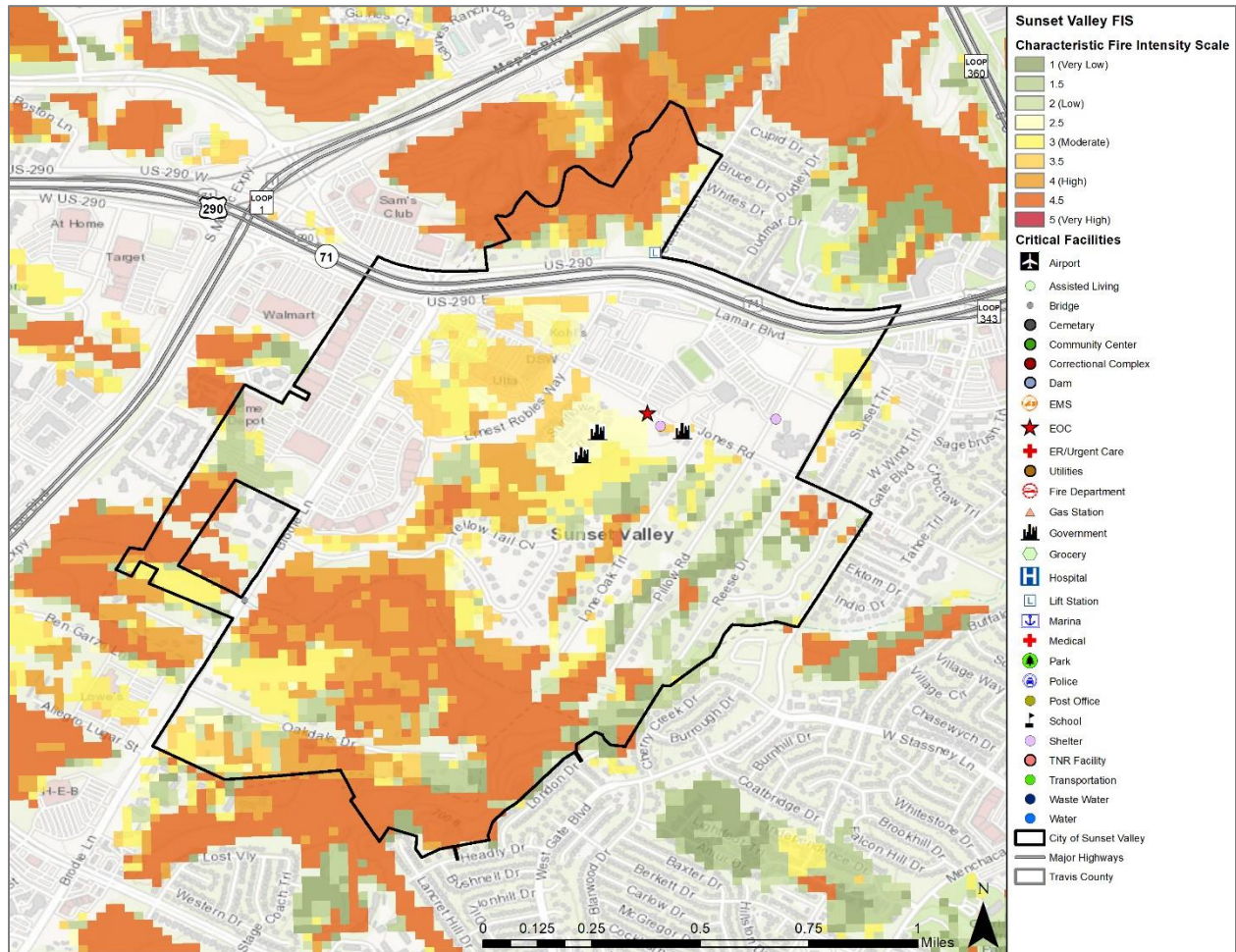




Figure 5-32. Fire Intensity Scale Map – Village of The Hills

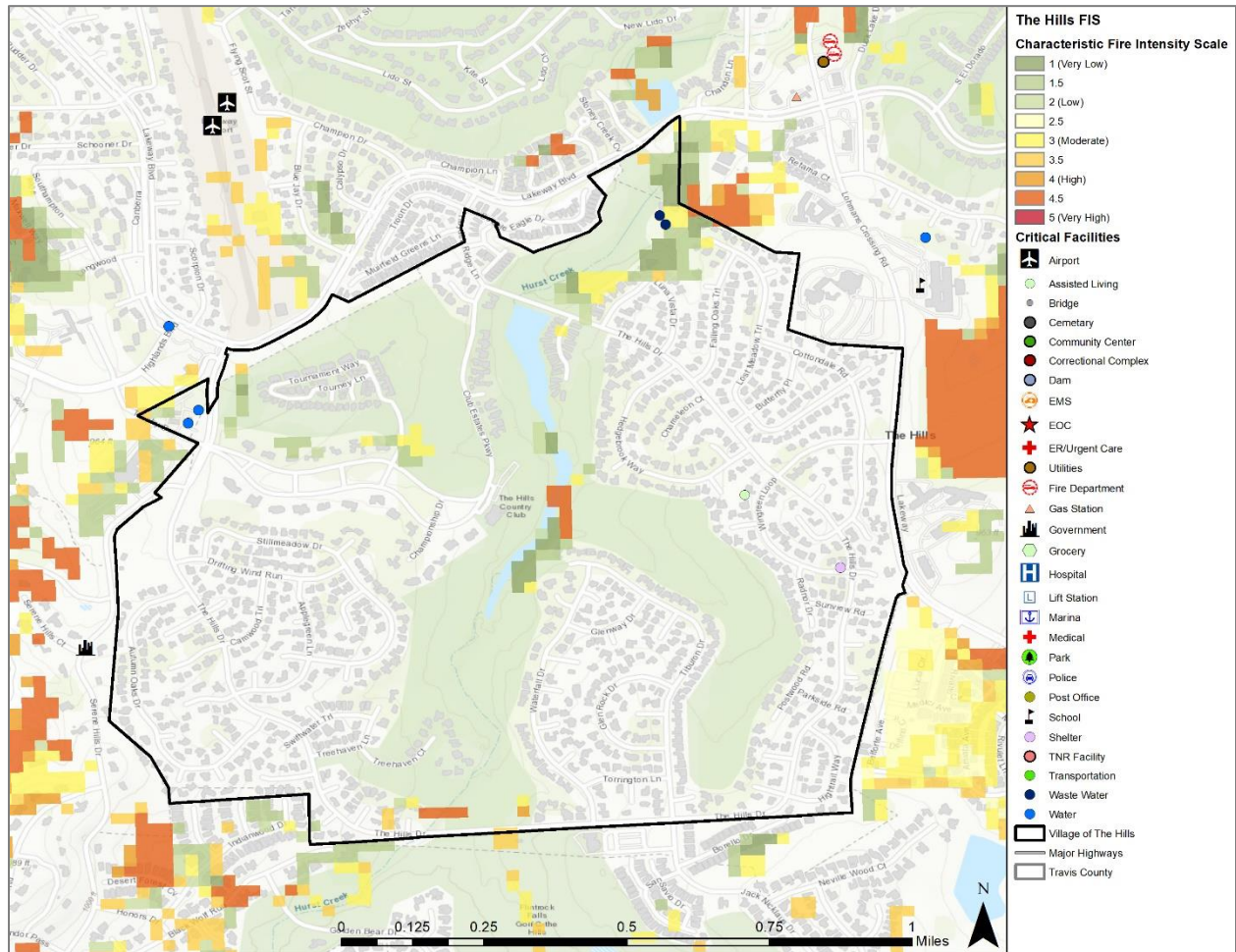


Figure 5-33. Fire Intensity Scale Map – City of West Lake Hills

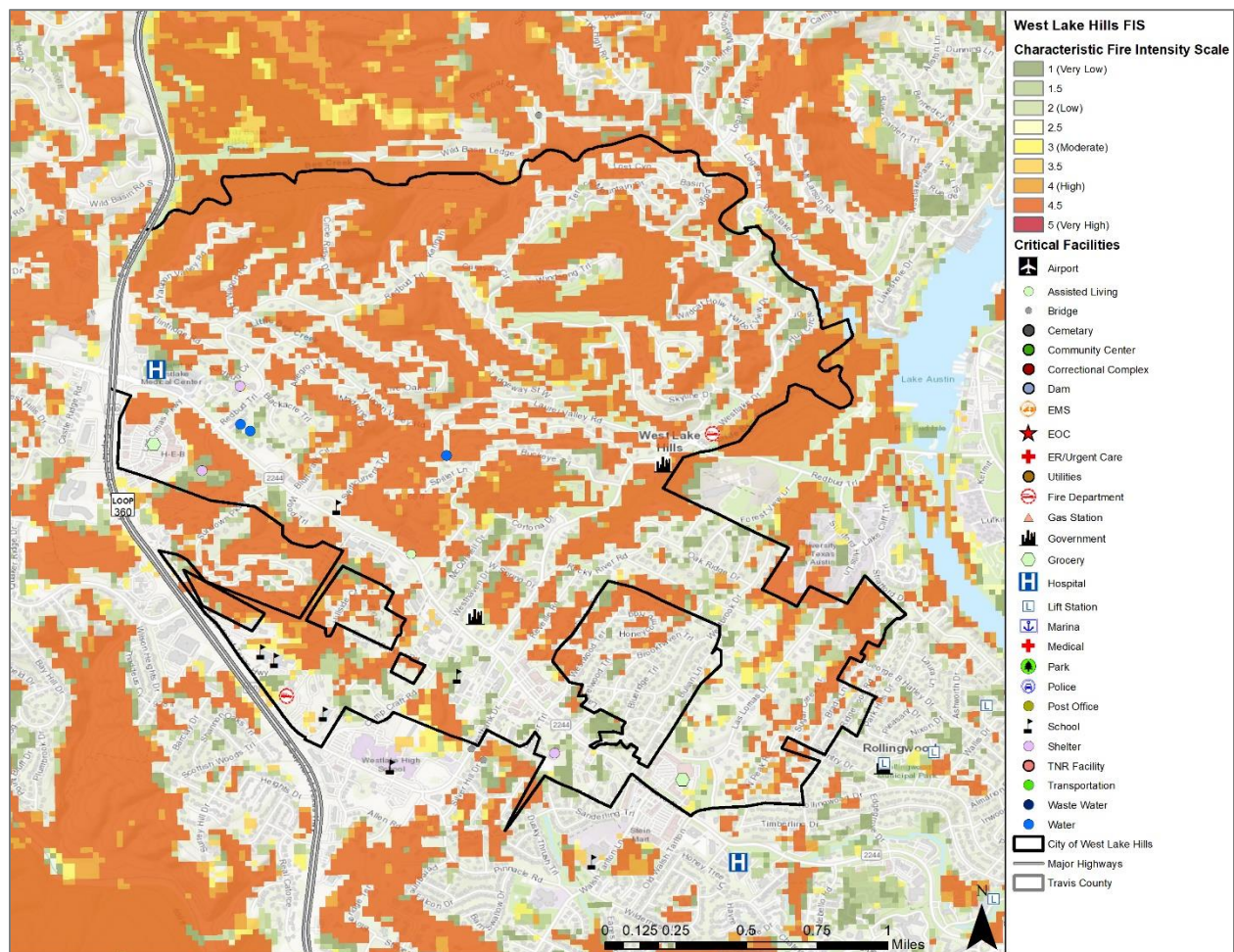
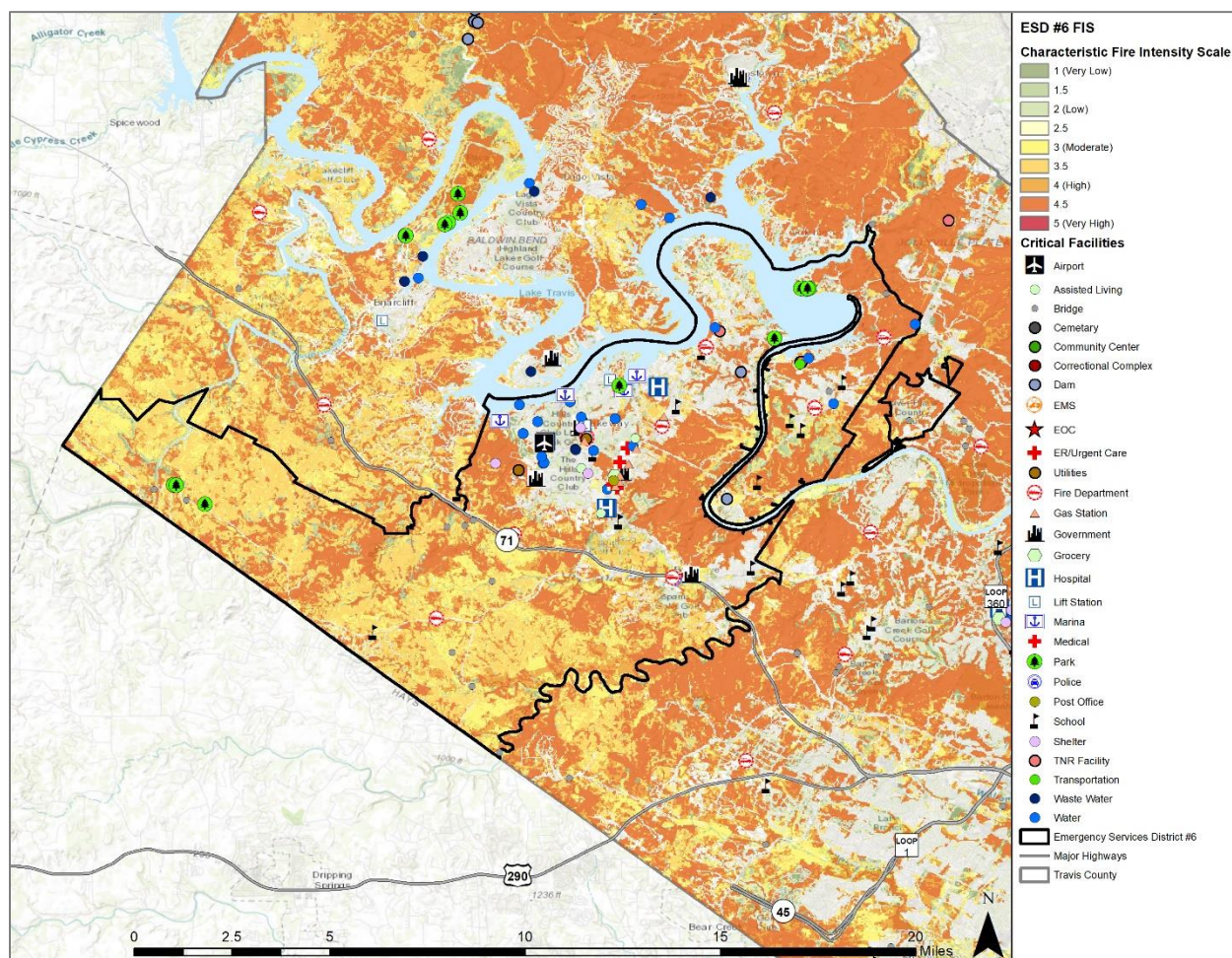


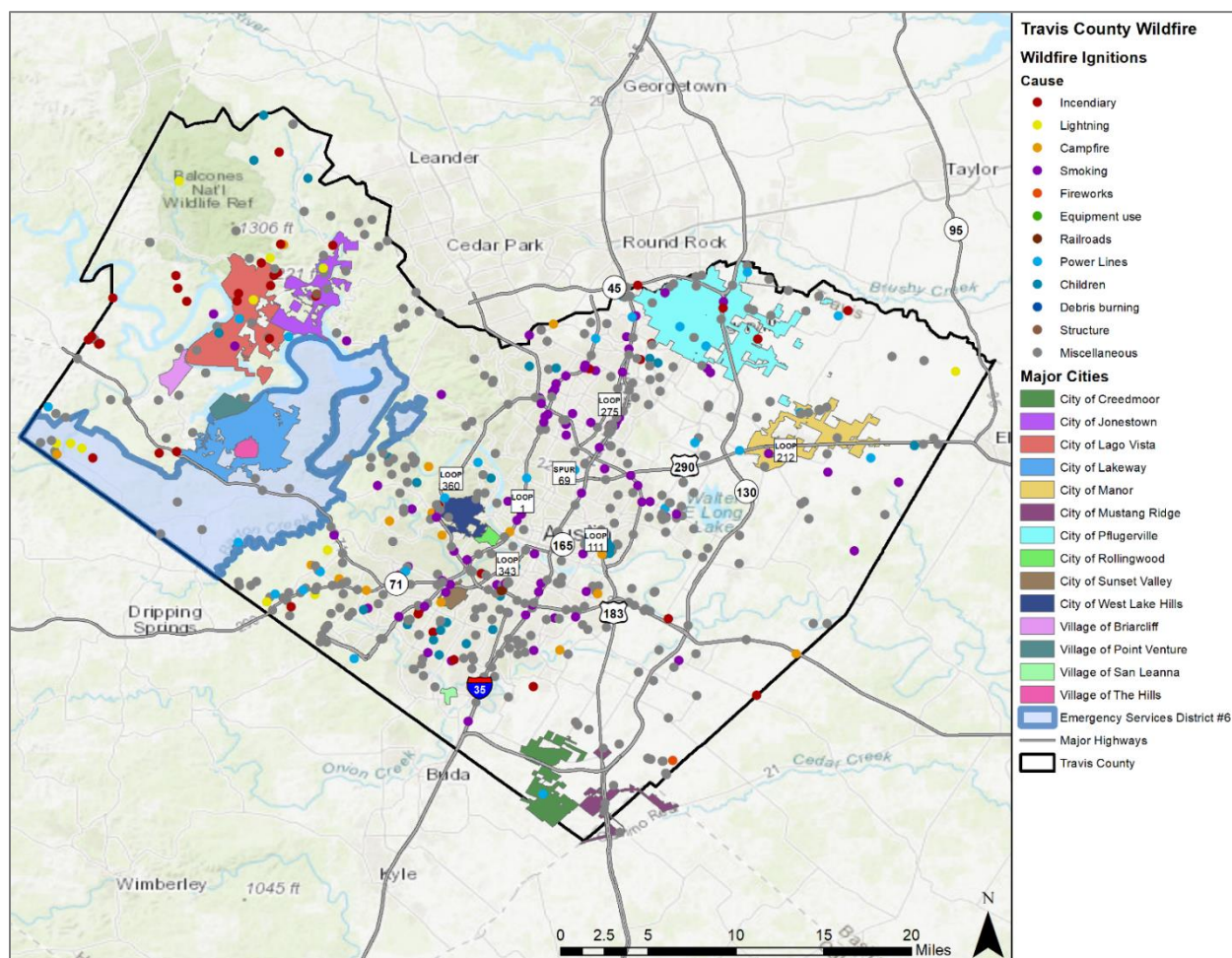


Figure 5-34. Fire Intensity Scale Map – ESD #6



## HISTORICAL OCCURRENCES

The Texas Forest Service reported 909 wildfire events for the Travis County planning area between 2005 and 2021. The National Centers for Environmental Information (NCEI) includes three records of wildfire events from 1996 through 2022. All three events took place in 2011 and resulted in an estimated \$23,569,145 in damages. The Texas Forest Service (TFS) started collecting wildfire reported by volunteer fire departments in 2005. Due to a lack of recorded data for wildfire events prior to 2005 and after 2021, frequency calculations are based on a 17-year reporting period, using only data from recorded years. The map below shows approximate locations of wildfires, which can be grass or brushfires of any size (Figure 5-35). Tables 5-1 through 5-3 identify the number of wildfires and total acreage burned each year within the county boundaries.

**Figure 5-35. Location and Historic Wildfire Events in Travis County****Table 5-1. Historical Wildfire Events Summary, 2005 - 2021**

JURISDICTION	NUMBER OF EVENTS	ACRES BURNED
Travis County	908	21,432
Village of Briarcliff	2	4
City of Creedmoor	1	80
City of Jonestown	8	141
City of Lago Vista	29	43
City of Lakeway	0	0
City of Manor	6	21
City of Mustang Ridge	16	62
City of Pflugerville	22	764



## SECTION 5: WILDFIRE

Item 8.

JURISDICTION	NUMBER OF EVENTS	ACRES BURNED
Village of Point Venture	2	0
City of Rollingwood	0	0
Village of San Leanna	0	0
City of Sunset Valley	3	3
Village of The Hills	0	0
City of West Lake Hills	2	0
ESD #6 <sup>7</sup>	38	1,259

**Table 5-2. Historical Wildfire Events by Year**

JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Travis County	55	189	86	156	53	17	101	25	49	27	7	25	31	12	6	48	21
Village of Briarcliff	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Creedmoor	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Jonestown	0	2	0	0	2	0	0	0	1	1	0	0	0	0	0	2	0
City of Lago Vista	0	0	0	0	3	0	5	3	3	2	0	1	0	0	1	8	3
City of Lakeway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Manor	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Mustang Ridge	4	1	2	3	2	0	1	1	0	0	0	1	0	0	1	0	0
City of Pflugerville	4	6	2	1	0	2	0	0	1	1	3	1	1	0	0	0	0
Village of Point Venture	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
City of Rollingwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Village of San Leanna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Sunset Valley	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0

<sup>7</sup> It is noted that data provided for wildfires within the ESD #6 district boundaries overlaps with county and city data provided for the same area. This data is provided for the ESD risk analysis only and the event data is not duplicated in the totals for the planning area.



## SECTION 5: WILDFIRE

Item 8.

JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Village of The Hills	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of West Lake Hills	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
ESD #6 <sup>8</sup>	1	4	5	1	1	0	13	0	1	7	1	0	3	0	0	1	0
<b>Total</b>	<b>67</b>	<b>202</b>	<b>90</b>	<b>162</b>	<b>62</b>	<b>19</b>	<b>107</b>	<b>30</b>	<b>55</b>	<b>32</b>	<b>10</b>	<b>28</b>	<b>32</b>	<b>13</b>	<b>8</b>	<b>58</b>	<b>24</b>

Table 5-3. Acreage of Suppressed Wildfire by Year

JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Travis County	781	614	674	609	99	196	16,510	9	109	180	1,206	46	82	34	69	50	164
Village of Briarcliff	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Creedmoor	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Jonestown	0	41	0	0	1	0	95	0	0	0	0	0	0	0	0	4	0
City of Lago Vista	0	0	0	0	2	0	6	6	7	3	0	1	0	0	5	10	3
City of Lakeway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Manor	16	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Mustang Ridge	4	5	34	8	2	0	2	3	0	0	0	1	0	0	3	0	0
City of Pflugerville	552	14	6	1	0	172	0	0	0	5	3	1	10	0	0	0	0
Village of Point Venture	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Rollingwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Village of San Leanna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Sunset Valley	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0
Village of The Hills	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of West Lake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

<sup>8</sup> It is noted that data provided for wildfires within the ESD #6 district boundaries overlaps with county and city data provided for the same area. This data is provided for the ESD risk analysis only and the event data is not duplicated in the totals for the planning area.

JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
EDS #6 <sup>9</sup>	2	126	130	1	0	0	990	0	0	6	0	0	3	0	0	1	0
<b>Total</b>	<b>1,433</b>	<b>682</b>	<b>714</b>	<b>620</b>	<b>104</b>	<b>368</b>	<b>16,613</b>	<b>19</b>	<b>117</b>	<b>188</b>	<b>1,209</b>	<b>49</b>	<b>92</b>	<b>34</b>	<b>77</b>	<b>64</b>	<b>167</b>

Based on the list of historical wildfire events for the Travis County planning area (listed above), 135 events have occurred since the 2017 plan.

## SIGNIFICANT EVENTS

There have been 11 declared disasters related to wildfire between 1996 and 2022 (Table 5-4). Additional details on certain wildfire events are described below.

**Table 5-4. Disaster Declarations for Wildfire, 1996-2022**

YEAR	DECLARATION TITLE	DECLARATION TYPE	DISASTER NO.
1996	Extreme Fire Hazard	EM	EM-3117
1999	Extreme Fire Hazards	EM	EM-3142
2005	Extreme Wildfire Threat	DR	DR-1624
2006	Moore Road Fire	FM	FM-2675
2008	Wildfires	EM	EM-3284
2011	Pinnacle Fire	FM	FM-2898
2011	Grand Mesa Fire	FM	FM-2922
2011	Hodde Fire	FM	FM-2957
2011	Steiner Ranch Fire	FM	FM-2960
2011	Pedernales Bend Fire	FM	FM-2959
2011	Wildfires	DR	DR-4029

### September 5, 2011 – Travis County

The Steiner Ranch Fire destroyed 24 homes in early September 2011. According to the Travis County Fire Marshal's Office, the fire was likely started by arcing electrical lines that touched each other, causing them to spark and ignite the grass. The exceptional drought conditions, low humidity, high winds, and high temperatures all contributed to the ignition and spread of the wildfire. The Steiner Ranch Fire resulted in a FEMA Fire Management Assistance Declaration (FM-2960), which provided more than \$235,000 in federal fire suppression assistance.

<sup>9</sup> It is noted that data provided for wildfires within the ESD #6 district boundaries overlaps with county and city data provided for the same area. This data is provided for the ESD risk analysis only and the event data is not duplicated in the totals for the planning area.

**September 4, 2011 – Travis & Burnet County**

The 2011 Pedernales Bend wildfire, also known as the Spicewood Fire, destroyed more than 60 structures and burned more than 6,500 acres in western Travis County and eastern Burnet County. According to the Travis County Fire Marshal's Office, the fire was likely started by arcing electrical lines that touched each other, causing them to spark and ignite the grass. The exceptional drought conditions, low humidity, high winds, and high temperatures all contributed to the ignition and spread of the wildfire. The fire burned for 11 days. The wildfire resulted in a FEMA Fire Management Assistance Declaration (FM-2959), which provided more than \$450,000 in federal fire suppression assistance.

**September 4, 2011 – City of Pflugerville & Travis County**

The 2011 Hodde Fire destroyed 2 homes in the City of Pflugerville and burned 300-500 acres. According to the Travis County Fire Marshal's Office, the fire was likely started by arcing electrical lines that touched each other, causing them to spark and ignite the grass. The exceptional drought conditions, low humidity, high winds, and high temperatures all contributed to the ignition and spread of the wildfire. The wildfire resulted in a FEMA Fire Management Assistance Declaration (FM-2957), which provided more than \$25,000 in federal fire suppression assistance.

## PROBABILITY OF FUTURE EVENTS

Wildfires can occur at any time of the year. As Travis County communities move into wildland, the potential area of occurrence of wildfire increases. With 909 events in a 17-year period, an event within the Travis County planning area is highly likely, meaning an event is probable within the next year. According to NOAA, research shows that changes in climate create warmer, drier conditions, leading to longer and more active fire seasons, indicating an increase in the frequency and severity of events in the planning area going forward. See additional information on climate change at the end of this section.

## VULNERABILITY AND IMPACT

Periods of drought, dry conditions, high temperatures, and low humidity are factors that contribute to the occurrence of a wildfire event. Less developed areas, such as along interstates or in more remote areas where fuels are more prevalent have an increased risk of being affected by wildfire.

The more heavily populated areas of the planning area are not highly likely to experience large, sweeping fires. Unoccupied buildings and open spaces that have not been maintained have the greatest vulnerability to wildfire. The overall level of concern for wildfires is located across the county where wildland and urban areas interface. Figure 5-36 through 5-51<sup>10</sup> illustrates the areas that are the most vulnerable to wildfire throughout the Travis County planning area, including all participating jurisdictions and ESD #6.

The Travis County Planning Team identified the following critical facilities (Table 5-5) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by wildfire events. For a comprehensive list by participating jurisdiction see Appendix C.

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<sup>10</sup> Source: TxWRAP portal at the following site: <https://texaswildfirerisk.com/>

**Table 5-5. Critical Facilities/Critical Services Vulnerable to Wildfire Events**

CRITICAL FACILITIES	POTENTIAL IMPACTS
<p>Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers</p> <p>(1 EOC; 4 Fire Stations; 5 Police Stations; 1 Hospital located in the WUI)</p>	<ul style="list-style-type: none"> <li>Emergency services may be disrupted during a wildfire if facilities are impacted, roadways are inaccessible, or personnel are unable to report for duty.</li> <li>First responders are at greater risk of injury when in close proximity to the hazard while extinguishing flames, protecting property, or evacuating residents in the area.</li> <li>Critical city departments may not be able to function and provide necessary services depending on the location of the fire and the structures or personnel impacted.</li> <li>Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility, slowing or preventing access for emergency response vehicles.</li> <li>Fire suppression costs can be substantial, exhausting the financial resources of the community.</li> <li>First responders can experience heart disease, respiratory problems, and other long-term related illnesses from prolonged exposure to smoke, chemicals, and heat.</li> <li>Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>Power outages could disrupt communications, delaying emergency response times.</li> <li>Structures can be damaged or destroyed in the path of the wildfire.</li> <li>Power outages could disrupt critical care.</li> <li>Backup power sources could be damaged or destroyed.</li> <li>Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities.</li> </ul>
<p>Airport, Academic Institutions, Animal Shelter, Evacuation Centers &amp; Shelters, Governmental Facilities, Residential/ Assisted Living Facilities</p> <p>(1 Animal Shelter; 20 Governmental Facilities; 68 School Facilities located in the WUI)</p>	<ul style="list-style-type: none"> <li>Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible.</li> <li>Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed.</li> <li>Additional emergency responders and critical aid workers may not be able to reach the area for days.</li> <li>Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations.</li> </ul>
<p>Commercial Supplier (food, fuel, etc.)</p>	<ul style="list-style-type: none"> <li>Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable.</li> </ul>

CRITICAL FACILITIES	POTENTIAL IMPACTS
(10 Fuel/Grocery Facilities located in the WUI)	<ul style="list-style-type: none"> <li>Essential supplies like medicines, water, food, and equipment deliveries may be delayed.</li> <li>Economic disruption due to power outages and fires negatively impact services as well as area businesses reliant on commercial suppliers.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)  (33 electric, water, wastewater, communications; 15 Lift Stations; 2 Pump Stations located in the WUI)	<ul style="list-style-type: none"> <li>Wastewater and drinking water facilities and infrastructure may be damaged or destroyed resulting in service disruption or outage for multiple days or weeks.</li> <li>Disruptions and outages impact public welfare as safe drinking water is critical.</li> <li>A break in essential and effective wastewater collection and treatment is a health concern, potentially spreading disease.</li> <li>Exposure to untreated wastewater is harmful to people and the environment.</li> <li>Any service disruptions can negatively impact or delay emergency management operations.</li> <li>Power losses</li> </ul>

Within the Travis County planning area, a total of 909 fire events were reported from 2005 through 2021. All of these events were suspected wildfires. Historic loss and annualized estimates due to wildfires are presented in Table 5-6 below. The average frequency is approximately 21 events every year.

**Table 5-6. Potential Annualized Acreage Losses<sup>11</sup>**

JURISDICTION	TOTAL ACRES BURNED	AVERAGE ANNUAL ACRE LOSSES
Travis County	21,432	1,261
Village of Briarcliff	4	0.2
City of Creedmoor	80	5
City of Jonestown	141	8.3
City of Lago Vista	43	2.5
City of Lakeway	0	0
City of Manor	21	1.2
City of Mustang Ridge	62	3.6
City of Pflugerville	764	45
Village of Point Venture	0	0
City of Rollingwood	0	0

<sup>11</sup> Events divided by 17 years of data.



JURISDICTION	TOTAL ACRES BURNED	AVERAGE ANNUAL ACRE LOSSES
Village of San Leanna	0	0
City of Sunset Valley	3	0.2
Village of The Hills	0	0
City of West Lake Hills	0	0
ESD #6 <sup>12</sup>	1,259	74
<b>TOTAL</b>	<b>22,550</b>	<b>1,327</b>

Wildfire Ignition Density shows the likelihood of a wildfire starting based on historical ignition patterns. Occurrence is derived by modeling historic wildfire ignition locations to create an average ignition rate map. The ignition rate is measured in the number of fires per year per 1,000 acres. Wildfire Ignition Density is a key input into the calculation of the Wildfire Threat output. In particular, with most Texas fires being human caused, there is a repeatable spatial pattern of fire ignitions over time. This pattern identifies areas where wildfires are most likely to ignite and prevention efforts can be planned accordingly.<sup>13</sup>

Figures 5-36 through 5-51 show the threat of wildfire to the Travis County planning area.

<sup>12</sup> It is noted that data provided for wildfires within the ESD #6 district boundaries overlaps with county and city data provided for the same area. This data is provided for the ESD risk analysis only and the event data is not duplicated in the totals for the planning area.

<sup>13</sup> Source: TxWRAP portal at the following site: <https://texaswildfirerisk.com/>

Figure 5-36. Wildfire Ignition Density – Travis County

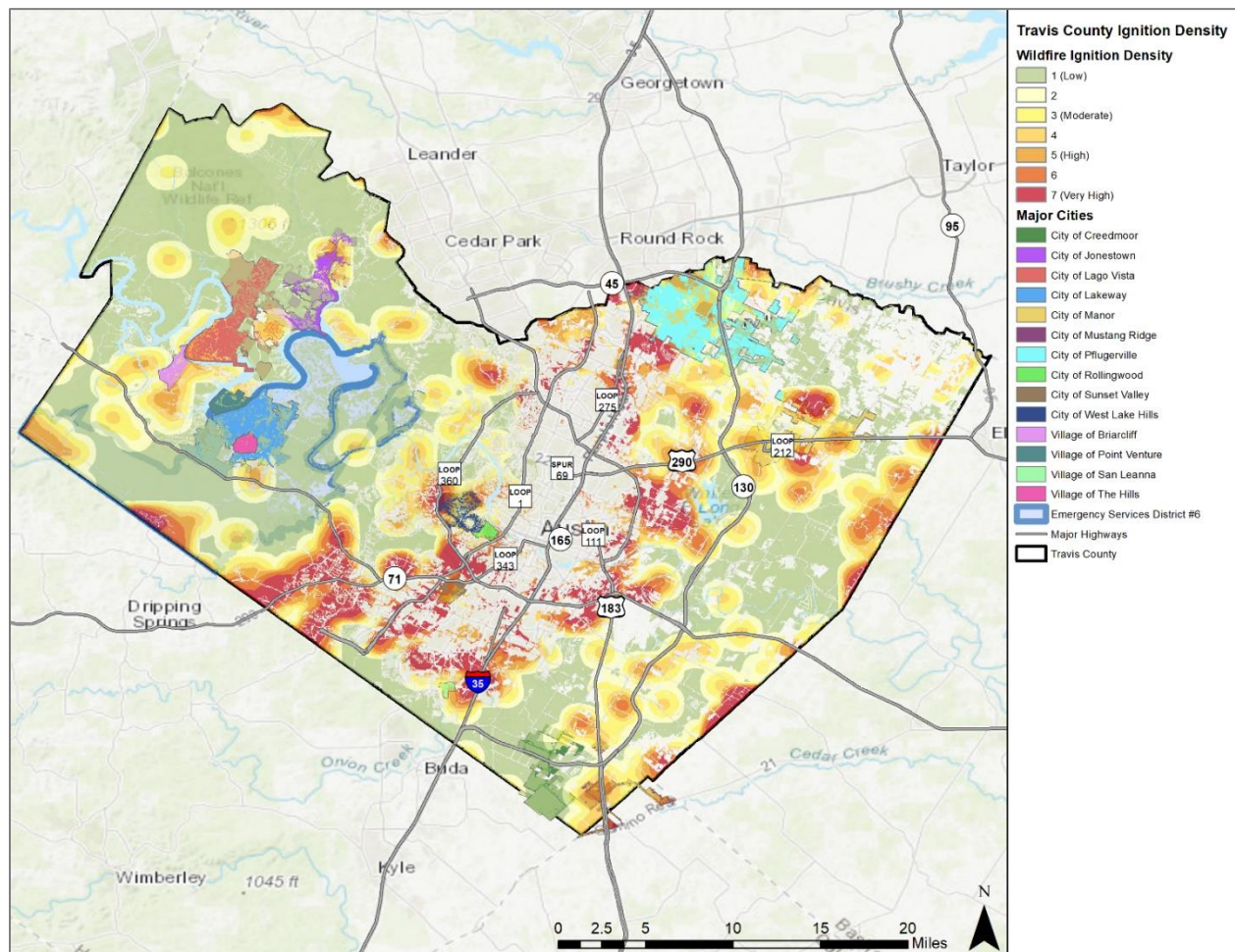


Figure 5-37. Wildfire Ignition Density – Village of Briarcliff

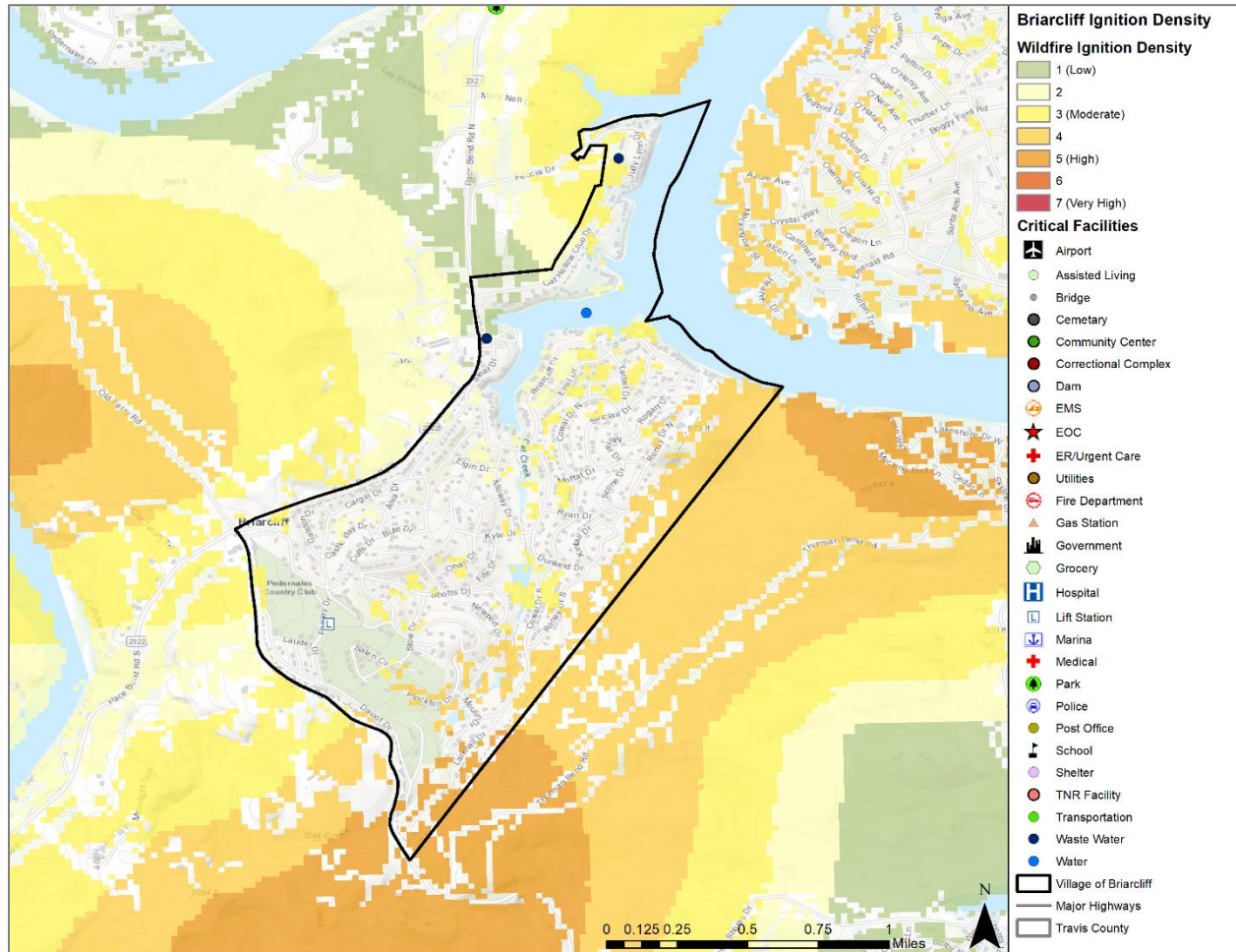




Figure 5-38. Wildfire Ignition Density – City of Creedmoor

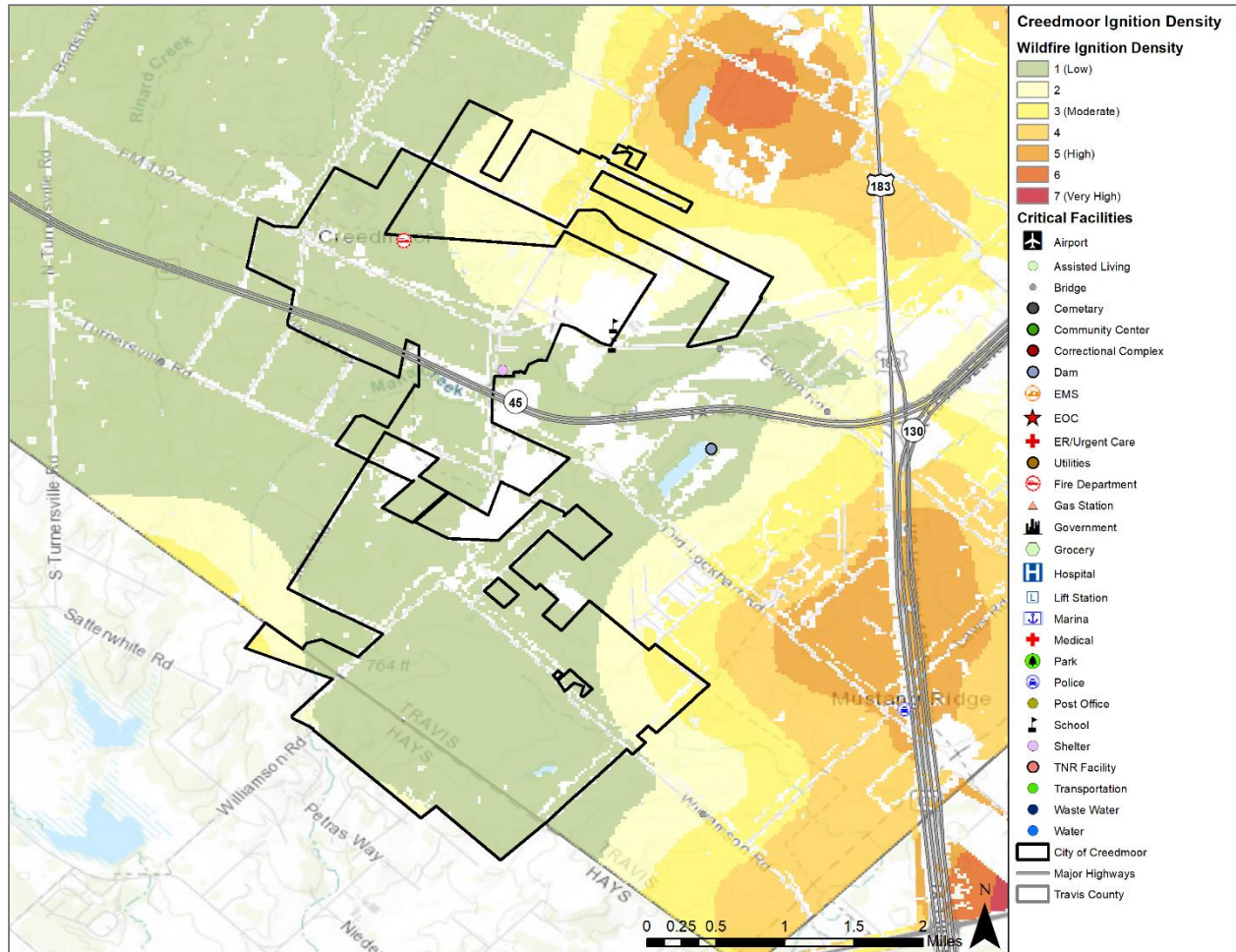


Figure 5-39. Wildfire Ignition Density – City of Jonestown

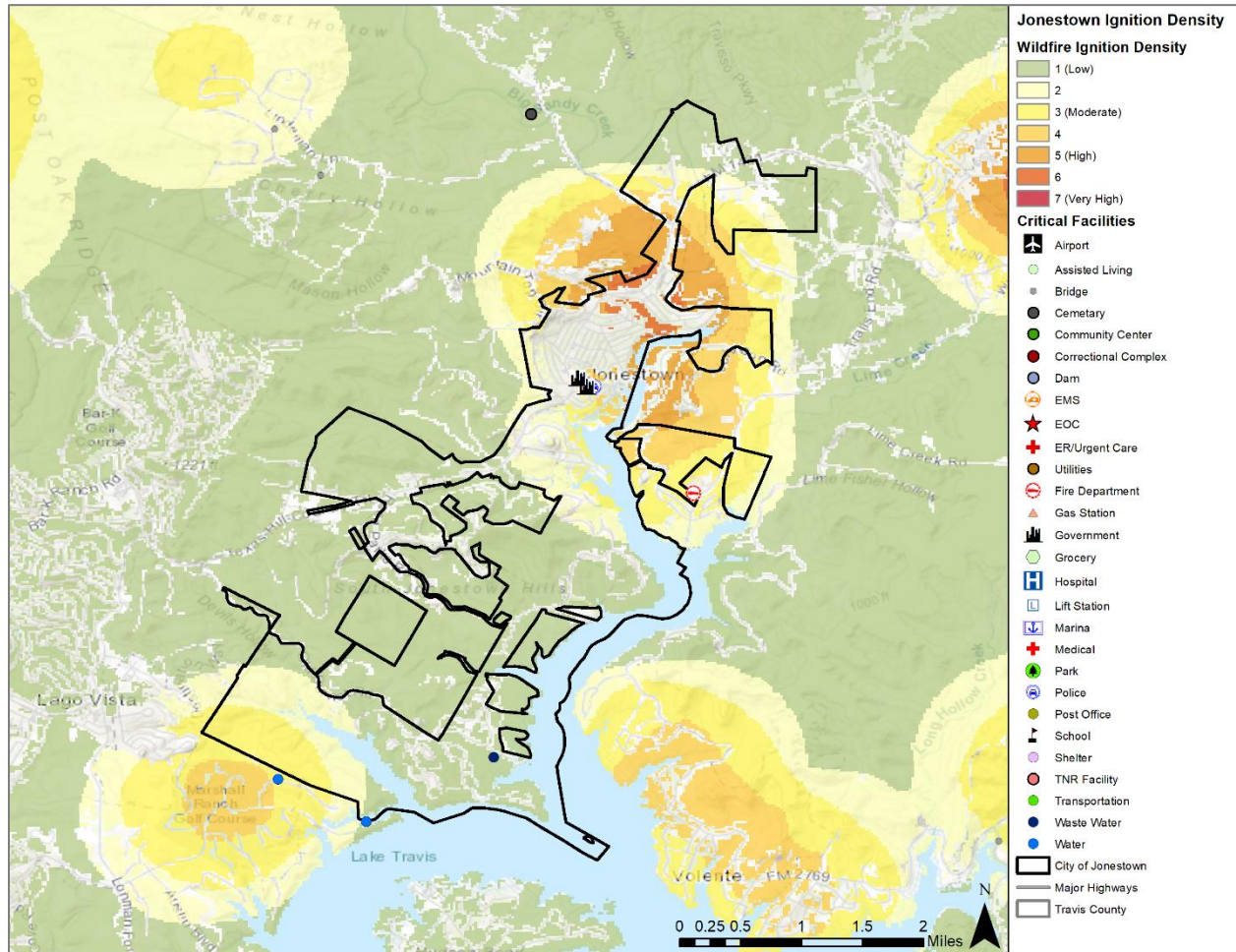




Figure 5-40. Wildfire Ignition Density – City of Lago Vista

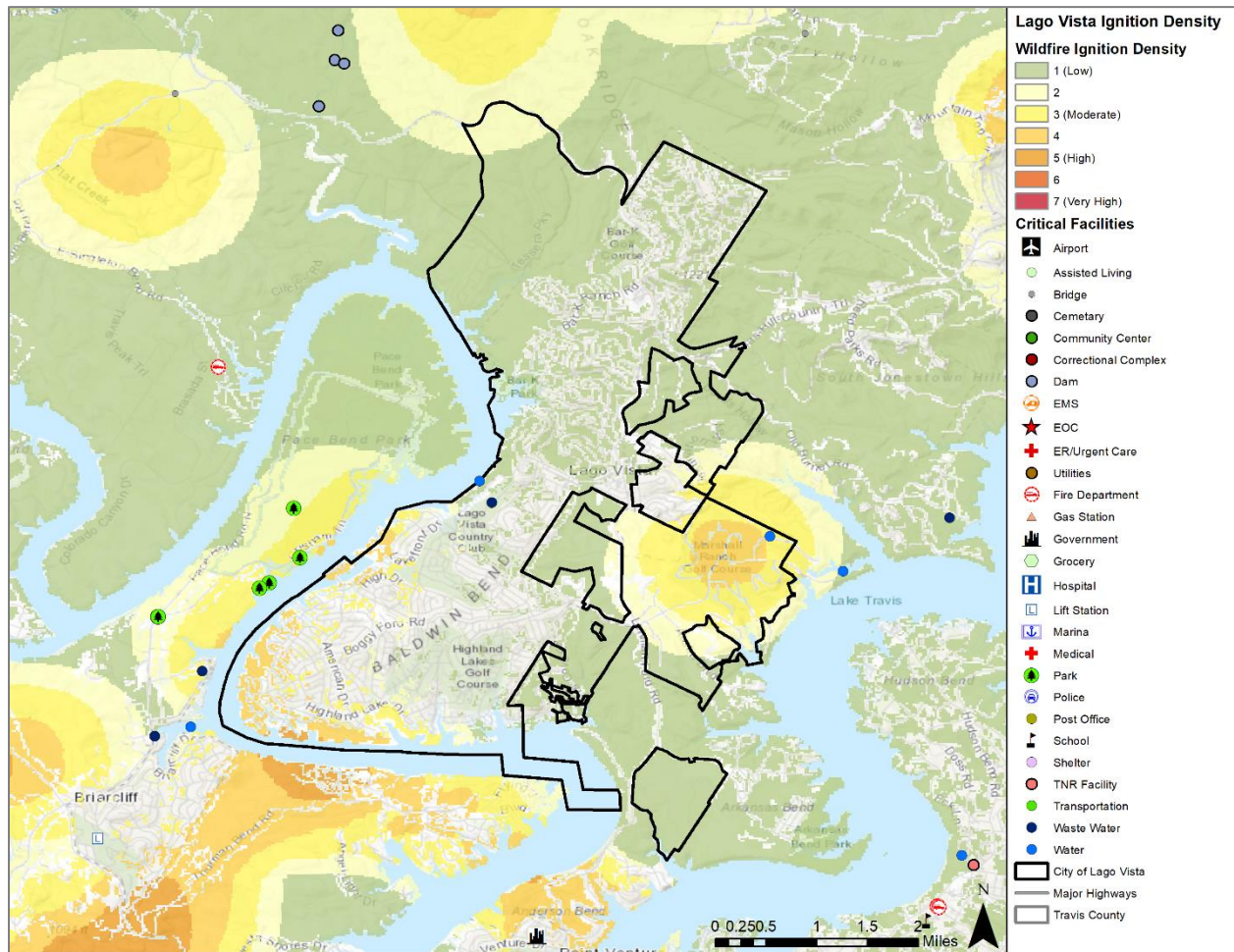


Figure 5-41. Wildfire Ignition Density – City of Lakeway

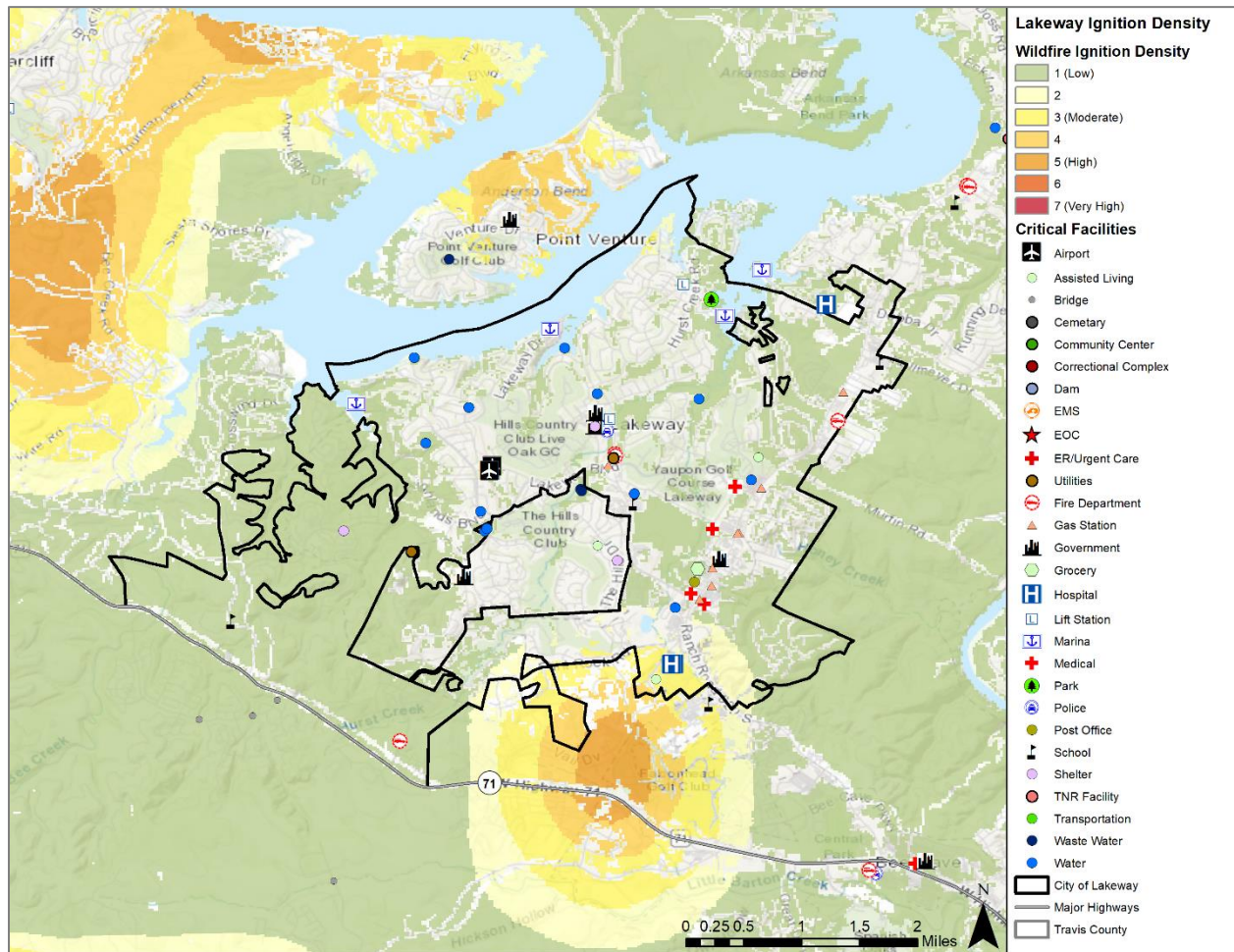




Figure 5-42. Wildfire Ignition Density – City of Manor

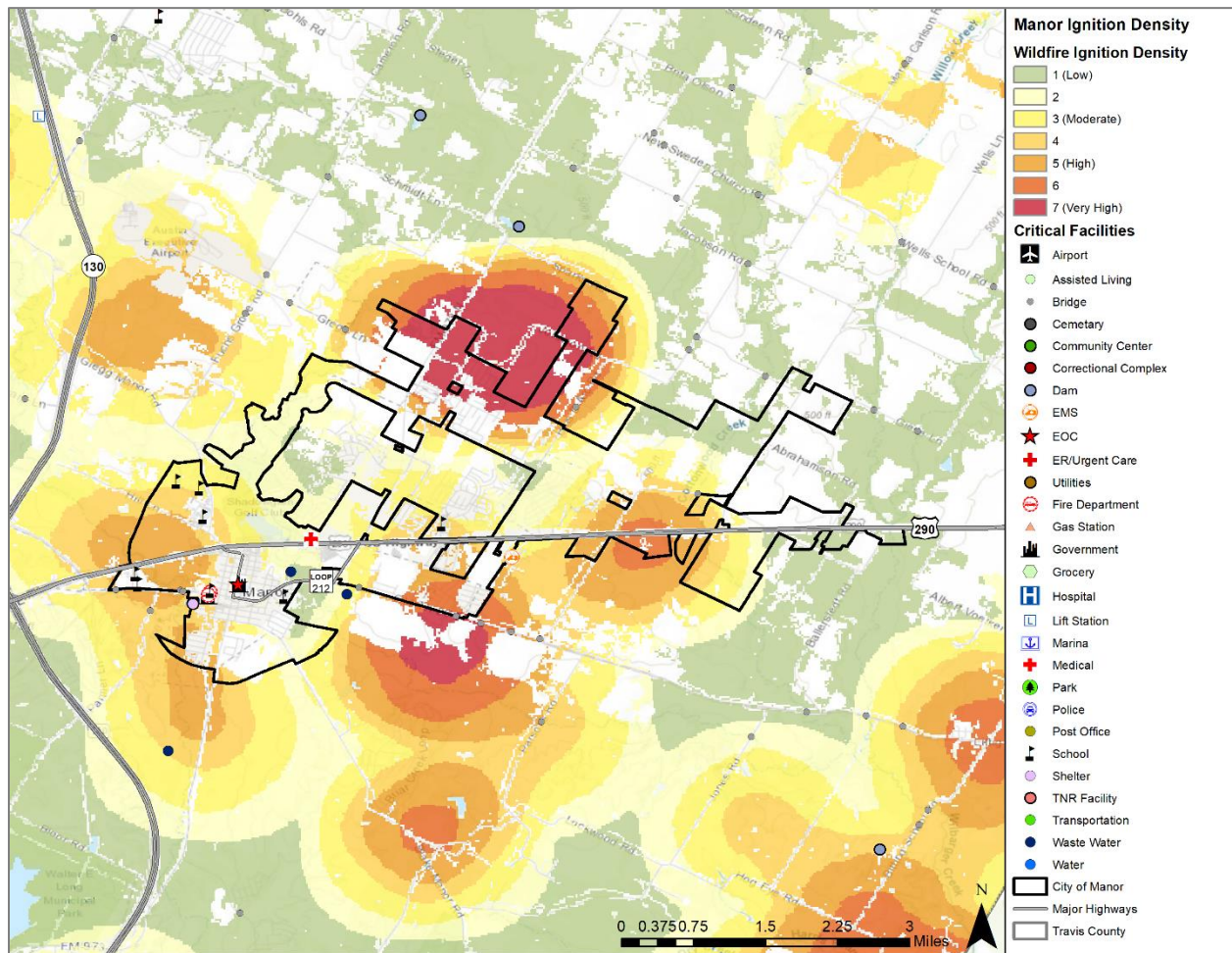


Figure 5-43. Wildfire Ignition Density – City of Mustang Ridge

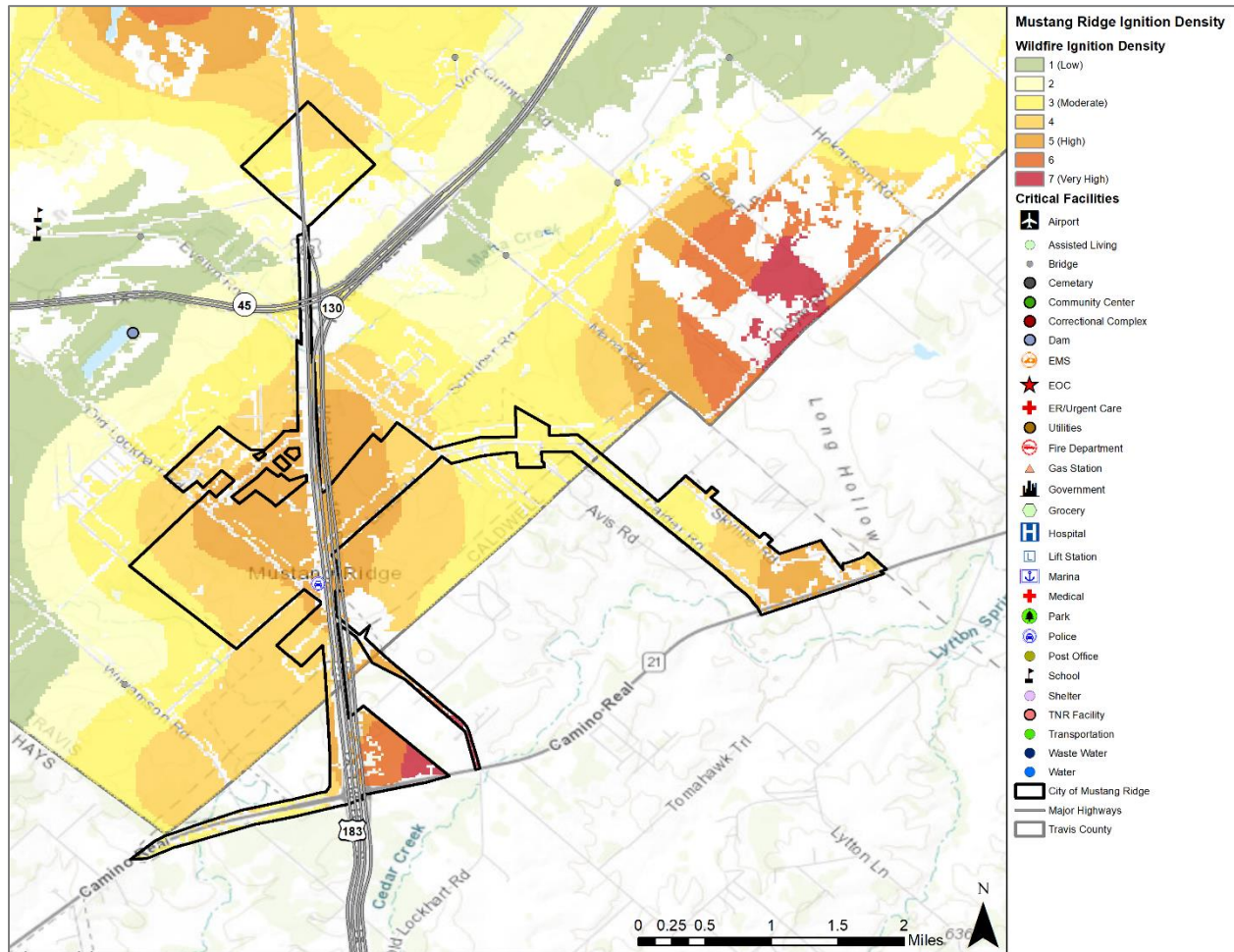




Figure 5-44. Wildfire Ignition Density – City of Pflugerville

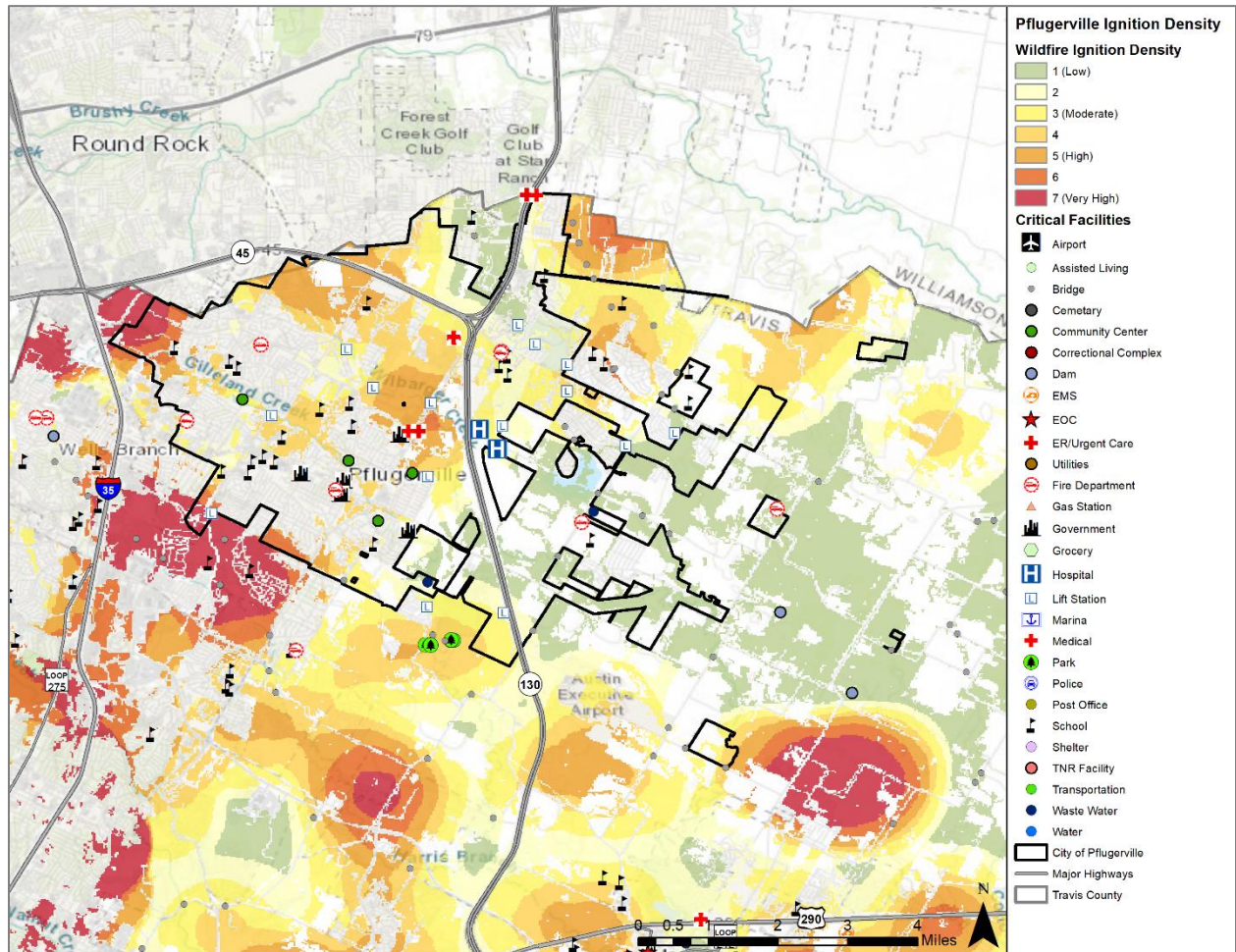




Figure 5-45. Wildfire Ignition Density – Village of Point Venture

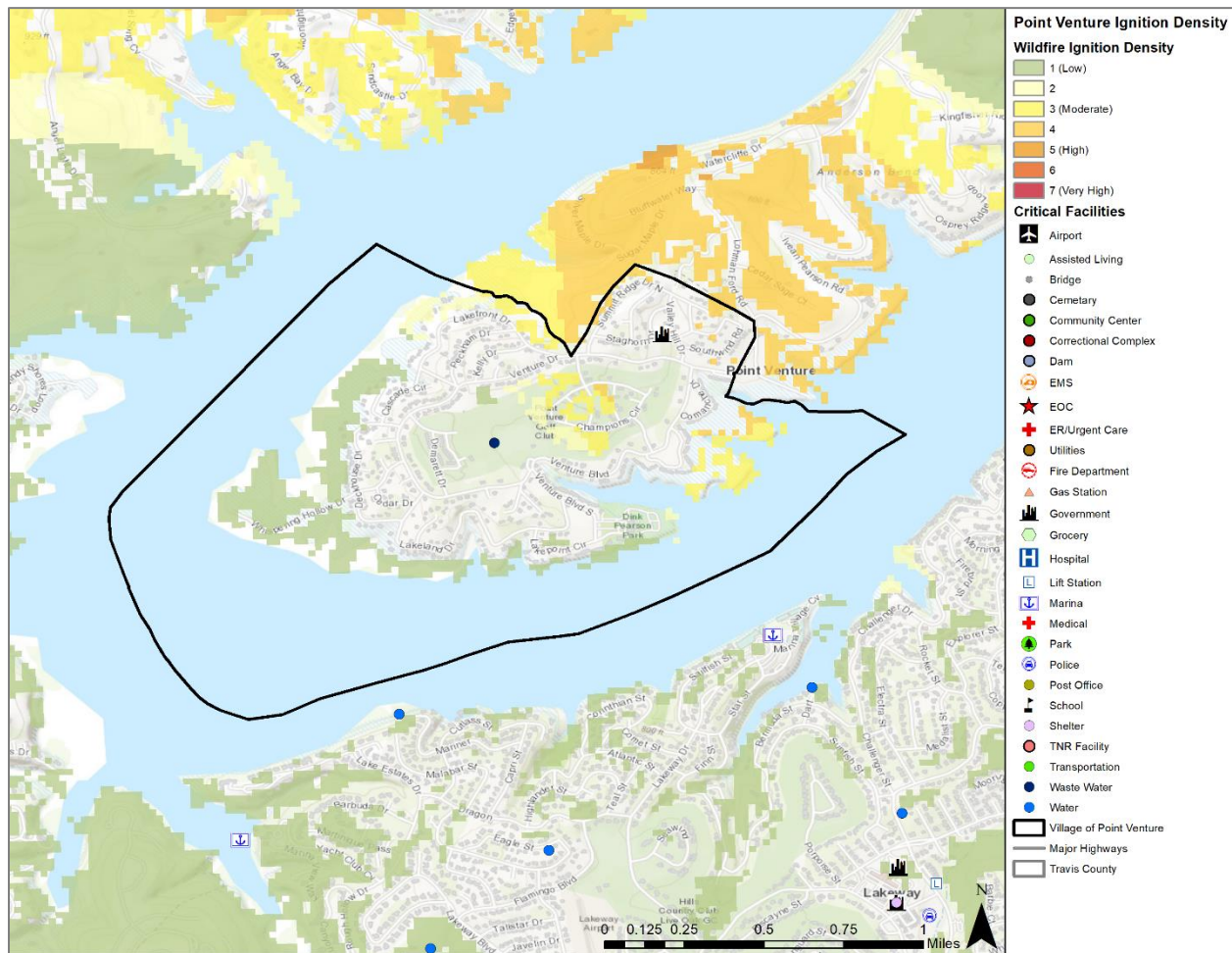


Figure 5-46. Wildfire Ignition Density – City of Rollingwood

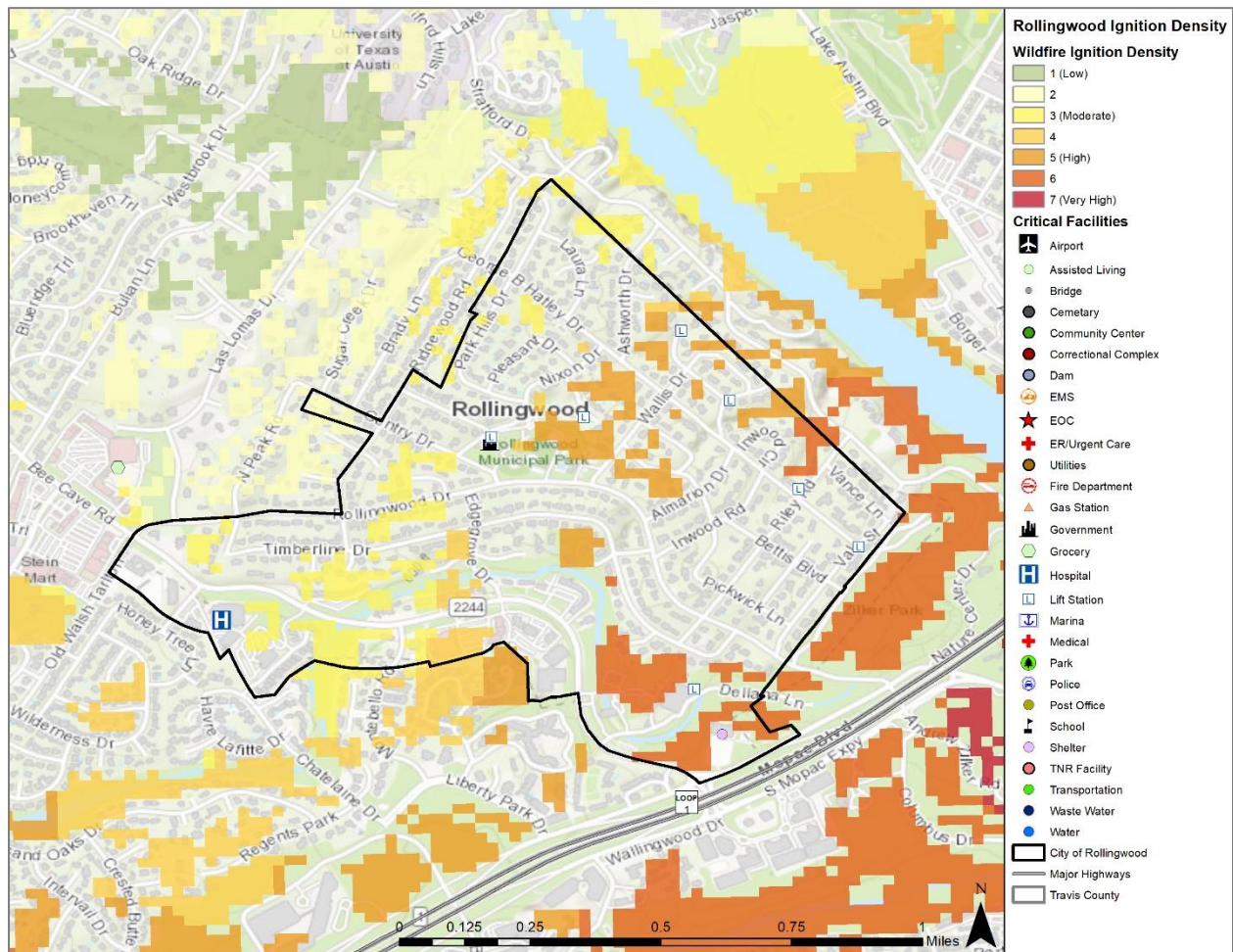


Figure 5-47. Wildfire Ignition Density – Village of San Leanna

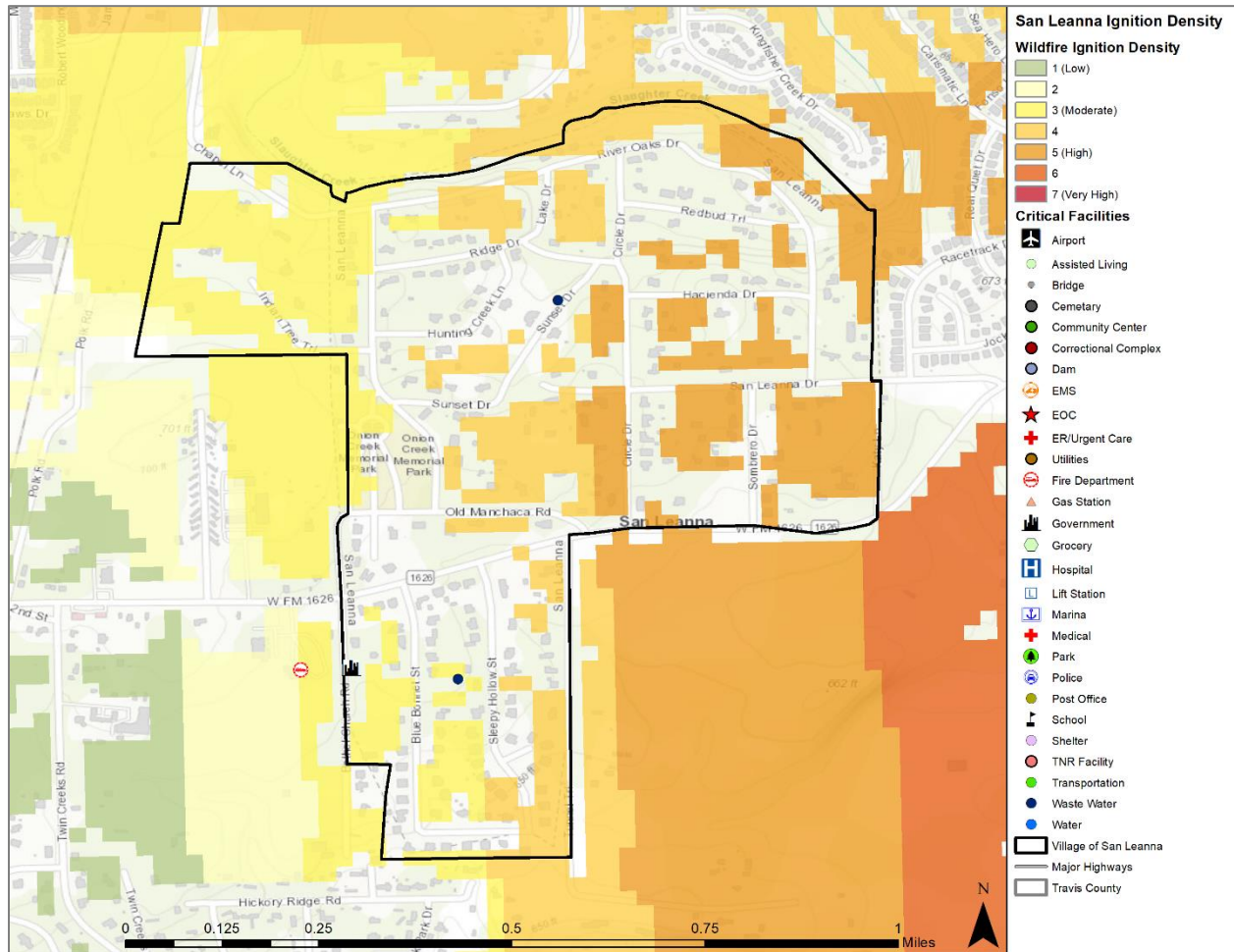




Figure 5-48. Wildfire Ignition Density – City of Sunset Valley

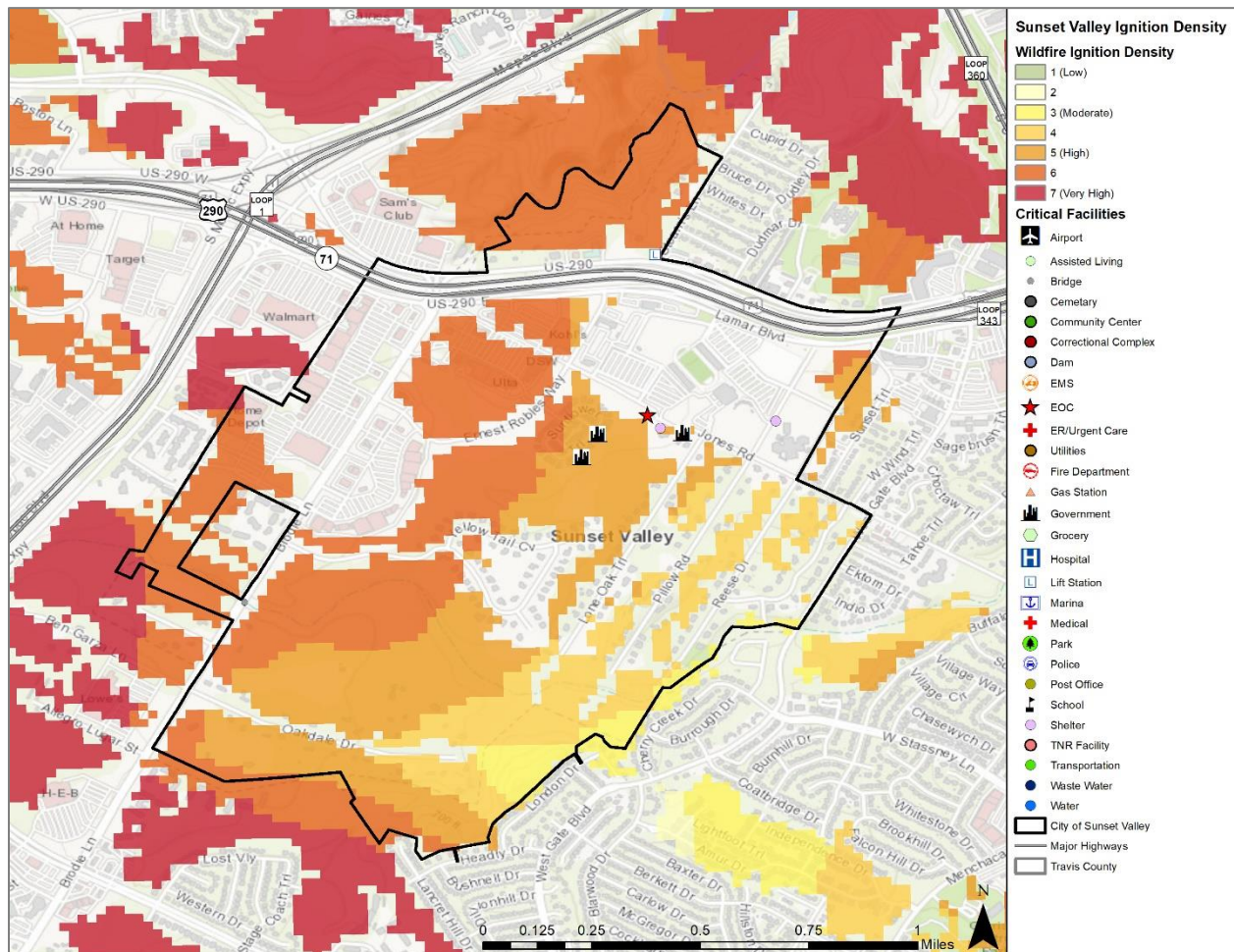


Figure 5-49. Wildfire Ignition Density – Village of The Hills

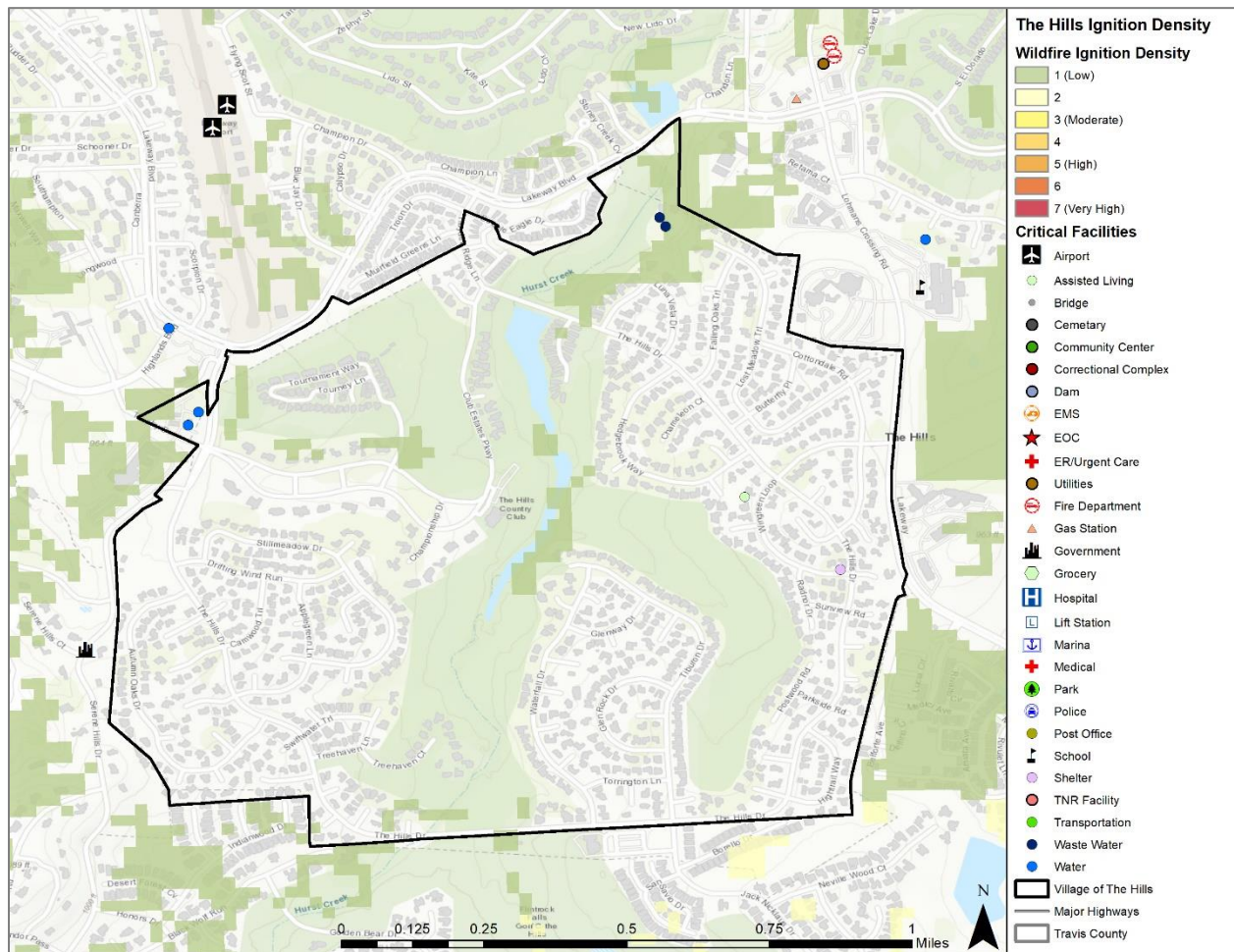




Figure 5-50. Wildfire Ignition Density – City of West Lake Hills

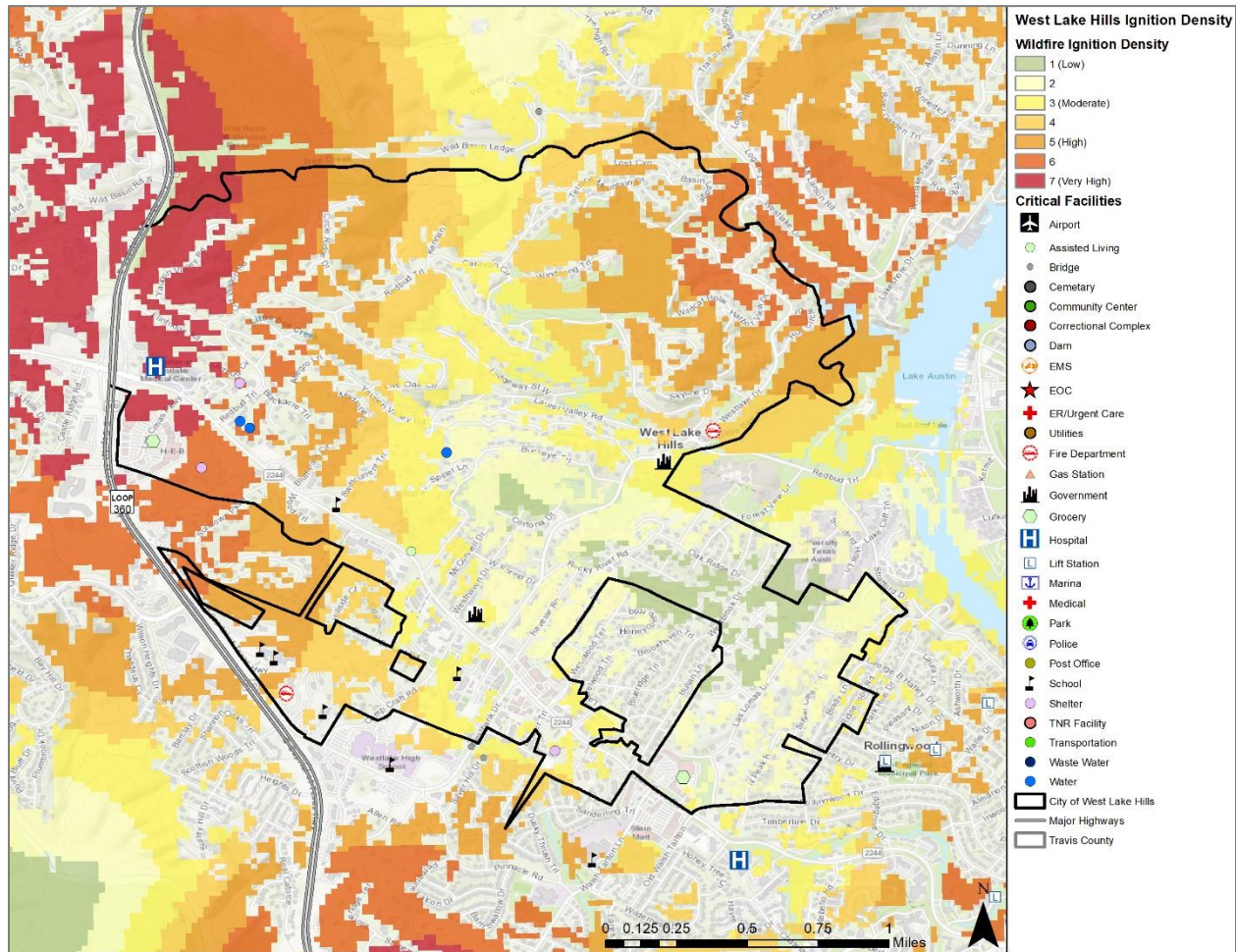
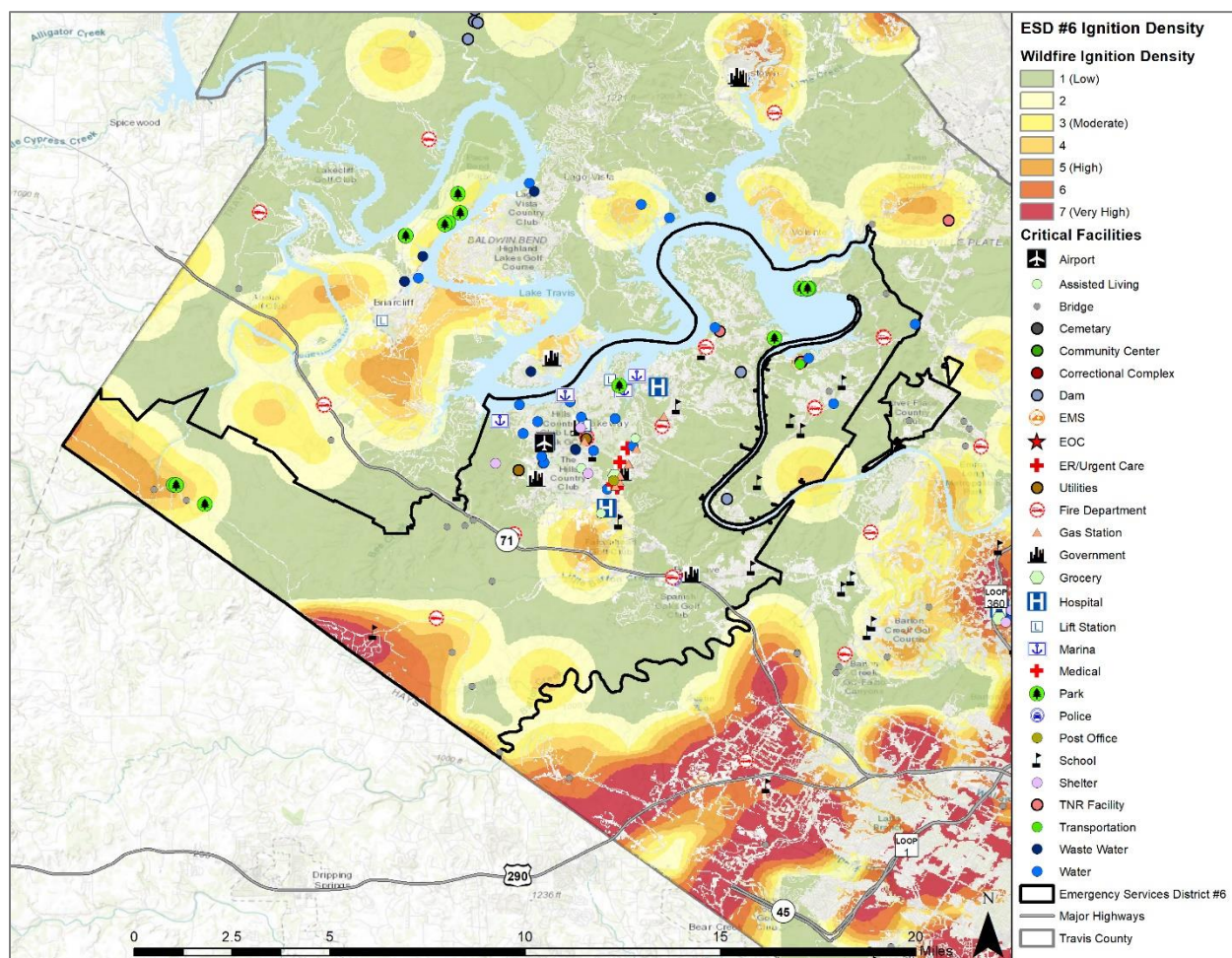


Figure 5-51. Wildfire Ignition Density – ESD #6



Diminished air quality is an environmental impact that can result from a wildfire event and pose a potential health risk. The smoke plumes from wildfires can contain potentially inhalable carcinogenic matter. Fine particles of invisible soot and ash that are too small for the respiratory system to filter can cause immediate and possibly long-term health effects. The elderly or those individuals with compromised respiratory systems may be more vulnerable to the effects of diminished air quality after a wildfire event.

Climatic conditions such as severe freezes and drought can significantly increase the intensity of wildfires since these conditions kill vegetation, creating a prime fuel source for wildfires. The intensity and rate at which wildfires spread are directly related to wind speed, temperature, and relative humidity.

The severity of impact from major wildfire events can be substantial. Such events can cause multiple deaths, shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. Severity of impact is gauged by acreage burned, homes and structures lost, and the number of resulting injuries and fatalities.

For the Travis County planning area, including participating jurisdictions and ESD #6, the impact from a wildfire event can be considered "Minor," meaning injuries and/or illnesses do not result in permanent disability, complete shutdown of facilities and services for more than one week and



more than 10 percent of property is destroyed or with major damage. Severity of impact is gauged by acreage burned, homes and structures lost, injuries and fatalities.

**Table 5-7. Impact for Travis County**

JURISDICTION	IMPACT	DESCRIPTION
Travis County	Limited	Travis County has an estimated 463,278 people or 45% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. County residents may suffer injuries that are treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
Village of Briarcliff	Minor	Within the Village of Briarcliff, it is estimated 793 people or 59% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. Village residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.
City of Creedmoor	Minor	Within the City of Creedmoor, it is estimated 755 people or 96% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 1 house per 2 acres. City residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.
City of Jonestown	Minor	Within the City of Jonestown, it is estimated 1,812 people or 69% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. City residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.

JURISDICTION	IMPACT	DESCRIPTION
City of Lago Vista	Limited	Within the City of Lago Vista, it is estimated 2,719 people or 34% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. City residents may suffer injuries that are treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
City of Lakeway	Minor	Within the City of Lakeway, it is estimated 6,689 people or 55% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. City residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.
City of Manor	Minor	Within the City of Manor, it is estimated 2,194 people or 79% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. City residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.
City of Mustang Ridge	Minor	Within the City of Mustang Ridge, it is estimated 1,611 people or 99% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 1 house per 2 acres. City residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.

JURISDICTION	IMPACT	DESCRIPTION
City of Pflugerville	Limited	Within the City of Pflugerville, it is estimated 18,432 people or 48% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. City residents may suffer injuries that are treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
Village of Point Venture	Minor	Within the Village of Point Venture, it is estimated 843 people or 65% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. Village residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.
City of Rollingwood	Limited	Within the City of Rollingwood, it is estimated 396 people or 19% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. City residents may suffer injuries that are treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
Village of San Leanna	Minor	Within the Village of San Leanna, it is estimated 564 people or 97% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. Village residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.



JURISDICTION	IMPACT	DESCRIPTION
City of Sunset Valley	Minor	Within the City of Sunset Valley, it is estimated 450 people or 78% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. Village residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.
Village of The Hills	Limited	Within the Village of The Hills, it is estimated 398 people or 17% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. Village residents may suffer injuries that are treatable with first aid. Critical facilities could be shut down for less than one week, and less than 10 percent of total property could be damaged.
City of West Lake Hills	Minor	Within the City of West Lake Hills, it is estimated 3,816 people or 93% of the total population that live within the Wildland Urban Interface (WUI). Average housing density is most commonly 3 houses per 1 acre. City residents may suffer injuries that do not result in permanent disability. Critical facilities could be shut down for more than one week, and more than 10 percent of total property could be damaged.
Emergency Services District #6	Minor	Emergency Services District #6 has 7 facilities located within the WUI and has a low to moderate risk of wildfire. Employees of the district and residents within the district boundaries could be injured or suffer illnesses, but not permanent disability. Critical facilities could be shut down for a week, and 10 percent or more of total property could be damaged.

## ASSESSMENT OF IMPACTS

A Wildfire event poses a potentially significant risk to public health and safety, particularly if the wildfire is initially unnoticed and spreads quickly. The impacts associated with a wildfire are not limited to direct damage. Significant wildfire events can be frequently associated with a variety of impacts, including:

- The Travis County planning area contains numerous public parks, nature preserves and open space areas. Community assets such as the Balcones Canyonlands Preserve and the Balcones Canyonlands National Wildlife Refuge are vulnerable to wildfire events.

Wildfire may adversely affect or destroy endangered species habitat, reduce air quality, increase erosion and risk of flash flooding, contribute to increased local temperatures, and disrupt other ecological functions.

- Recreation activities throughout county, city, and village parks may be unavailable and tourism can be unappealing for years following a large wildfire event, devastating directly related local businesses and negatively impacting economic recovery.
- Persons, pets, and wildlife in the area at the time of the fire are at risk for injury or death from burns and/or smoke inhalation. First responders are at greater risk of physical injury when in close proximity to the hazard while extinguishing flames, protecting property, or evacuating residents in the area.
- First responders can experience heart disease, respiratory problems, and other long-term related illnesses from prolonged exposure to smoke, chemicals, and heat.
- Emergency services may be disrupted during a wildfire if facilities are impacted, roadways are inaccessible, or personnel are unable to report for duty.
- Critical county, city, and village departments may not be able to function and provide necessary services depending on the location of the fire and the structures or personnel impacted.
- Non-critical businesses may be directly damaged, suffer loss of utility services, or be otherwise inaccessible, delaying normal operations and slowing the recovery process.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility.
- Older homes are generally exempt from modern building code requirements, which may require fire suppression equipment in the structure. 27 percent of homes in the planning area were built before 1980. Similarly, historic buildings may lack fire mitigation materials or measures due to their historic status. One site in the Travis County planning area, the City of Pflugerville East Main Street Historic District, is listed on the National Register of Historic Places.
- Some high-density neighborhoods feature small lots with structures close together, increasing the potential for fire to spread rapidly.
- Air pollution from smoke may exacerbate respiratory problems of vulnerable residents.
- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- Wildlife may be displaced or destroyed.
- Historical or cultural resources may be damaged or destroyed.
- Tourism can be significantly disrupted, further delaying economic recovery for the area.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Fire suppression costs can be substantial, exhausting the financial resources of the community.
- Residential structures lost in a wildfire may not be rebuilt for years, reducing the tax base for the community.

- Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground delivery lines, and soil erosion or debris deposits into waterways after the fire.

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

## CLIMATE CHANGE CONSIDERATIONS

Wildfires require the alignment of a number of factors, including temperature, humidity, and the lack of moisture in fuels, such as trees, shrubs, grasses, and forest debris. All these factors have strong direct or indirect ties to climate variability and climate change. Research shows that changes in climate create warmer, drier conditions, leading to longer and more active fire seasons. Increases in temperatures and the thirst of the atmosphere due to human--caused climate change have increased aridity of forest fuels during the fire season.<sup>14</sup>

Vapor pressure deficit, an indicator of the ability of moisture to evaporate, is projected to increase as temperatures rise and carbon dioxide fertilization reduces transpiration, leading to both lower humidity and increased surface dryness. Overall, increased dryness should extend the wildfire season in places where the fire season is presently constrained by low levels of aridity, such as eastern Texas.<sup>15</sup>

Key findings of the University of Texas at Austin technical report for the City of Austin indicate that overall temperatures are rising, with summer highs expected to exceed 110°F more frequently. Heatwaves are expected to become more frequent and last longer, potentially reaching 80 days per year by the end of the century, contributing to favorable wildfire conditions.<sup>16</sup>

Extreme heat and extended periods of drought contribute to wildfire risk in the planning area. Extreme temperatures and periods of drought destroy vegetation in the area, contributing to available fuels that spread wildfires. Additional climate change impacts from drought and extreme heat are discussed in Sections 7 and 8 of this Plan. The projected increases in favorable wildfire conditions, including drought and extreme heat, indicate an increase in favorable wildfire conditions. Additional information and studies are needed to determine the degree and rate of any increased wildfire risk.

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<sup>14</sup> NOAA Wildfire Climate Connection, August 2022: wildfire-climate-connection.

<sup>15</sup> Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

<sup>16</sup> University of Texas at Austin, February 2023, *Austin Future Climate, Climate Change Predictions for the City of Austin 2022, Technical Report*.





# SECTION 6 LIGHTNING

Hazard Description .....	1
Location .....	1
Extent .....	1
Historical Occurrences .....	3
Significant Events .....	5
Probability of Future Events .....	6
Vulnerability and Impact .....	6
Assessment of Impacts .....	10
Climate Change Considerations .....	11

## HAZARD DESCRIPTION

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

According to the National Weather Service (NWS), the 10-year (2012–2021) average for fatalities is 23 people with an average of 300 injuries in the United States each year by lightning. Lightning can occur as cloud-to-ground flashes or as intra-cloud lightning flashes. Direct lightning strikes can cause significant damage to buildings, critical facilities, infrastructure, and communication equipment affecting emergency response. Lightning is also responsible for igniting wildfires that can result in widespread damages to property before firefighters have the ability to contain and suppress the resultant fire.

## LOCATION

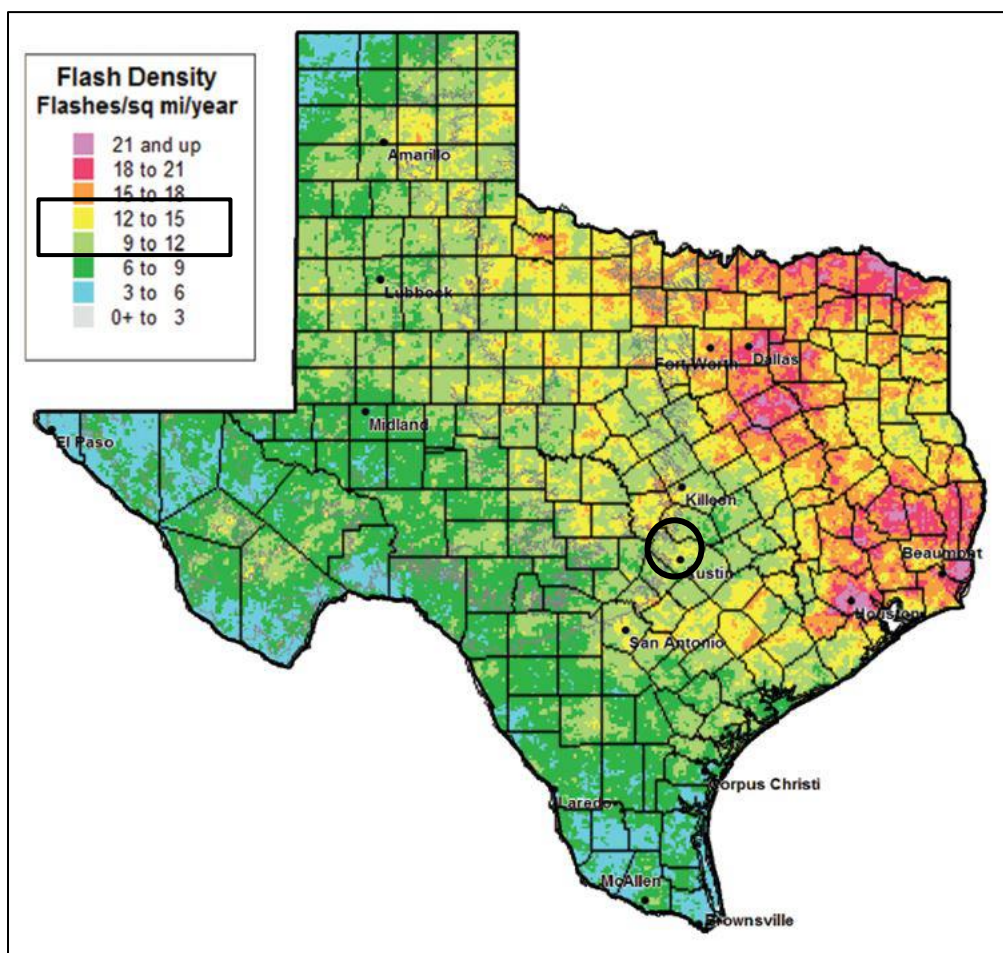
Lightning can strike in any geographic location and is considered a common occurrence in Texas. The Travis County planning area is in a region of the country that is moderately susceptible to lightning strikes. Therefore, lightning could occur at any location within the entire planning area. It is assumed that the entire Travis County planning area, including participating jurisdictions and ESD #6, are uniformly exposed to the threat of lightning.

## EXTENT

According to NOAA, the average number of cloud-to-ground flashes for the State of Texas between 2006 and 2016 was 11.3 flashes per square mile. Vaisala’s U.S. National Lightning Detection Network lightning flash density map (Figure 6-1) shows a range of 9 to 15 cloud-to-ground lightning flashes per square mile per year for the entire Travis County planning area, including participating jurisdictions and ESD #6. This rate equates to approximately 8,910 to 14,850 flashes per year for the entire planning area.



Figure 6-1. Lightning Flash Density, 2006-2016



The extent for lightning can be expressed in terms of the number of strikes in an interval. NOAA utilizes lightning activity levels (LALs) on a scale from 1-6. LAL rankings reflect the frequency of cloud-to-ground lightning either forecast or observed (Table 6-1).

Table 6-1. NOAA Lightning Activity Levels (LAL)

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/15 MIN
1	No thunderstorms.	-
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/15 MIN
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common, and lightning is frequent.	16-25
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy, and lightning is frequent and intense.	>25
6	Similar to LAL 3 except thunderstorms are dry.	9-15

The NCEI does not include the LAL for historical lightning events, therefore in order to determine the extent of lightning strikes, the yearly average range of estimated number of lightning strikes within the planning area (8,910 to 14,850 flashes) and a cloud-to-ground flash density of 9 to 15 per square mile were divided by the number<sup>1</sup> of thunderstorm events that occur annually in the planning area. Travis County should expect an average range of 4 to 7 lightning strikes within 15 minutes at any given time during a lightning or combined lightning and thunderstorm event, indicating lightning strikes have an average LAL range of 1 to 2. The highest anticipated being a 2 on the LAL for the planning area in the future.

## HISTORICAL OCCURRENCES

Since January 1996, there have been 27 recorded events for the Travis County planning area. It is highly likely multiple lightning occurrences have gone unreported before and during the recording period. The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration and considered a reliable resource for hazards. However, the flash density for the planning area along with input from local team members indicates regular lightning occurrences that simply have not been reported.

Historical lightning data for ESD #6 are provided within the county or city events per the NCEI database as they do not have events reported separate and apart from those jurisdictions. According to the Planning Team, there have been no reported losses as a result of lightning events for the district.

**Table 6-2. Historical Lightning Events, 1996-2022<sup>2</sup>**

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	4/5/1996	1	0	\$0	\$0
City of Manor	8/12/1996	0	1	\$0	\$0
Travis County	7/4/1998	0	6	\$0	\$0

<sup>1</sup> Analysis includes the highest number of events recorded in a given year during the reporting period in order to account for typical under reporting of thunderstorm and lightning events.

<sup>2</sup> Values are in 2022 dollars. Database was search for events between 1996 and 2022. No events were reported for the Travis County planning area in the database after February 3, 2022.

## SECTION 6: LIGHTNING

Item 8.

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	8/16/1998	0	2	\$0	\$0
Travis County	7/16/2000	0	1	\$0	\$0
City of Lago Vista	8/8/2002	0	3	\$0	\$0
Travis County	3/18/2008	0	0	\$6,950	\$0
City of Lakeway	4/27/2008	0	0	\$41,448	\$0
Travis County	10/7/2008	0	0	\$685,212	\$0
Travis County	6/3/2009	0	0	\$13,760	\$0
Travis County	6/30/2009	0	0	\$137,602	\$0
Travis County	6/30/2009	0	0	\$206,402	\$0
Travis County	6/9/2010	0	0	\$817,004	\$0
Travis County	4/29/2013	0	3	\$0	\$0
Travis County	7/26/2013	0	0	\$165,172	\$0
Travis County	7/26/2013	0	0	\$63,528	\$0
Travis County	7/26/2013	0	0	\$95,292	\$0
Travis County	8/26/2014	0	3	\$0	\$0
Travis County	5/23/2015	0	0	\$12,481	\$0
Travis County	9/25/2016	1	0	\$0	\$0
Travis County	5/9/2017	0	0	\$181,911	\$0
Travis County	5/28/2017	0	0	\$145,529	\$0
Travis County	7/23/2017	0	0	\$242,492	\$0
Travis County	4/6/2018	0	0	\$11,846	\$0
Travis County	4/6/2018	0	0	\$11,846	\$0
Travis County	7/19/2021	0	0	\$108,716	\$0
Travis County	7/19/2021	0	0	\$108,716	\$0
<b>TOTALS</b>		<b>2</b>	<b>19</b>	<b>\$3,055,907</b>	

**Table 6-3. Historical Lightning Events Summary, 1996-2022<sup>3</sup>**

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGES	CROP DAMAGES
Travis County	24	2	15	\$3,014,459	\$0
Village of Briarcliff	0	-	-	-	-

<sup>3</sup> Participating jurisdictions with no reported events show a “-” in table columns where damages, deaths or injuries would be otherwise reported.

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGES	CROP DAMAGES
City of Creedmoor	0	-	-	-	-
City of Jonestown	0	-	-	-	-
City of Lago Vista	1	0	3	\$0	\$0
City of Lakeway	1	0	0	\$41,488	\$0
City of Manor	1	0	1	\$0	\$0
City of Mustang Ridge	0	-	-	-	-
City of Pflugerville	0	-	-	-	-
Village of Point Venture	0	-	-	-	-
City of Rollingwood	0	-	-	-	-
Village of San Leanna	0	-	-	-	-
City of Sunset Valley	0	-	-	-	-
Village of The Hills	0	-	-	-	-
City of West Lake Hills	0	-	-	-	-
ESD #6	0	-	-	-	-
<b>TOTALS</b>	<b>27</b>	<b>2</b>	<b>19</b>	<b>\$3,055,907</b>	<b>\$0</b>

Based on the list of historical lightning events for the Travis County planning area, including participating jurisdictions and ESD #6, there have been 4 reported events since the 2017 Plan.

### SIGNIFICANT EVENTS

#### May 28, 2017 – Travis County

Thunderstorms developed along a cold front producing severe hail and damaging wind gusts. Within Travis County, a thunderstorm produced lightning that caused a house fire at 1142 Delores Avenue in the City of Austin. Total damages as a result of this event were approximately \$145,529 (2022 dollars).

#### September 25, 2016 – Travis County

An upper-level trough brought a surface frontal system through South Central Texas, producing thunderstorms and severe rainfall. The Travis County Sheriff's Office reported that a woman was struck and killed by lightning in northwestern City of Austin. She was found dead on a hiking trail off of River Place Blvd.

#### August 26, 2014 – Travis County

Thunderstorms moved across the eastern half of South-Central Texas within some of these storms producing strong wind gusts. Within Travis County, three children were struck by lightning

during a soccer practice at the Field of Dreams near Highway 71 and Hamilton Pool Rd. They were all taken to a hospital and treated, one of which was for severe injuries.

### **June 9, 2010 – Travis County**

An upper-level area of low pressure combined with deep boundary layer moisture to produce a slow-moving mesoscale convective system (MCS). This MCS produced excessive rainfall from Atascosa to Comal counties, with heavy rains more than 11+ inches fell. Within Travis County, thunderstorms produced lightning which started a fire causing approximately \$817,004 (2022 dollars) of damage as a result. There were no reported injuries or fatalities within the planning area as a result of the storm event.

## **PROBABILITY OF FUTURE EVENTS**

Based on historical records and input from the planning team the probability of occurrence for future lightning events in the Travis County planning area is considered highly likely, or an event probable in the next year. The planning team stated that lightning occurs regularly in the area. According to NOAA, the Travis County planning area, including participating jurisdictions and ESD #6, are in an area of the country that experiences approximately nine to fifteen lightning flashes per square mile per year (approximately 8,910 to 14,850 flashes per year). Given this estimated probability of events, it can be expected that future lightning events will continue to threaten life and cause minor property damage throughout the planning area. Impacts of climate change are not expected to increase the average frequency of lightning events but may lead to an increase in the intensity of events when they do occur. See additional information on climate change at the end of this section.

## **VULNERABILITY AND IMPACT**

Vulnerability is difficult to evaluate since lightning events can occur at different strength levels, in random locations, and can create a broad range of damage depending on the strike location. Due to the randomness of these events, all existing and future structures and facilities in the Travis County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from lightning strikes.

The direct and indirect losses associated with these events include injury and loss of life, damage to structures and infrastructure, agricultural losses, utility failure (power outages), and stress on community resources. The entire population of the Travis County planning area, including participating jurisdictions and ESD #6, are considered exposed to the lightning hazard. The peak lightning season in the State of Texas is from June to August; however, the most fatalities occur in July. Fatalities occur most often when people are outdoors and/or participating in some form of recreation. Population located outdoors is considered at risk and more vulnerable to a lightning strike compared to being inside a structure (Table 6-5). Moving to a lower risk location will decrease a person's vulnerability.

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



While all citizens are at risk to the impacts of lightning, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 10.7 percent of the planning area population live below the poverty level (Table 6-4).

**Table 6-4. Populations at Greatest Risk by Jurisdiction<sup>4</sup>**

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Travis County	135,654
Village of Briarcliff	66
City of Creedmoor	60
City of Jonestown	229
City of Lago Vista	316
City of Lakeway	554
City of Manor	975
City of Mustang Ridge	85
City of Pflugerville	3,392
Village of Point Venture	47
City of Rollingwood	0
Village of San Leanna	9
City of Sunset Valley	26
Village of The Hills	62
City of West Lake Hills	209
ESD #6	N/A

**Table 6-5. Outdoor Employees by Participating Special District**

ESD	EMPLOYEES WORKING OUTDOORS
ESD #6	108

<sup>4</sup> US Census Bureau, American Community Survey Five-Year Estimates, 2021

The Travis County Planning Team identified the following critical facilities (Table 6-6) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by lightning events. For a comprehensive list by participating jurisdiction see Appendix C.

**Table 6-6. Critical Facilities Vulnerable to Lightning Events**

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	<ul style="list-style-type: none"> <li>• Emergency operations and services may be significantly impacted due to power outages, damaged facilities, fires and/or loss of communications as a result of lightning strikes.</li> <li>• Emergency vehicles, including critical equipment, can be damaged by lightning strikes or by falling trees damaged by lightning.</li> <li>• Power outages could disrupt communications, delaying emergency response times.</li> <li>• Downed trees due to lightning strikes can impede emergency response vehicle access to areas.</li> <li>• Lightning strikes can be associated with structure fires and wildfires, further straining the capacity and resources of emergency personnel.</li> <li>• Extended power outages may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	<ul style="list-style-type: none"> <li>• Structures can be damaged by falling trees damaged by lightning.</li> <li>• Power outages could disrupt critical care.</li> <li>• Backup power sources could be damaged.</li> <li>• Evacuations may be necessary due to extended power outages, fires, or other associated damages to facilities.</li> </ul>
Commercial Supplier (food, fuel, etc.)	<ul style="list-style-type: none"> <li>• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable.</li> <li>• Essential supplies like medicines, water, food, and equipment deliveries may be delayed.</li> <li>• Economic disruption due to power outages and fires negatively impact airport services as well as area businesses reliant on airport operations.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)	<ul style="list-style-type: none"> <li>• Emergency operations and critical services may be significantly impacted due to power outages, damaged facilities, fires and/or loss of communications as a result of lightning strikes.</li> <li>• Emergency vehicles, including critical equipment, can be damaged by lightning strikes or by falling trees damaged by lightning.</li> <li>• Power outages could disrupt communications, delaying emergency response times.</li> </ul>

CRITICAL FACILITIES	POTENTIAL IMPACTS
	<ul style="list-style-type: none"> <li>Downed trees due to lightning strikes can impede emergency response vehicle access to areas.</li> <li>Lightning strikes can be associated with structure fires and wildfires, further straining the capacity and resources of emergency personnel.</li> <li>Extended power outages may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>

Historical losses and damages as a result of lightning events can be considered “Limited” with critical facilities and services shut down for 24 hours or less, and less than 10 percent of property destroyed. However, the historical injuries and fatalities indicate a “Substantial” impact with multiple deaths and injuries. Impact of lightning experienced in the Travis County planning area has resulted in 15 injuries and 2 fatalities. Overall, the average loss estimate for the planning area (in 2022 dollars) is considered \$3,055,907 with an average annualized loss of \$113,182 (Table 6-7).

**Table 6-7. Potential Annualized Losses by Jurisdiction<sup>5</sup>**

JURISDICTION	TOTAL PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
Travis County	\$3,014,459	\$111,647
Village of Briarcliff	-	-
City of Creedmoor	-	-
City of Jonestown	-	-
City of Lago Vista	\$0	\$0
City of Lakeway	\$41,448	\$1,535
City of Manor	\$0	\$0
City of Mustang Ridge	-	-
City of Pflugerville	-	-
Village of Point Venture	-	-
City of Rollingwood	-	-
Village of San Leanna	-	-
City of Sunset Valley	-	-

<sup>5</sup> Damage values are in 2022 dollars. Participating jurisdictions with no reported events show a “-” in table columns where damages would be otherwise reported.

JURISDICTION	TOTAL PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
Village of The Hills	-	-
City of West Lake Hills	-	-
ESD #6	-	-
<b>PLANNING AREA</b>	<b>\$3,055,907</b>	<b>\$113,182</b>

## ASSESSMENT OF IMPACTS

Lightning events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. Additional impacts to the planning area can include:

- The Travis County planning area features park space developed parks and green spaces. Lightning events could impact recreational activities, placing residents and visitors in imminent danger, potentially requiring emergency services or park evacuation.
- Older structures built to less stringent building codes may suffer greater damage from a lightning strike as they are typically built with less fire-resistant materials and often lack any fire mitigation measures such as sprinkler systems. 27 percent of homes in the county were built before 1980. Similarly, historic buildings may lack fire mitigation materials or measures due to their historic status. One site in the Travis County planning area, the City of Pflugerville East Main Street Historic District, is listed on the National Register of Historic Places.
- Vegetation in urban parks, the Balcones Canyonlands Preserve or the National Wildlife Refuge may be destroyed by lightning caused brush fires and result in poor air quality impacting public health.
- Individuals exposed to the storm can be directly struck, posing significant health risks and potential death.
- Structures can be damaged or crushed by falling trees damaged by lightning, which can result in physical harm to the occupants.
- Lightning strikes can result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Lightning strikes can be associated with structure fires and wildfires, creating additional risk to residents and first responders.
- Emergency operations and services may be significantly impacted due to power outages and/or loss of communications.
- County, city, and village departments may be damaged, delaying response and recovery efforts for the entire community.
- Economic disruption due to power outages and fires negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by lightning events may be negatively impacted while utilities are being restored, further slowing economic recovery.

- Businesses that are more reliant on utility infrastructure than others may suffer greater damage without a backup power source.

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

### CLIMATE CHANGE CONSIDERATIONS

As CO<sub>2</sub> increases and the land surface warms, stronger updrafts are more likely to produce lightning. In a climate with double the amount of CO<sub>2</sub>, we may see fewer lightning storms overall, but 25 percent stronger storms, with a 5 percent increase in lightning. Lightning damage is also likely to increase because of its role in igniting forest fires, where dry vegetation, also caused by rising temperatures, creates more ‘fuel’ for fires, so even a small climate change may have huge consequences. While the impact climate change will have on our weather still remains uncertain, researchers agree that implementing simple measures like lightning detection systems and installing grounding systems in buildings could go a long way in avoiding deaths and injuries.<sup>6</sup>

Lightning events have the potential to pose a significant risk to people and property throughout the planning area. The economic and financial impacts of lightning on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. While no increase in the number of hazard events is anticipated, the impact of the hazard may see an increase in losses. As populations grow and urban development continues to rise, the overall vulnerability and impact are expected to increase in the next five years.

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<sup>6</sup> Environmental Journal, Nathan Neal, January 11, 2021.





# SECTION 7 DROUGHT

Hazard Description .....	1
Location .....	1
Extent .....	3
Historical Occurrences .....	4
Significant Events .....	7
Probability of Future Events .....	8
Vulnerability and Impact .....	8
Assessment of Impacts .....	11
Climate Change Considerations .....	13

## HAZARD DESCRIPTION

Drought is a period of time without substantial rainfall that persists from one year to the next. Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of anticipated natural precipitation reduction over an extended period of time, usually a season or more in length. Droughts can be classified as meteorological, hydrologic, agricultural, and socioeconomic. Table 7-1 presents definitions for these different types of droughts.

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

**Table 7-1. Drought Classification Definitions<sup>1</sup>**

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

## LOCATION

Droughts occur regularly throughout Texas and the Travis County planning area, including participating jurisdictions and ESD #6, and are considered a normal condition. However, they can vary greatly in their intensity and duration. The U.S. Drought Monitor, produced through a

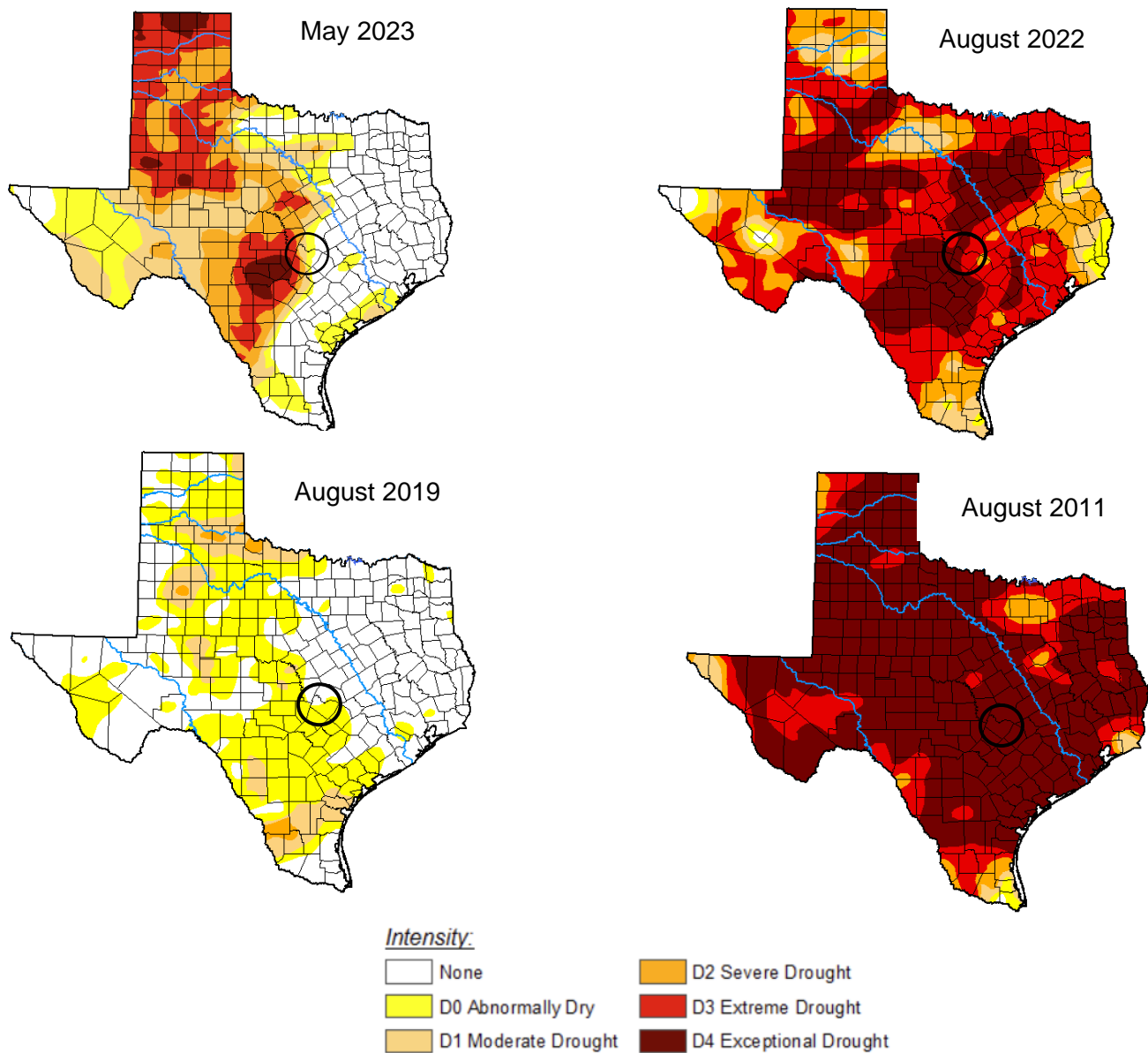
<sup>1</sup> Source: Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA

## SECTION 7: DROUGHT

Item 8.

partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, U.S. Department of Agriculture and the National Oceanic and Atmospheric Administration, shows the planning area is currently experiencing abnormally dry to moderate drought conditions but has experienced a range of conditions from none to extreme drought conditions over the last decade. There is no distinct geographic boundary to drought; therefore, it can occur throughout the Travis County planning area equally.

**Figure 7-1. U.S. Drought Monitor, August 2011, August 2019, August 2022, May 2023**



## EXTENT

The U.S. Drought Monitor (USDM) identifies areas in drought and labels them by intensity. The map uses four categories of drought, from D1—the least intense—to D4, the most (Table 7-2). It also highlights areas with no drought and uses the D0 category to indicate abnormally dry areas that could be entering or recovering from drought.<sup>2</sup> Travis County has experienced a range of drought conditions from D0 to D4 (Figure 7-1) over the 27-year reporting period. The driest period during that time saw Exceptional Drought (D4) conditions from March 2011 through February 2012 for the Travis County planning area.

**Table 7-2. US Drought Monitor: Drought Intensity Categories**

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

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

Based on the historical occurrences for drought and the location of the Travis County planning area, including participating jurisdictions and ESD #6, the area can anticipate a range of drought from abnormally dry to exceptional, or D0 to D4, based on the U.S. Drought Monitor drought categories. The entire planning area has experienced exceptional drought conditions. These are the most extreme drought conditions the planning area can anticipate in the future.

<sup>2</sup> Source: US Drought Monitor: <https://droughtmonitor.unl.edu/About/AbouttheData/DroughtClassification.aspx>

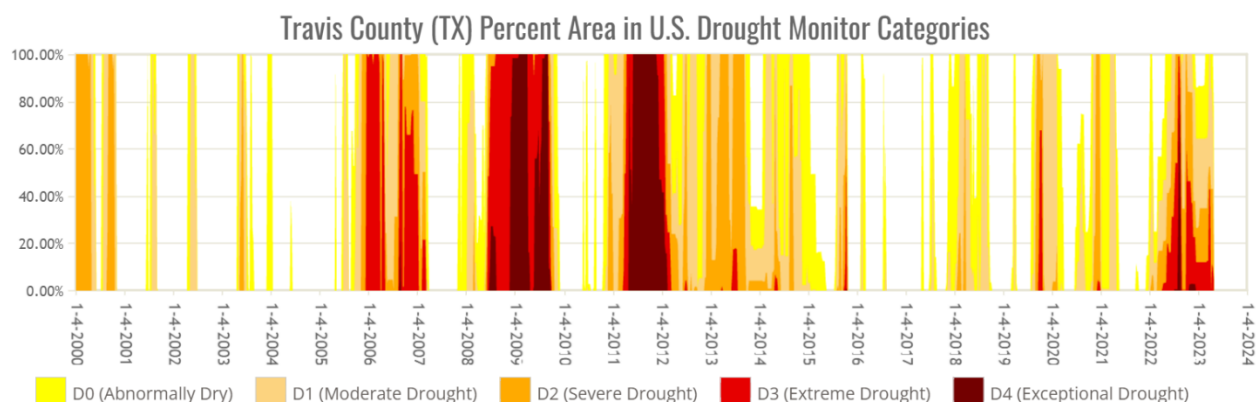


Travis County and the participating jurisdictions monitor drought conditions and follow and distribute the conservation methods as identified by local and private water supply providers specific to each municipality during periods of higher-than-normal temperatures and lower-than-normal rainfall. There are multiple water utility providers within the planning area; additional information from water utility providers can be found on their respective websites.

## HISTORICAL OCCURRENCES

The Travis County planning area may experience an extreme drought in any given year. According to the U.S. Drought Monitor, between January 2000 and December 2022, the Travis County planning area spent 599 weeks (50 percent) in some level of drought as defined as Abnormally Dry (D0) or worse conditions. Travis County has received 28 USDA disaster declarations for drought from 2012 through 2022.

**Figure 7-2. Travis County Drought Intensity, January 2000-December 2022<sup>3</sup>**



Historical drought information shows drought activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical drought data is provided on a county-wide basis per the National Centers for Environmental Information Storm Events Database (NCEI).

Table 7-5 lists historical events that have occurred in Travis County as reported in the NCEI Storm Events database. A total of 39 historical drought conditions were reported in the NCEI, with 8 unique drought periods impacting Travis County between 1996 and 2022. Historical drought events reported in the NCEI database for the Travis County planning area, including all participating jurisdictions and ESD #6, over the 27-year reporting period has resulted in negligible property and crop damages.

**Table 7-5. Historical Drought Years, 1996-2022<sup>4</sup>**

DROUGHT YEAR
1996

<sup>3</sup> U.S. Drought Monitor

<sup>4</sup> Historical data is reported from January 1996 through December 2022.



DROUGHT YEAR
2000
2011
2012 <sup>5</sup>
2013
2014
2019
2022
8 unique events

Table 7-6. Historical Drought Events, 1996-2022

JURISDICTION	DATE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Travis County	4/1/1996	0	0	\$0	\$0
Travis County	5/1/1996	0	0	\$0	\$0
Travis County	6/1/1996	0	0	\$0	\$0
Travis County	7/1/1996	0	0	\$0	\$0
Travis County	8/1/1996	0	0	\$0	\$0
Travis County	7/1/2000	0	0	\$0	\$0
Travis County	8/1/2000	0	0	\$0	\$0
Travis County	9/1/2000	0	0	\$0	\$0
Travis County	10/1/2000	0	0	\$0	\$0
Travis County	5/1/2011	0	0	\$0	\$0
Travis County	6/1/2011	0	0	\$0	\$0
Travis County	7/1/2011	0	0	\$0	\$0
Travis County	8/1/2011	0	0	\$0	\$0
Travis County	9/1/2011	0	0	\$0	\$0
Travis County	10/1/2011	0	0	\$0	\$0

<sup>5</sup> Two separate drought periods were reported in 2012.

## SECTION 7: DROUGHT

Item 8.

JURISDICTION	DATE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Travis County	11/1/2011	0	0	\$0	\$0
Travis County	12/1/2011	0	0	\$0	\$0
Travis County	1/1/2012	0	0	\$0	\$0
Travis County	2/1/2012	0	0	\$0	\$0
Travis County	6/1/2012	0	0	\$0	\$0
Travis County	12/1/2012	0	0	\$0	\$0
Travis County	2/1/2013	0	0	\$0	\$0
Travis County	3/1/2013	0	0	\$0	\$0
Travis County	4/1/2013	0	0	\$0	\$0
Travis County	6/1/2013	0	0	\$0	\$0
Travis County	7/1/2013	0	0	\$0	\$0
Travis County	8/1/2013	0	0	\$0	\$0
Travis County	8/1/2014	0	0	\$0	\$0
Travis County	9/1/2019	0	0	\$0	\$0
Travis County	10/1/2019	0	0	\$0	\$0
Travis County	11/1/2019	0	0	\$0	\$0
Travis County	11/1/2020	0	0	\$0	\$0
Travis County	12/1/2020	0	0	\$0	\$0
Travis County	1/1/2021	0	0	\$0	\$0
Travis County	6/1/2022	0	0	\$0	\$0
Travis County	7/1/2022	0	0	\$0	\$0
Travis County	8/1/2022	0	0	\$0	\$0
Travis County	9/1/2022	0	0	\$0	\$0
Travis County	10/1/2022	0	0	\$0	\$0
<b>TOTALS</b>		<b>0</b>	<b>0</b>	<b>\$0</b>	<b>\$0</b>

**Table 7-7. Historical Drought Events Summary, 1996-2022**

JURISDICTION	DROUGHT PERIODS	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Travis County	8	0	0	\$0	\$0

Based on the historical drought events for the Travis County planning area, including participating jurisdictions and ESD #6, 11 drought events were reported during 2 unique drought periods since the 2017 Plan.

## SIGNIFICANT EVENTS

### June 2022 – November 2022

Across South Central Texas, June 2022 was another month with below normal precipitation and worsening drought conditions, putting Travis County into Severe Drought (D2) conditions. Public water systems encouraged at least voluntary water restrictions, and many had mandatory restrictions in effect. The Edwards Aquifer dropped 1.9 feet and was 28.3 feet below normal. Lake Travis dropped 2.5 feet to 31.0 feet below normal. Outdoor burn bans went into effect. Drought conditions continued into July with below normal precipitation across nearly all of South Central Texas. Travis County moved from Severe (D2) to Extreme (D3) drought conditions, Water restrictions and outdoor burn bans continued. Several heavy rain episodes during August led to above normal precipitation across South Central Texas. The result was an improvement on the drought in all but two counties. Travis County improved from Extreme (D3) category to less than D2. After beneficial rain in August, dry weather returned in September. Conditions in Travis County worsened to D2. Outdoor burn bans went into effect and all public water systems encouraged at least voluntary water restrictions and many had mandatory restrictions in effect. The Edwards Aquifer dropped 1.3 feet and was 27.2 feet below normal. Area reservoirs continued to fall further below normal conservation pool levels. Lake Travis dropped 3.5 feet to 34.5 feet below normal.

### September 2019 – November 2019

South Central Texas received less than 50 percent of normal precipitation from July through November. Putting Travis County into Severe Drought (D2) and then Extreme Drought (D3) conditions. Burn bans were in effect for all of the counties in South Central Texas including Travis County. Public Water Systems in Travis County were in Voluntary or Stage 1 water restrictions. Texas A&M AgriLife reported rangelands were dry with very short soil moisture levels. Livestock were in fair condition and supplemental feeding continued.

### August 2014

August was a mainly dry month for South Central Texas. Most of the region had below normal precipitation and much of that area had 50 percent or less than normal. Travis County moved into the severe category drought, Stage D2. Fire danger was moderate to high across the area at the end of August. Area lakes and reservoirs continued well below normal pool elevations. Lake Travis dropped more than 3 feet to 57.4 feet below normal.

### May 2011-February 2012

Persistent drought conditions continued across portions of South Central Texas through the month of May. Most of the area was in exceptional drought conditions, Stage D4. Lack of rain this month moved Bandera, Bexar, Blanco, Caldwell, Comal, Frio, Gillespie, Gonzales, Guadalupe, Hays, Kendall, Medina, Travis, and Williamson counties into this stage, and De Witt and Karnes

counties into extreme drought conditions, Stage D3. This means all of South Central Texas was in either extreme or exceptional drought conditions. Fire danger in South Central Texas remained moderate to high and burn bans were in effect for all of the counties except Llano. The Texas A&M agricultural program report indicated the agricultural situation was rapidly deteriorating. Forage availability remained below average. Many stock tanks remained extremely low and some were in danger of drying up. At the end of the month the seven-day stream flow average remained in the below or much-below-normal range for basins across South Central Texas and the Rio Grande Plains. Area lakes and reservoirs remained below normal pool elevations, with Lake Travis around 32 feet below normal.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, there have been 8 extended time periods of drought (ranging in length from approximately 30 days to over 90 days) within a 27-year reporting period, which provides a probability of one to two events every year. This frequency supports a “Likely” probability of future events for the Travis County planning area, including all participating jurisdictions and ESD #6. The impact of climate change could produce longer, more severe droughts, exacerbating the current drought impacts. See additional information on climate change at the end of this section.

VULNERABILITY AND IMPACT

Loss estimates were based on 27 years of statistical data from the NCEI. A drought event frequency-impact was then developed to determine an impact profile on agriculture products and estimate potential losses due to drought in the area. All existing and future buildings, facilities, and populations are exposed to this hazard and could potentially be impacted. However, drought impacts are mostly experienced in water shortages, breaks in water lines, or crop and livestock losses on agricultural lands and typically have minimal impact on buildings.

The Travis County Planning Team identified the following critical facilities (Table 7-8) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by drought events. For a comprehensive list by participating jurisdiction see Appendix C.

Table 7-8. Critical Facilities Vulnerable to Drought Events

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS) Hospitals and Medical Centers	<ul style="list-style-type: none"><li>Increased law enforcement activities may be required to enforce water restrictions.</li><li>Firefighters may have limited water resources to aid in firefighting and suppression activities, increasing risk to lives and property.</li><li>Potential for increased number of emergency calls as drought events can lead to cascading hazard events such as wildfires and flash flooding.</li></ul>

CRITICAL FACILITIES	POTENTIAL IMPACTS
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/Assisted Living Facilities	<ul style="list-style-type: none"> <li>Strain on staff as drought may cause health problems related to low water flows and poor water quality.</li> <li>Water main breaks due to soil shrinking and swelling cycles could lead to facility closures.</li> <li>Building foundations may crack due to soil shrinking and swelling cycles.</li> <li>Operations dependent on water supply may be adversely impacted.</li> <li>Economic disruptions due to cracked foundations and infrastructure damages as a result of soil shrinking and swelling cycles.</li> </ul>
Commercial Suppliers (food, gas, etc.)	<ul style="list-style-type: none"> <li>Operations dependent on water supply may be adversely impacted.</li> <li>Economic disruptions due to cracked foundations and infrastructure damages as a result of soil shrinking and swelling cycles.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)	<ul style="list-style-type: none"> <li>Potential for increased number of emergency calls as drought events can lead to cascading hazard events such as wildfires and flash flooding.</li> <li>Water main breaks due to soil shrinking and swelling cycles could lead to facility closures.</li> <li>Operations dependent on water supply may be adversely impacted.</li> </ul>

Even with the planning area relying on multiple water utility providers, local and private service, high demand can still deplete these resources during extreme drought conditions. As resources are depleted, potable water is in short supply and overall water quality can suffer, elevating health concerns for all residents but especially vulnerable populations – typically children, the elderly, and the ill. In addition, potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities.

The average person will survive only a few days without potable water, and this timeframe can be drastically shortened for those people with more fragile health – typically children, the elderly, and the ill. The population over 65 in the Travis County planning area is estimated at 10 percent of the total population and children under the age of 5 are estimated at 6 percent, or an estimated total of 202,434 potentially vulnerable residents in the planning area based on age. During summer drought or hot and dry conditions, elderly persons, small children, infants, and the chronically ill who do not have adequate cooling units in their homes may become more vulnerable to injury and/or death. In addition, an estimated 10.7 percent of the planning area population live below the poverty level (Table 7-9) which may contribute to overall health impacts.

**Table 7-9. Populations at Greater Risk by Participating Entity**

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Travis County	126,480	75,954	135,654
Village of Briarcliff	277	173	66



JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
City of Jonestown	525	39	229
City of Lago Vista	2477	275	316
City of Lakeway	4154	686	554
City of Manor	345	1821	975
City of Mustang Ridge	105	123	85
City of Pflugerville	6009	4718	3392
Village of Point Venture	279	40	47
City of Rollingwood	238	42	0
City of Sunset Valley	169	28	26
Village of The Hills	857	109	62
City of West Lake Hills	799	68	209
City of Creedmoor	95	0	60
Village of San Leanna	132	28	9
ESD #6	N/A	N/A	N/A

The population is also vulnerable to food shortages when drought conditions exist, and potable water is in short supply. Potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities. All residents in the Travis County planning area could be adversely affected by drought conditions, which could limit water supplies and present health threats.

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

Crop production can also suffer greatly during extreme drought conditions, limiting fresh local food supplies, driving up costs, and negatively impacting the local economy. Drought conditions could adversely affect the agricultural industry throughout the Travis County planning area, including participating jurisdictions and ESD #6.

Habitat damage is a vulnerability of the environment during periods of drought for both aquatic and terrestrial species. The Travis County Park system includes 9,666 acres of land and 26 public

parks<sup>6</sup>. The Balcones Canyonlands Preserve is one of the nation's largest urban preserves, covering more than 35,000 acres. The Preserve provides habitat for several migratory birds, 7 federally endangered species, one recently delisted species, and 27 species of concern.

Park systems and natural habitats are assets to the planning area and susceptible to extreme or prolonged drought due to changing climatic conditions, particularly when the Travis County planning area is expected to become hotter, drier, and windier in the future. Severe erosion, land degradation, and tree canopy loss may exacerbate the effects of drought. Extended periods of extreme drought have high potential to adversely affect endangered species and their habitat in central Texas.

Impacts of past droughts experienced in the Travis County planning area, including participating jurisdictions and ESD #6, have not resulted injuries or fatalities supporting a "Limited" severity of impact meaning injuries and/or illnesses are treatable with first aid, shutdown of facilities and services for less than 24 hours, and less than 10 percent of property is destroyed or with major damage. The annualized estimated losses due to drought over the 27-year reporting period in the Travis County planning area are considered negligible. Table 7-10 shows annualized exposure.

**Table 7-10. Estimated Annualized Losses for Travis County**

JURISDICTION	TOTAL PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Travis County	\$0	\$0

## ASSESSMENT OF IMPACTS

The Drought Impact Reporter was developed in 2005 by the University of Nebraska-Lincoln to provide a national database of drought impacts. Droughts can have an impact on agriculture, business and industry; energy; fire; plants and wildlife; relief, response, and restrictions; society and public health; tourism and recreation; and water supply and quality. The reports are submitted from individuals to federal, state, and local agencies, as well as the general public. Table 7-11 lists the drought impacts to Travis County from 2005 to 2022 based on reports received by the Drought Impact Reporter.

**Table 7-11. Drought Impacts, 2005-2022**

DROUGHT IMPACTS 2005-2021	
Agriculture	102
Business & Industry	10
Energy	3
Fire	52
Plants & Wildlife	76
Relief, Response & Restrictions	79

<sup>6</sup> Travis County Parks Master Plan, August 9, 2016.

DROUGHT IMPACTS 2005-2021	
Society & Public Health	21
Tourism & Recreation	19
Water Supply & Quality	91

Drought has the potential to impact people in the Travis County planning area, including participating jurisdictions and ESD #6. While it is rare that drought, in and of itself, leads to a direct risk to the health and safety of people in the U.S., severe water shortages could result in inadequate supply for human needs. With consideration for future growth, Travis County is expected to have a 64 percent growth percentage by 2050 which can cause concern for the current water infrastructure and demand for the planning area. Severe drought conditions can be frequently associated with a variety of impacts, including:

- Dry clay soil can lead to water main lines shifting and breaking. Often repair to water lines includes shutting off water to multiple homes at one time.
- The number of health-related low-flow issues (e.g., diminished sewage flows, increased pollution concentrations, reduced firefighting capacity, and cross-connection contamination) will increase as the drought intensifies.
- Public safety from forest/range/wildfires will increase as water availability and/or pressure decreases.
- Respiratory ailments may increase as the air quality decreases.
- There may be an increase in disease due to wildlife concentrations (e.g., rabies, Rocky Mountain spotted fever, Lyme disease, Chronic Wasting Disease).
- Residents may disagree with the County and participating Cities and Villages over water use/water rights, creating conflict.
- Political conflicts may increase between municipalities, counties, states, and regions.
- Water management conflicts may arise between competing interests.
- Increased law enforcement activities may be required to enforce water restrictions.
- Severe water shortages could result in inadequate supply for human needs as well as lower quality of water for consumption.
- Firefighters may have limited water resources to aid in firefighting and suppression activities, increasing risk to lives and property.
- During drought there is an increased risk for wildfires, dust storms, and flash flooding.
- The community may need increased operational costs to enforce water restriction or rationing.
- Prolonged drought can lead to increases in illness and disease related to drought.
- Utility providers can see decreases in revenue as water supplies diminish.
- Utilities providers may cut back energy generation and service to their customers to prioritize critical service needs.
- Hydroelectric power generation facilities and infrastructure would have significantly diminished generation capability. Dams simply cannot produce as much electricity from low water levels as they can from high water levels.

- Fish and wildlife food and habitat will be reduced or degraded over time during a drought and disease will increase, especially for aquatic life.
- Wildlife will move to more sustainable locations creating higher concentrations of wildlife in smaller areas, increasing vulnerability, and further depleting limited natural resources.
- There are twenty-two federally endangered, threatened or candidate species in Travis County. Severe and prolonged drought can result in the reduction of a species or cause the extinction of a species altogether.
- Plant life will suffer from long-term drought. Wind and erosion will also pose a threat to plant life as soil quality will decline. The urban tree canopy, including county and city parks, as well as the natural habitats within the planning area are vulnerable to the impacts of prolonged drought and climate change may lead to altering habitat types and vegetative shifts.
- Dry and dead vegetation will increase the risk of wildfire.
- Drought poses a significant risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Drought-related declines in production may lead to an increase in unemployment.
- Drought may limit livestock grazing resulting in decreased livestock weight, potential increased livestock mortality, and increased cost for feed.
- Negatively impacted water suppliers may face increased costs resulting from the transport water or develop supplemental water resources.
- Long term drought may negatively impact future economic development.

The overall extent of damage caused by periods of drought is dependent on its extent and duration. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a drought event. The water service providers in the Travis County planning area, including all participating jurisdictions and ESD #6, will implement a drought contingency plan/protocol based on their area during time of drought.

## CLIMATE CHANGE CONSIDERATIONS

With the range of factors influencing drought conditions, it is impossible to make quantitative statewide projections of drought trends; however, many factors point toward increased drought severity. Drought will continue to be driven largely by precipitation variability over multiple decades, with long-term precipitation trends expected to be relatively small. Other factors affecting drought impacts, such as increased temperatures and improved plant water use efficiency, decrease water availability but will cause drought impact trends to be highly sector-specific, with the impacts possibly smaller for agriculture than for surface water supply.<sup>7</sup>

The Travis County planning area can anticipate an increased likelihood of droughts in the future due to an estimated increase in the number of dry days in the Travis County area. In addition, it is projected that future changes to Travis County and the participating jurisdictions and ESD #6

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<sup>7</sup> Cleaveland, M. K., T. H. Votteler, D. K. Stahle, R. C. Casteel, and J. L. Banner, 2011: Extended Chronology of Drought in South Central, Southeastern and West Texas. Texas Water Journal, 2, 54-96, as cited in as cited in Assessment of

## SECTION 7: DROUGHT

Item 8.

will include increased temperatures, longer multi-day heatwaves and greater variability in precipitation, with an expected decrease in precipitation in the summer and increase in the fall.<sup>8</sup>

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<sup>8</sup> University of Texas at Austin, February 2023, Austin Future Climate, Climate Change Predictions for the City of Austin 2022, Technical Report.





# SECTION 8

# EXTREME HEAT

Hazard Description .....	1
Location .....	1
Extent .....	1
Historical Occurrences .....	4
Significant Events .....	5
Probability of Future Events .....	6
Vulnerability and Impact .....	6
Assessment of Impacts .....	9
Climate Change Considerations .....	10

## HAZARD DESCRIPTION

Extreme heat is a prolonged period of excessively high temperatures and exceptionally humid conditions. Extreme heat during the summer months is a common occurrence throughout the State of Texas, and the Travis County planning area, including participating jurisdictions and ESD #6, is no exception. The county typically experiences extended heat waves or an extended period of extreme heat and is often accompanied by high humidity.



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

## LOCATION

Extreme heat events can occur throughout the Travis County planning area as there is no specific geographic scope to the extreme heat hazard. Extreme heat could occur anywhere within the Travis County planning area, including all participating jurisdictions and ESD #6.

## EXTENT

The magnitude or intensity of an extreme heat event is measured according to temperature in relation to the percentage of humidity. According to the National Oceanic Atmospheric Administration (NOAA), this relationship is referred to as the “Heat Index” and is depicted in Figure 8-1. This index measures how hot it feels outside when humidity is combined with high temperatures.

**Figure 8-1. Extent Scale for Extreme Summer Heat<sup>1</sup>**

Temperatures (°F)		Temperatures (°F)		Temperatures (°F)		Temperatures (°F)	
40	80 - 88: CAUTION	40	90 - 96: EXTREME CAUTION	40	98 - 106: DANGER	40	108 - 110: EXTREME DANGER
45	80 - 88: CAUTION	45	90 - 94: EXTREME CAUTION	45	96 - 104: DANGER	45	106 - 110: EXTREME DANGER
50	80 - 86: CAUTION	50	88 - 94: EXTREME CAUTION	50	96 - 102: DANGER	50	104 - 110: EXTREME DANGER
55	80 - 86: CAUTION	55	88 - 92: EXTREME CAUTION	55	94 - 100: DANGER	55	102 - 110: EXTREME DANGER
60	80 - 84: CAUTION	60	86 - 90: EXTREME CAUTION	60	92 - 98: DANGER	60	100 - 110: EXTREME DANGER
65	80 - 84: CAUTION	65	86 - 90: EXTREME CAUTION	65	92 - 96: DANGER	65	98 - 110: EXTREME DANGER
70	80 - 84: CAUTION	70	86 - 88: EXTREME CAUTION	70	90 - 94: DANGER	70	96 - 110: EXTREME DANGER
75	80 - 82: CAUTION	75	84 - 88: EXTREME CAUTION	75	90 - 94: DANGER	75	96 - 110: EXTREME DANGER
80	80 - 82: CAUTION	80	84 - 86: EXTREME CAUTION	80	88 - 92: DANGER	80	94 - 110: EXTREME DANGER
85	80 - 82: CAUTION	85	84 - 86: EXTREME CAUTION	85	88 - 90: DANGER	85	92 - 110: EXTREME DANGER
90	80: CAUTION	90	82 - 84: EXTREME CAUTION	90	86 - 90: DANGER	90	92 - 110: EXTREME DANGER
95	80: CAUTION	95	82 - 84: EXTREME CAUTION	95	86 - 88: DANGER	95	90 - 110: EXTREME DANGER
100	80: CAUTION	100	82 - 84: EXTREME CAUTION	100	86 - 88: DANGER	100	90 - 110: EXTREME DANGER

**Likelihood of Heat Disorders with  
Prolonged Exposure or Strenuous Activity**

The Extent Scale in Figure 8-1 displays varying categories of caution depending on the relative humidity combined with the temperature. For example, when the temperature is between 80 and 90 degrees Fahrenheit (°F), caution should be exercised if the humidity level is at or above 40 percent.

The shaded zones on the chart indicate varying symptoms or disorders that could occur depending on the magnitude or intensity of the event. “Caution” is the first category of intensity, and it indicates when fatigue due to heat exposure is possible. “Extreme Caution” indicates that sunstroke, muscle cramps, or heat exhaustion are possible, and a “Danger” level means that these symptoms are likely. “Extreme Danger” indicates that heat stroke is likely. The National Weather Service (NWS) initiates alerts based on the Heat Index as shown in Table 8-1.

**Table 8-1. Heat Index and Warnings**

CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
Extreme Danger	125°F and higher	Heat stroke or sun stroke likely.	An Excessive Heat Warning is issued if the Heat Index rises above 105°F at least 3 hours during the day or above 80°F at night.
Danger	103 – 124°F	Sunstroke, muscle cramps, and/or heat exhaustion are likely. Heatstroke possible with prolonged exposure and/or physical activity.	

<sup>1</sup> Source: NOAA

CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
Extreme Caution	90 – 103°F	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.	A heat advisory will be issued to warn that the Heat Index may exceed 105°F.
Caution	80 – 90°F	Fatigue is possible with prolonged exposure and/or physical activity.	

Hotter than average conditions can compromise the body's ability to regulate temperature and can result in a cascade of illnesses, including heat cramps, heat exhaustion, heatstroke, and hyperthermia. Deaths and hospitalizations from heat can occur extremely quickly (same day) or have a lagged effect (several days later) and result in increases in deaths or illness in vulnerable populations that may already be frail, particularly in the first days of a heatwave. Even small differences from seasonal average temperatures are associated with increased illness and death. Extreme temperatures can also worsen chronic conditions, including cardiovascular, respiratory, and cerebrovascular disease and diabetes-related conditions.<sup>2</sup>

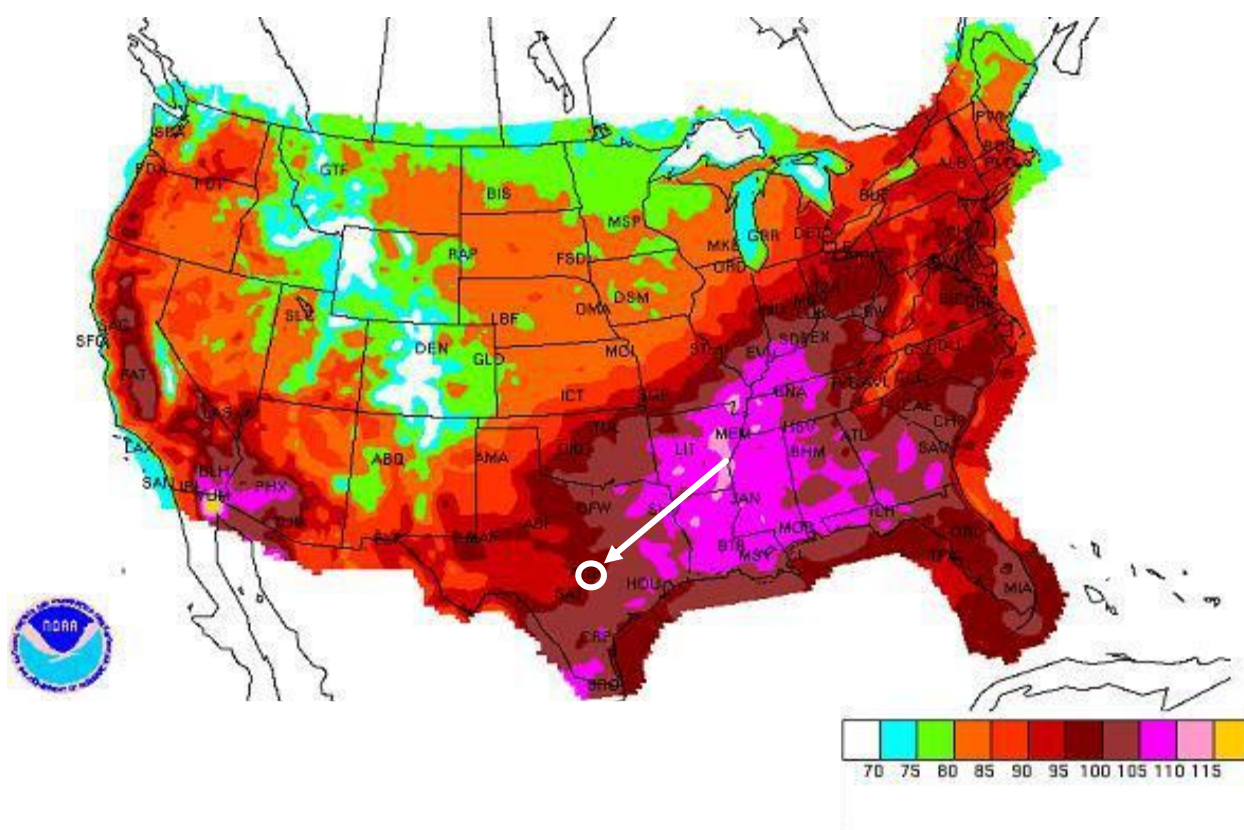
The Austin/Travis County Health and Human Services follows the National Weather Service heat advisory protocol. A heat advisory is issued within the county when the heat index reaches above 105°F for more than three hours per day and at least two consecutive days.

Travis County's geographic features are relatively diverse. The northern and western portions are characterized by the hilly and rugged topography of the Edwards Plateau and the Balcones Escarpment. The remainder of the county is characterized by the gently rolling hills and plains of the Blackland Prairies to the east and the Gulf Coast Plains to the south. Due to its geography and its warm, sunny, and humid subtropical climate, the Travis County planning area, including all participating jurisdictions and ESD #6, can expect an extreme heat event each summer. Citizens, especially children and the elderly, should exercise caution by staying out of the heat for prolonged periods when a heat advisory or excessive heat warning is issued. In addition, those working or remaining outdoors for extended periods of time are at greater risk.

Figure 8-2 displays the daily maximum heat index as derived from NOAA based on data compiled from 1838 to 2015. The white circle shows the Travis County planning area. The planning area is represented in brown in the eastern portion of the county and dark red in the central and western portions of the county. The brown and dark red colors indicate an average daily heat index of 90°F to 105°F. Therefore, Travis County and the participating jurisdictions and ESD #6 could experience dangerous heat from 90°F to 105°F, and should mitigate to the extent of "Danger," which can include sunstroke, muscle cramps, heat exhaustion and potential heat stroke. This is the highest temperature (extreme caution category) the planning area can anticipate based on historical events.

<sup>2</sup> World Health Organization, Health and Health, site: <https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health>



**Figure 8-2. Average Daily Maximum Heat Index Days<sup>3</sup>**

## HISTORICAL OCCURRENCES

Previous occurrences for extreme heat are derived from the NCEI database, which identifies extreme heat events at the county level for each event. According to heat-related incidents located solely within Travis County, there have been 27 extreme heat events on record for the planning area, which includes participating jurisdictions and ESD #6 (Table 8-2). Historical extreme heat information, as provided by the NCEI, shows extreme heat activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event.

Historical extreme heat data for the Travis County planning area are provided on a county-wide basis per the NCEI database from 1996 through 2022, though no extreme heat events were reported in the database after 2020. Only extreme heat events that have been reported have been factored into this Risk Assessment. It is highly likely additional extreme heat occurrences have gone unreported before and during the recording period. Due to the limited number of reported events, average high temperatures have been analyzed in order to determine the probability of future events.

<sup>3</sup> NRDC and the white circle indicates the Travis County planning area.



**Table 8-2. Historical Extreme Heat Events, 1996-2022<sup>4</sup>**

JURISDICTION	DATE	DEATH	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	8/14/1999	1	0	\$0	\$0
Travis County	8/16/1999	1	0	\$0	\$0
Travis County	7/29/1999	1	0	\$0	\$0
Travis County	7/23/2000	1	0	\$0	\$0
Travis County	7/23/2000	1	0	\$0	\$0
Travis County	7/4/2000	1	0	\$0	\$0
Travis County	7/5/2000	1	0	\$0	\$0
Travis County	7/18/2000	1	0	\$0	\$0
Travis County	7/15/2009	0	0	\$0	\$0
Travis County	5/25/2011	0	0	\$0	\$0
Travis County	8/9/2011	1	0	\$0	\$0
Travis County	7/22/2015	0	0	\$0	\$0
Travis County	8/6/2015	0	0	\$0	\$0
Travis County	7/19/2018	0	0	\$0	\$0
Travis County	7/13/2020	0	0	\$0	\$0
<b>TOTALS</b>		<b>9</b>	<b>0</b>	<b>\$0</b>	<b>\$0</b>

**Table 8-3. Historical Extreme Heat Events Summary, 1996-2022**

JURISDICTION	NUMBER OF EVENTS	DEATH	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	15	9	0	\$0	\$0

Based on the list of historical extreme heat events for the Travis County planning area, two events were reported to the NCEI since the 2017 Plan.

## SIGNIFICANT EVENTS

### July 19-23, 2018

Strong high pressure settled over South Central Texas and temperatures soared to record levels. The heat wave started on the 19th in Travis County with high temperatures reaching 105°F and higher. The hot temperatures spread across the region reaching their greatest extent on the 23rd. During this time Austin Bergstrom International Airport had record highs each day from the 20th

<sup>4</sup> NOAA, NCEI Storm Events Database

through the 23rd, Austin Camp Mabry 21-23, and San Antonio 22-23. Both Austin sites set the all-time record high for the month on the 23rd, Bergstrom 109°F and Camp Mabry 110°F. The extreme heat broke on the 24th when highs dropped down closer to 100°F.

### **July 7, 2000**

A 26-year-old man died of heat stroke Tuesday morning after working outdoors at a construction site on Monday afternoon. He had been working outside in a surveying crew and was taken to a hospital Monday evening with a 108°F temperature.

### **July 23, 2000**

A 2-year-old boy died of heat stroke. He had a temperature of 108°F when he reached the hospital. He was left on the floor of a sunroom and his mother had fallen asleep. A 72-year-old woman also died of heat stroke. Although air conditioning was available in her home, she had not turned it on.

### **August 14-16, 1999**

A 76-year-old woman, apparently not wanting to increase her energy bill, did not use the air conditioner in her apartment. She was found dead on the 16th and was believed to have died on the 14th. Two days later a 77-year-old man was found dead in his home due to heat exhaustion. His health had been further weakened by a heart condition.

## **PROBABILITY OF FUTURE EVENTS**

According to historical records the Travis County planning area has experienced 15 events in a 27-year reporting period. However, it can be assumed that events have gone unreported due to the average daily temperatures throughout the summer, providing a frequency of occurrence of approximately one event every year. This frequency supports a highly likely probability of future events. See additional information on the impacts of climate change at the end of this section.

## **VULNERABILITY AND IMPACT**

There is no defined geographic boundary for extreme heat events. While the entirety of the Travis County planning area, including participating jurisdictions and ESD #6, is exposed to extreme temperatures, existing buildings, infrastructure, and critical facilities are not likely to sustain significant damage from extreme heat events. Therefore, any estimated property losses associated with the extreme heat hazard are anticipated to be minimal across the area.

Every summer, the hazard of heat-related illness becomes a significant public health issue throughout much of the United States. Mortality from all causes increases during heat waves, and excessive heat is an important contributing factor to deaths from other causes, particularly among the elderly. Extreme temperatures present a significant threat to life and safety for the population of the county as a whole. Heat casualties, for example, are typically caused by a lack of adequate air-conditioning or heat exhaustion. The most vulnerable population to heat casualties are the elderly or infirmed who frequently live on fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being. Children may also be more vulnerable if left unattended in vehicles. Populations living below the poverty level are often unable to run air-conditioning on a regular basis and are limited in their ability to seek medical treatment. Another segment of the population

## SECTION 8: EXTREME HEAT

Item 8.

at risk are those whose jobs consist of strenuous labor outdoors. According to the Planning Team, 80 percent of ESD #6 employees work outdoors for a portion of their workday (Table 8-5).

The population over 65 in the Travis County planning area is estimated at 10 percent of the total population and children under the age of 5 are estimated at 6 percent, or an estimated total of 202,434 potentially vulnerable residents in the planning area based on age. In addition, an estimated 10.7 percent of the planning area population live below the poverty level (Table 8-4). Underprivileged populations disproportionately impacted by extreme heat events as they are less likely to be able to afford air conditioning during the hot summer months as well as less likely to have access to medical care.

**Table 8-4. Populations at Greater Risk by Participating Jurisdiction**

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Travis County	126,480	75,954	135,654
Village of Briarcliff	277	173	66
City of Jonestown	525	39	229
City of Lago Vista	2477	275	316
City of Lakeway	4154	686	554
City of Manor	345	1821	975
City of Mustang Ridge	105	123	85
City of Pflugerville	6009	4718	3392
Village of Point Venture	279	40	47
City of Rollingwood	238	42	0
City of Sunset Valley	169	28	26
Village of The Hills	857	109	62
City of West Lake Hills	799	68	209
City of Creedmoor	95	0	60
Village of San Leanna	132	28	9
ESD #6	N/A	N/A	N/A

**Table 8-5. Outdoor Employees by Participating Special District**

ESD	EMPLOYEES WORKING OUTDOORS
ESD #6	108

## SECTION 8: EXTREME HEAT

Extremely high temperatures can have significant secondary impacts, leading to droughts, water shortages, increased fire danger, and prompt excessive demands for energy. The possibility of rolling blackouts increases with unseasonably high temperatures in what is a normally mild month with low power demands. Typically, more than 12 hours of warning time would be given before the onset of an extreme heat event.

In terms of vulnerability to structures, the impact from extreme heat would be negligible. It is possible that critical facilities and infrastructure could be shut down for 24 hours if cooling units are running constantly, leading to a temporary power outage. Less than 10 percent of residential and commercial property could be damaged if extreme heat events lead to structure fires. Based on historical records over a 27-year period, annualized property and crop losses for the Travis County planning area are negligible. However, the number of historical injuries and fatalities indicates a substantial impact for future events.

The Travis County Planning Team identified the following critical facilities (Table 8-6) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by extreme heat events. For a comprehensive list by participating jurisdiction see Appendix C.

**Table 8-6. Critical Facilities Vulnerable to Extreme Heat Events**

CRITICAL FACILITY TYPES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	<ul style="list-style-type: none"> <li>Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications.</li> <li>Exposure to heat can cause heat illnesses in first responders, especially for those in heavy equipment.</li> <li>Roads may become impassable due to excessive heat causing asphalt roads to soften and concrete roads to shift or buckle impacting response times by emergency services.</li> <li>Extended power outages due to increased usage may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	<ul style="list-style-type: none"> <li>Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable.</li> <li>Power outages due to increased usage could disrupt critical care.</li> <li>Backup power sources could be damaged.</li> <li>Evacuations may be necessary due to extended power outages, breaks in water main lines or other associated damage to facilities.</li> <li>Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable.</li> <li>Economic disruption due to power outages negatively impact airport services as well as area businesses reliant on airport operations.</li> </ul>

CRITICAL FACILITY TYPES	POTENTIAL IMPACTS
Commercial Supplier (food, fuel, etc.)	<ul style="list-style-type: none"> <li>Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable.</li> <li>Essential supplies like medicines, water, food, and equipment deliveries may be delayed.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)	<ul style="list-style-type: none"> <li>Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications.</li> <li>Roads may become impassable due to by excessive heat causing asphalt roads to soften and concrete roads to shift or buckle impacting response times by emergency services.</li> <li>Breaks in water main lines or other associated damage to facilities.</li> </ul>

## ASSESSMENT OF IMPACTS

The greatest risk from extreme heat is to public health and safety. Extreme heat conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly (10 percent of total population) and children under 5 (6 percent of total population), can face serious or life-threatening health problems from exposure to extreme heat including hyperthermia, heat cramps, heat exhaustion, and heat stroke (or sunstroke).
- Response personnel, including utility workers, public works personnel, and any other professions where individuals are required to work outside, are more subject to extreme heat related illnesses since their exposure would typically be greater.
- High energy demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts which would elevate the risk of illness to vulnerable residents.
- Highways and roads may be damaged by excessive heat causing asphalt roads to soften and concrete roads to shift or buckle.
- Vehicle engines and cooling systems typically run harder during extreme heat events resulting in increases in mechanical failures.
- Extreme heat events during times of drought can exacerbate the environmental impacts associated with drought, decreasing water and air quality and further degrading wildlife habitat.
- Extreme heat increases ground-level ozone (smog), increasing the risk of respiratory illnesses.
- Negatively impacted water suppliers may face increased costs resulting from the transport of water resources or development of supplemental water resources.
- Tourism and recreational activities at places such as the county's twenty-five parks may be negatively impacted during extreme heat events, reducing seasonal revenue derived from outdoor activities.
- Extreme heat can degrade wildlife habitat and stress wildlife impacting their ability to successfully breed.
- Outdoor activities may see an increase in school injury or illness during extreme heat events.



The economic and financial impacts of extreme heat on the community will depend on the duration of the event, demand for energy, drought associated with extreme heat, and many other factors. The level of preparedness and the amount of planning done by the jurisdiction, local businesses, and citizens will impact the overall economic and financial conditions before, during, and after an extreme heat event.

### CLIMATE CHANGE CONSIDERATIONS

Climate change is expected to lead to an increase in average temperatures as well as an increase in frequency, duration, and intensity of extreme heat events. With no reductions in emissions worldwide, the state of Texas is projected to experience an additional 30 to 60 days per year above 100°F than what is experienced now.<sup>5</sup>

Key findings of the University of Texas at Austin technical report for the City of Austin indicate that overall temperatures are rising, with summer highs expected to exceed 110°F more frequently. The heat index is also projected to increase for the City of Austin by 2 to 10°F. Heatwaves are expected to become more frequent and last longer, potentially reaching 80 days per year by the end of the century.<sup>6</sup>

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<sup>5</sup> Gammon-Nielsen, John, Holman, Sara, Buley, Austin and Jorgensen, Savannah. Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, 2021 Update. Texas A&M University Office of the Texas State Climatologist. October 7, 2021. [https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021 Update](https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021%20Update).

<sup>6</sup> University of Texas at Austin, February 2023, Austin Future Climate, Climate Change Predictions for the City of Austin 2022, Technical Report.



# SECTION 9 FLOOD

Hazard Description .....	1
Location .....	2
Extent .....	19
Historical Occurrences .....	22
Significant Events .....	26
Probability of Future Events .....	28
Vulnerability and Impact .....	28
Assessment of Impacts .....	33
Climate Change Considerations .....	34
National Flood Insurance Program (NFIP) Participation .....	35
NFIP Compliance and Maintenance .....	37
Repetitive Loss .....	38

## HAZARD DESCRIPTION

Flooding occurs most commonly from excessive precipitation when natural watercourses lack the capacity to convey excess water. The severity of a flood event is determined by a combination of several major factors, including stream and river basin topography and physiography, precipitation and weather patterns, recent soil moisture conditions, and the degree of vegetative clearing and impervious surfaces. Various climatic and non-climatic processes can result in different types of floods primarily including riverine floods, flash floods, and coastal floods. Due to Travis County’s inland location, coastal flooding is excluded from further discussion.

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



1981 Memorial Day Flood

Flash flooding is a specific type of flooding that occurs in a short time frame after a precipitation event, generally less than six hours.<sup>1</sup> It often is caused by heavy or excessive rainfall and happens in areas near rivers or lakes, but it also can happen in places with no water bodies nearby. Flash floods happen in rural and urban areas. When more rainfall lands in an area than the ground can

<sup>1</sup> Scientific Americana, Janey Camp, August 2022, *What is a Flash Flood?*

## SECTION 9: FLOOD

absorb, or it falls in areas with a lot of impervious surfaces like concrete and asphalt that prevent the ground from absorbing the precipitation, the water has few places to go and can rise very quickly. If an area has had recent rainfall, the soil may be saturated to capacity and unable to absorb any more water. Flooding can also occur after a drought, when soil is too dry and hardened to absorb the precipitation. Since water runs downhill, rainfall will seek the lowest point in a potential pathway. In urban areas, that's often streets, parking lots and basements in low-lying zones. In rural areas with steep terrain, flash flooding can turn creeks and rivers into raging torrents. Flash flooding events can wash away cars and move buildings off of foundations. The Travis County planning area is located in the heart of Flash Flood Alley. About 75% of flood-related deaths in Texas occur in vehicles, typically due to flash flooding.<sup>2</sup>



Travis County and the planning area, including all participating jurisdictions and ESD #6, are subject to extreme rainfall events, often in short durations, leading to dangerous flash flooding events. Floods are a natural and recurrent event and take place every year, in all seasons.

### LOCATION

The Flood Insurance Rate Maps (FIRMs) prepared by FEMA provide an overview of flood risk but can also be used to identify the areas of the county that are vulnerable to flooding. FIRMs are used to regulate new development and to control the substantial improvement and repair of substantially damaged buildings. Flood Insurance Studies (FIS) are often developed in conjunction with FIRMs. The FIS typically contains a narrative of the flood history of a community and discusses the engineering methods used to develop the FIRMs. The FIS also contains flood profiles for studied flooding sources and can be used to determine Base Flood Elevations (BFEs) for some areas.

The revised FIS for Travis County is dated January 22, 2020. This FIS is composed of eleven volumes and compiles all previous flood information including data collected on numerous waterways. The current FIS indicates that the principal flood problems are along the Colorado River below the City of Austin, along the Llano River and along the Pedernales River. Since the completion of the Lake Travis reservoir in 1940, there have been no flood events on the Colorado River comparable in magnitude to the floods of record that occurred in 1869 and 1935. In 1991, near record flooding on the Colorado River below the City of Austin preceded four days of rain upstream of Lake Travis, on the upper Colorado, Llano, and Pedernales Rivers. This event resulted in the highest recorded elevation to Lake Travis on Christmas Day in 1991. Additional record floods were recorded in November 2002, November 2004, October 2013, May 2015, and October 2015.<sup>3</sup>

<sup>2</sup> Source: <https://www.austintexas.gov/department/flood-safety>

<sup>3</sup> Flood Insurance Study (FIS) Travis County, Texas and Incorporated Areas, January 22, 2020, page 54.

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

- Zone A: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance requirements and floodplain management standards apply.
- Zone AE: Areas subject to inundation by 1-percent-annual-chance shallow flooding. It is the base floodplain where BFEs are provided. AE zones are now used on new format FIRMs instead of A1-30 zones.
- Zone AO: Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone.
- Zone X: Moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones.

Locations of flood zones in Travis County based on the Digital Flood Insurance Rate Map (DFIRM) from FEMA are illustrated in Figures 9-1 to 9-16.





Figure 9-2. Estimated Flood Zones – Village of Briarcliff

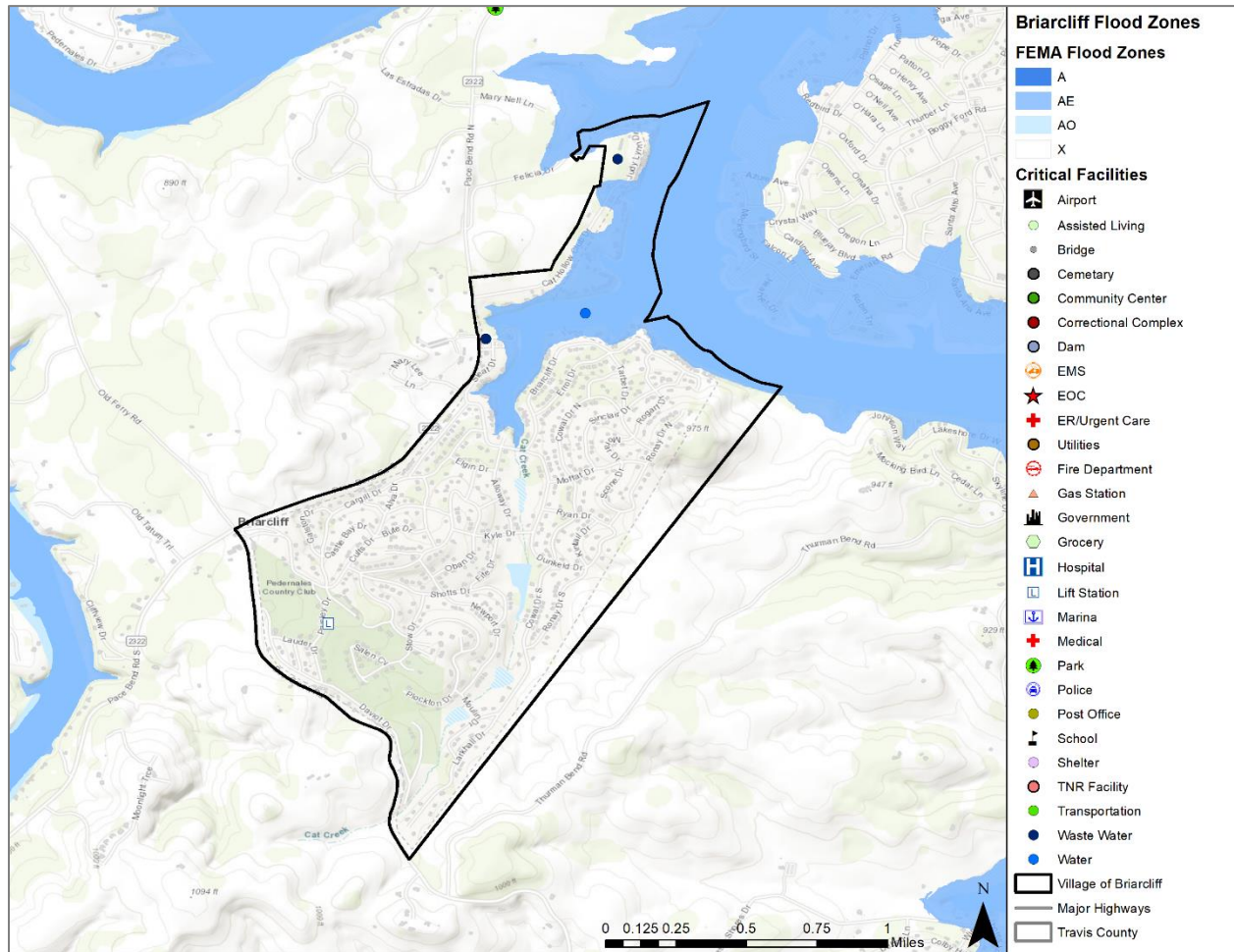




Figure 9-3. Estimated Flood Zones – City of Creedmoor

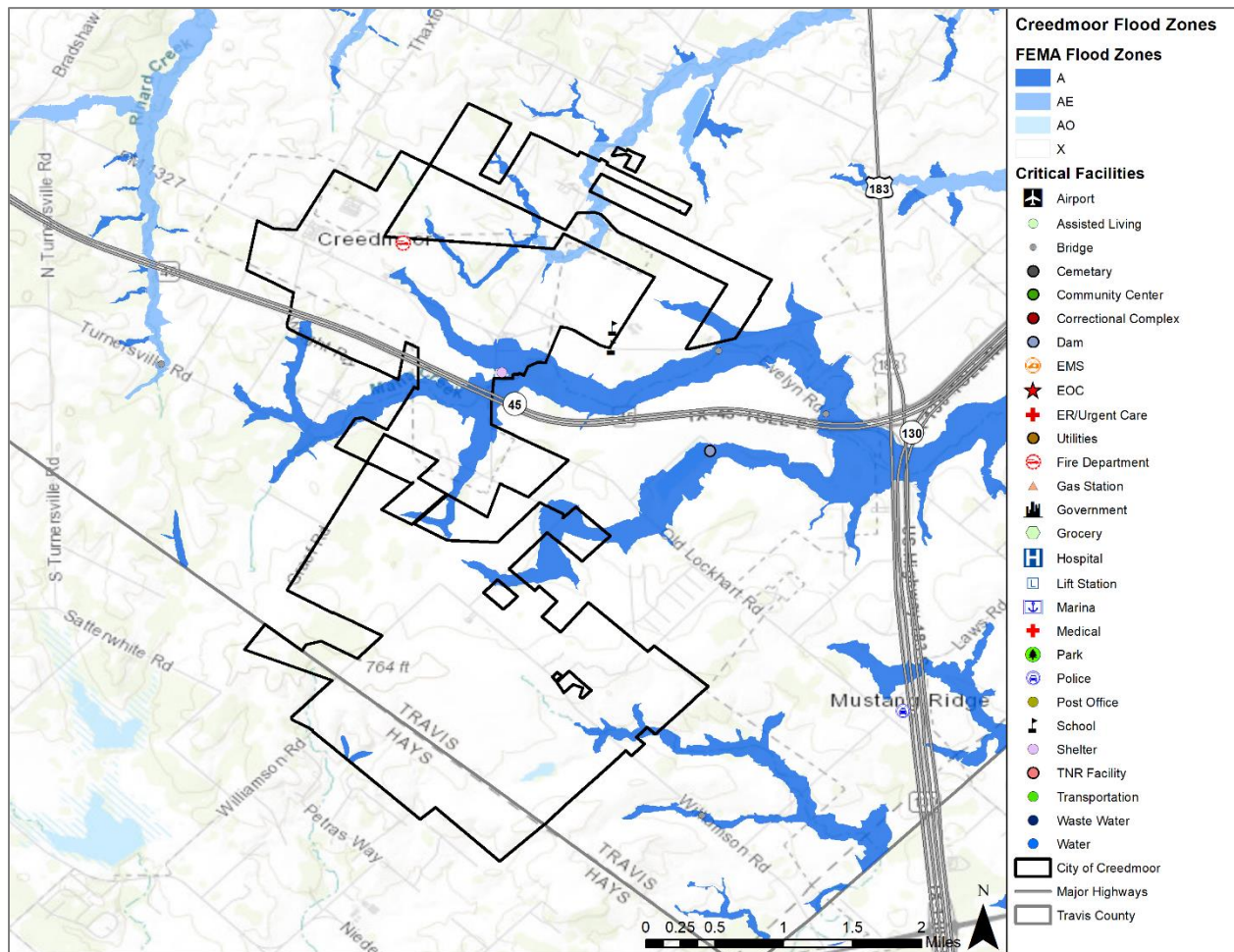


Figure 9-4. Estimated Flood Zones – City of Jonestown

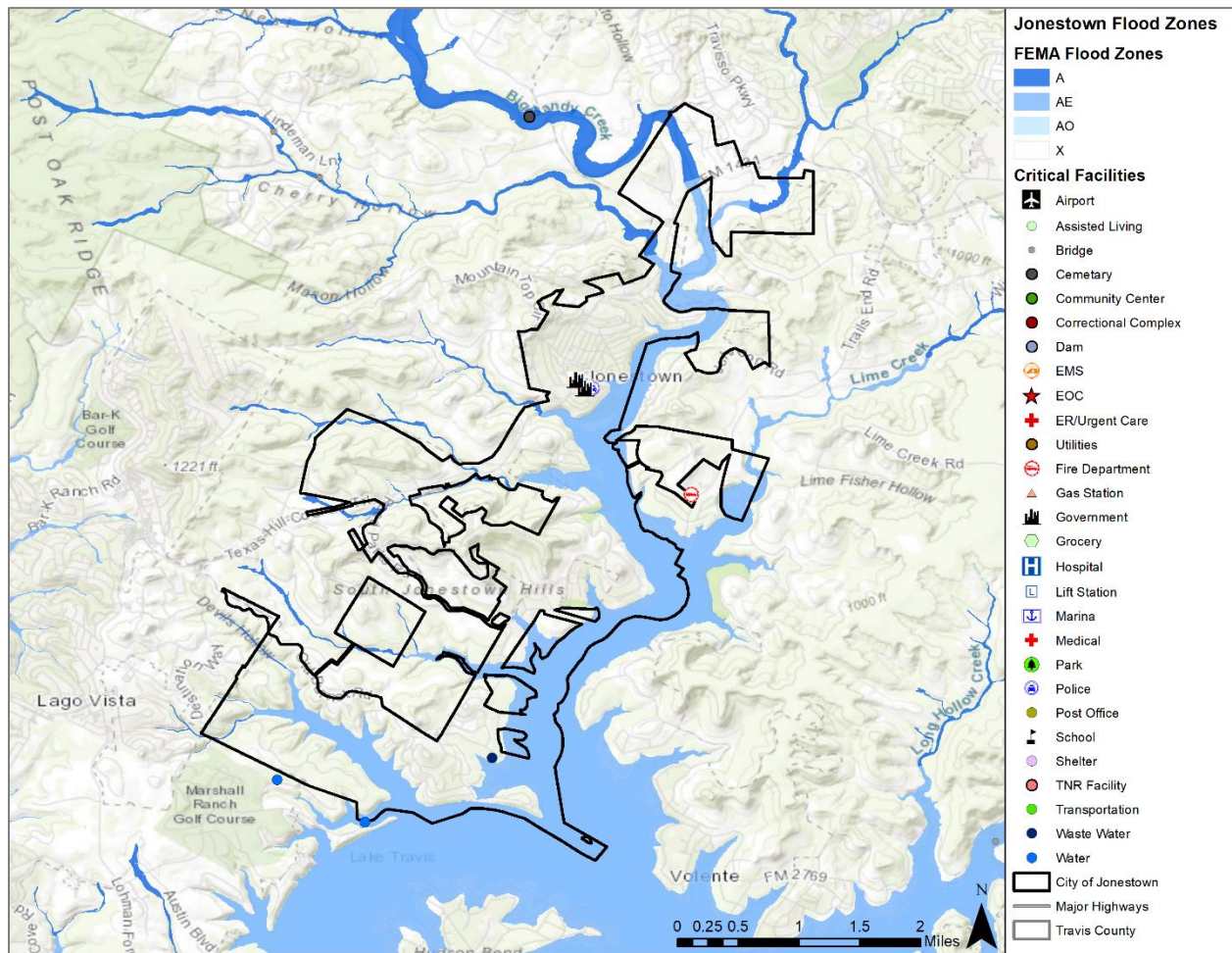




Figure 9-5. Estimated Flood Zones – City of Lago Vista

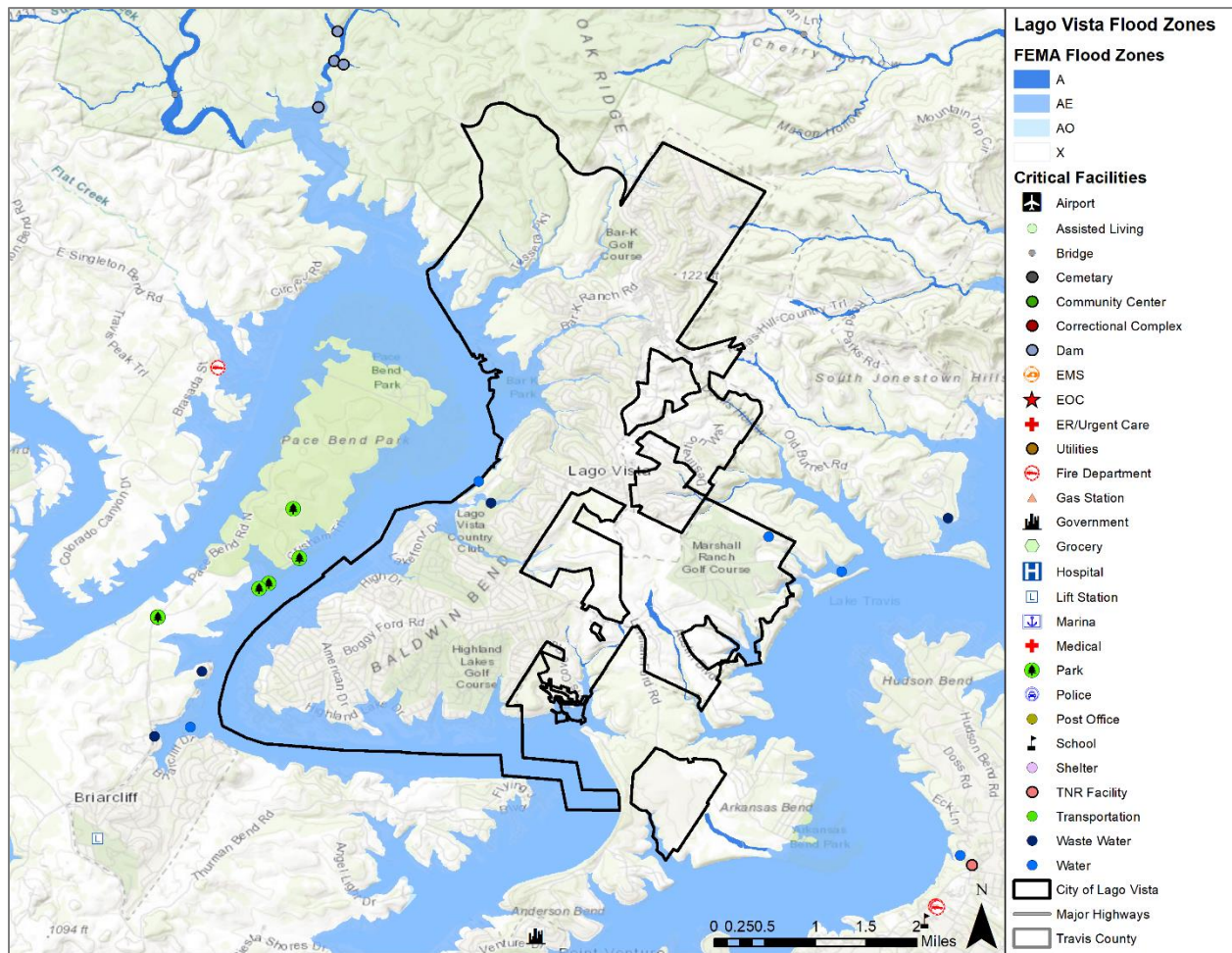




Figure 9-6. Estimated Flood Zones – City of Lakeway

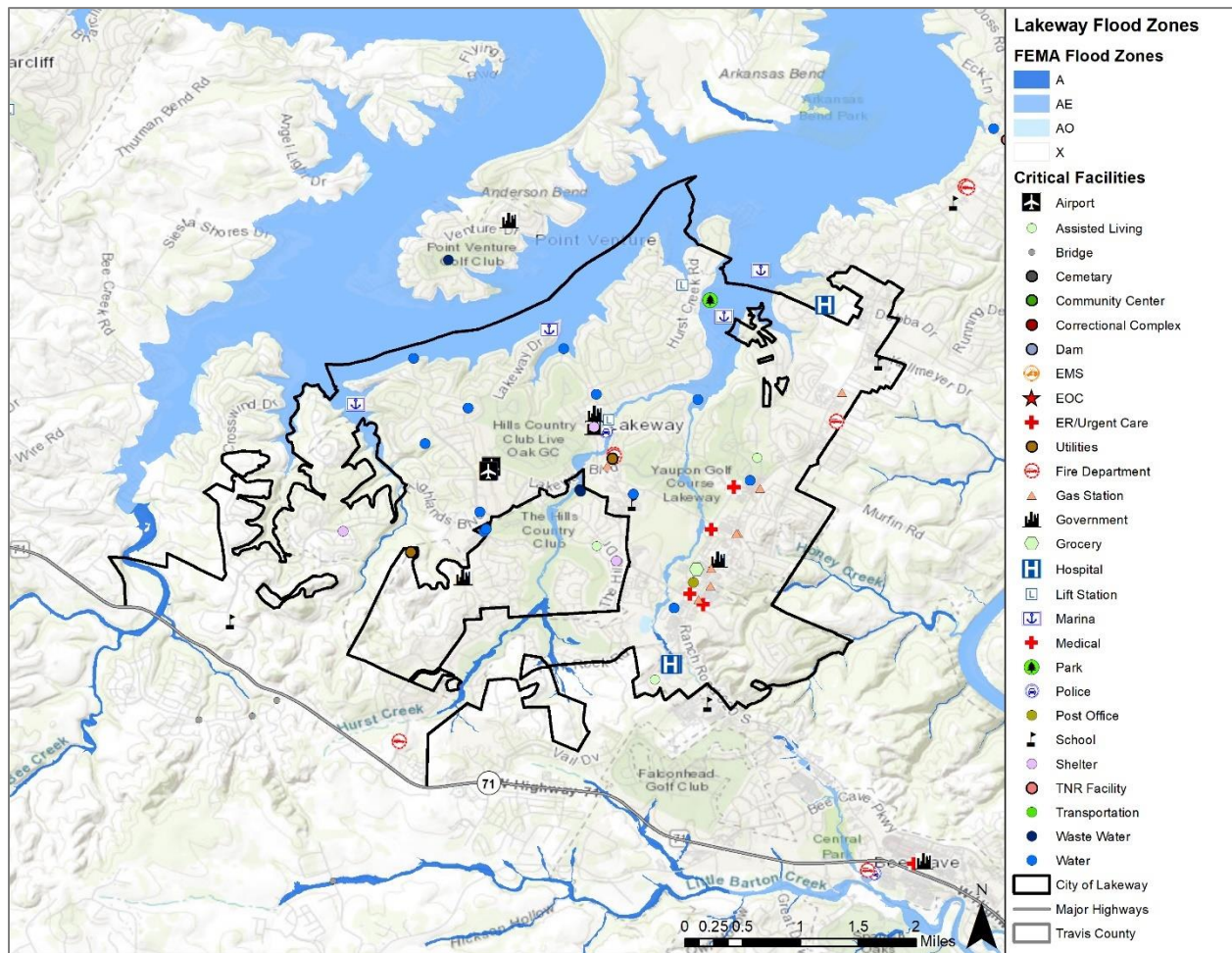


Figure 9-7. Estimated Flood Zones – City of Manor

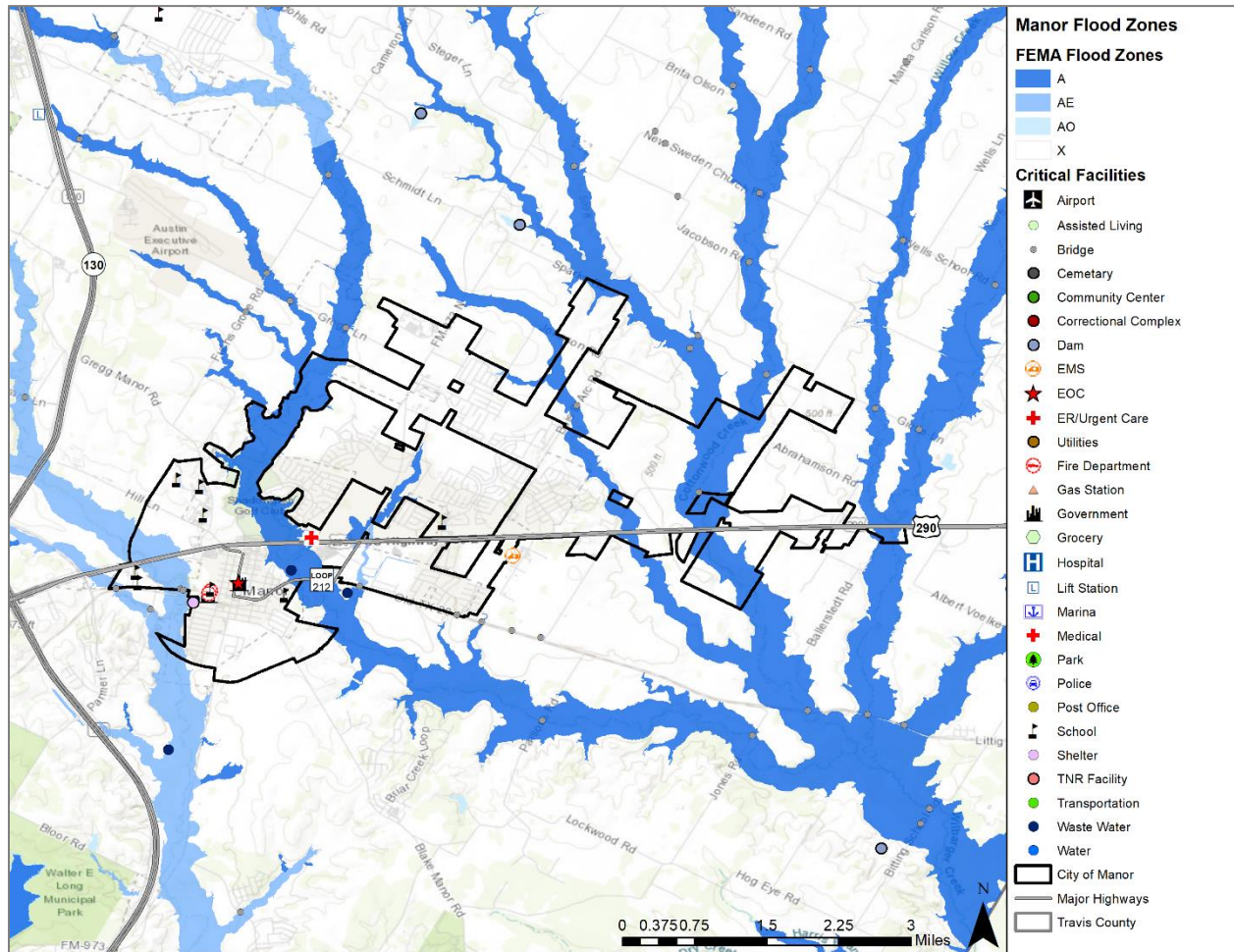




Figure 9-8. Estimated Flood Zones – City of Mustang Ridge

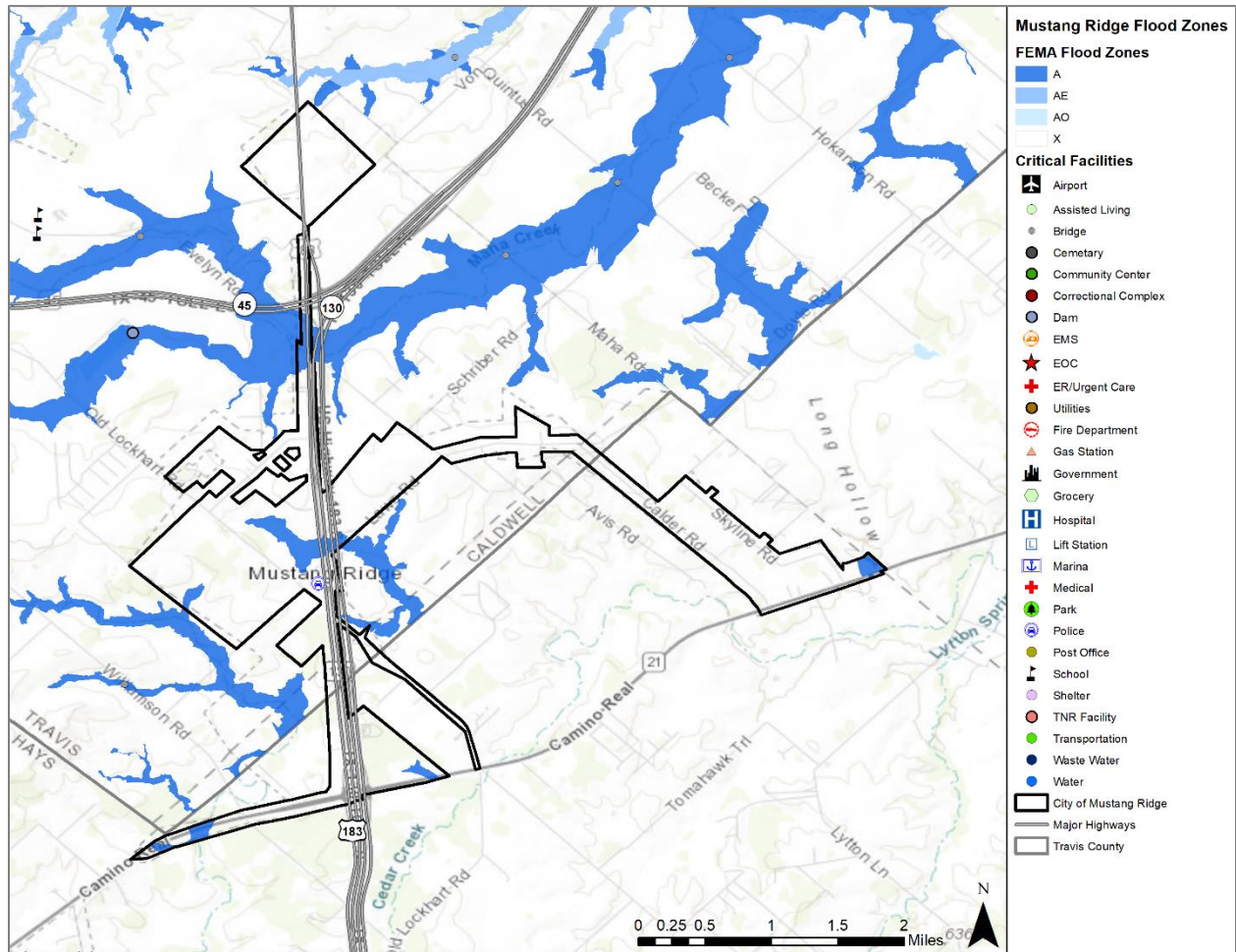


Figure 9-9. Estimated Flood Zones – City of Pflugerville

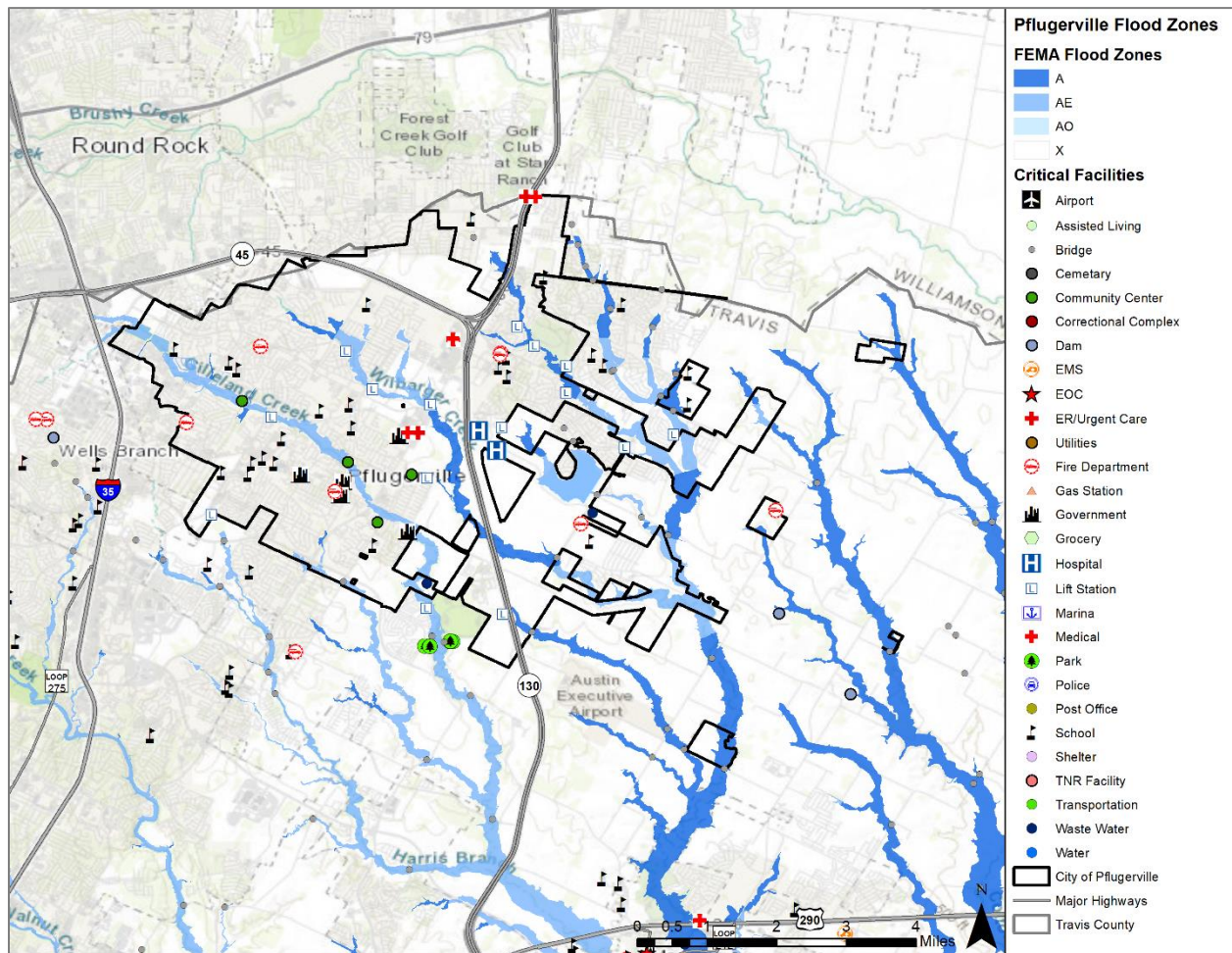


Figure 9-10. Estimated Flood Zones – Village of Point Venture

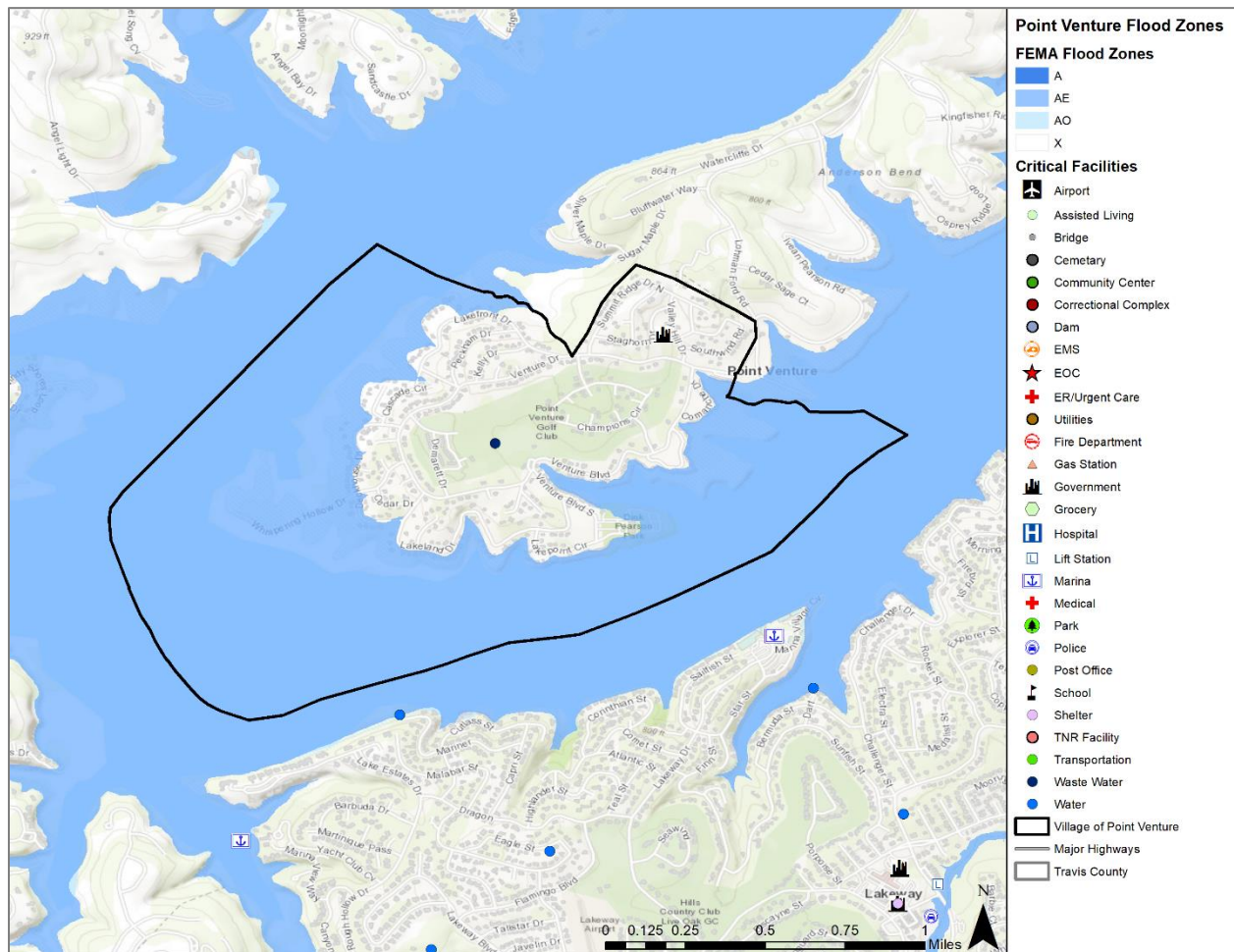




Figure 9-11. Estimated Flood Zones – City of Rollingwood

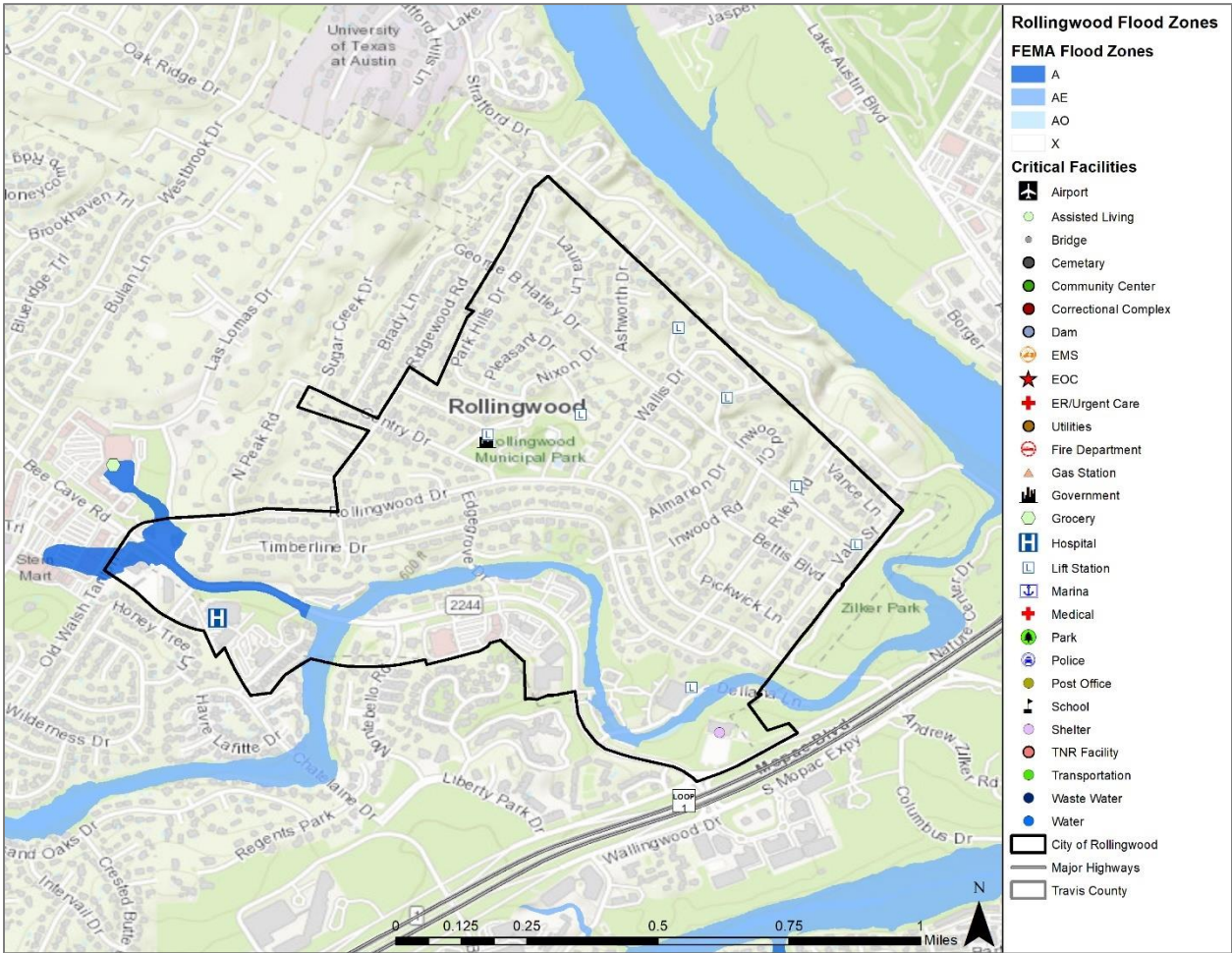


Figure 9-12. Estimated Flood Zones – Village of San Leanna

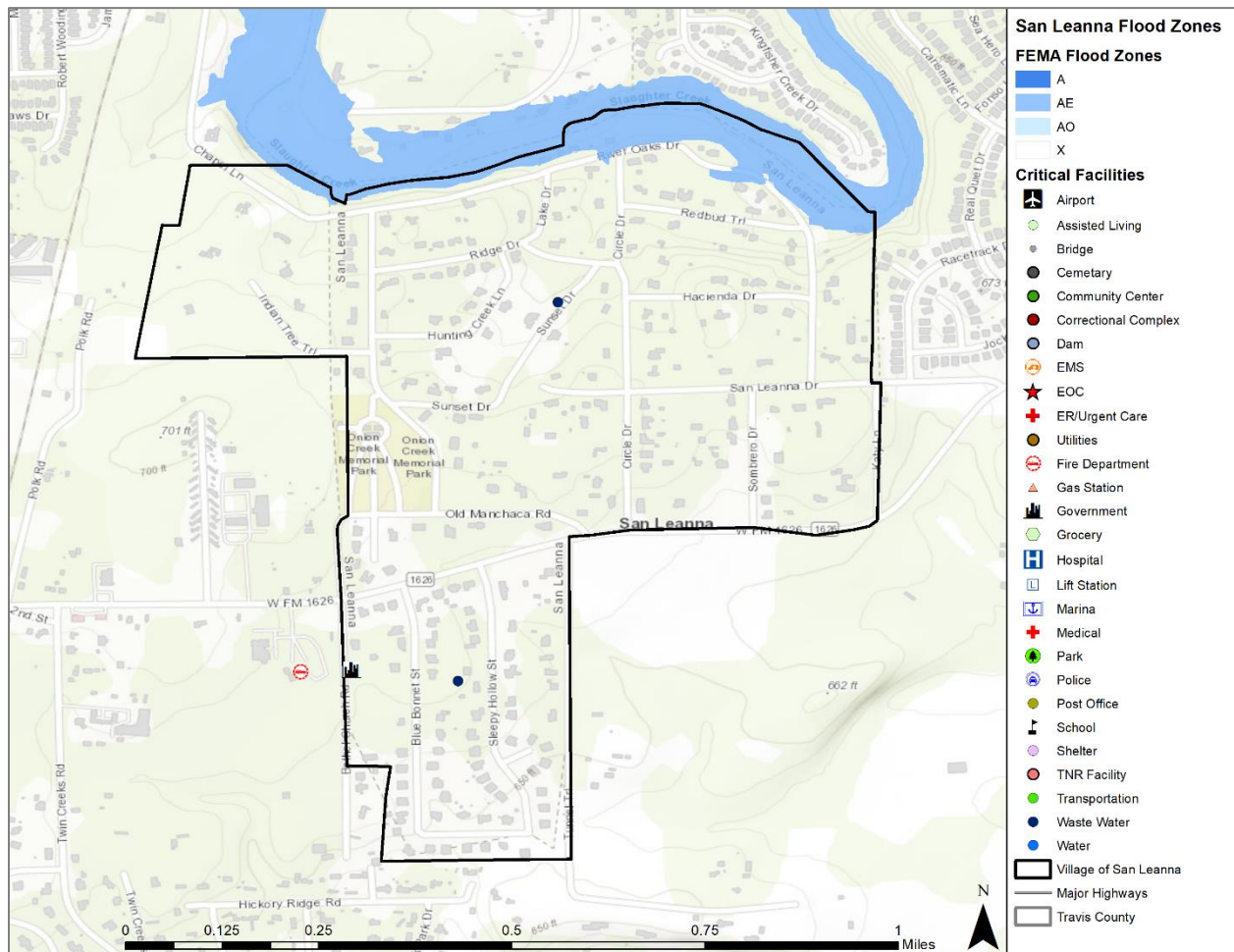




Figure 9-13. Estimated Flood Zones – City of Sunset Valley

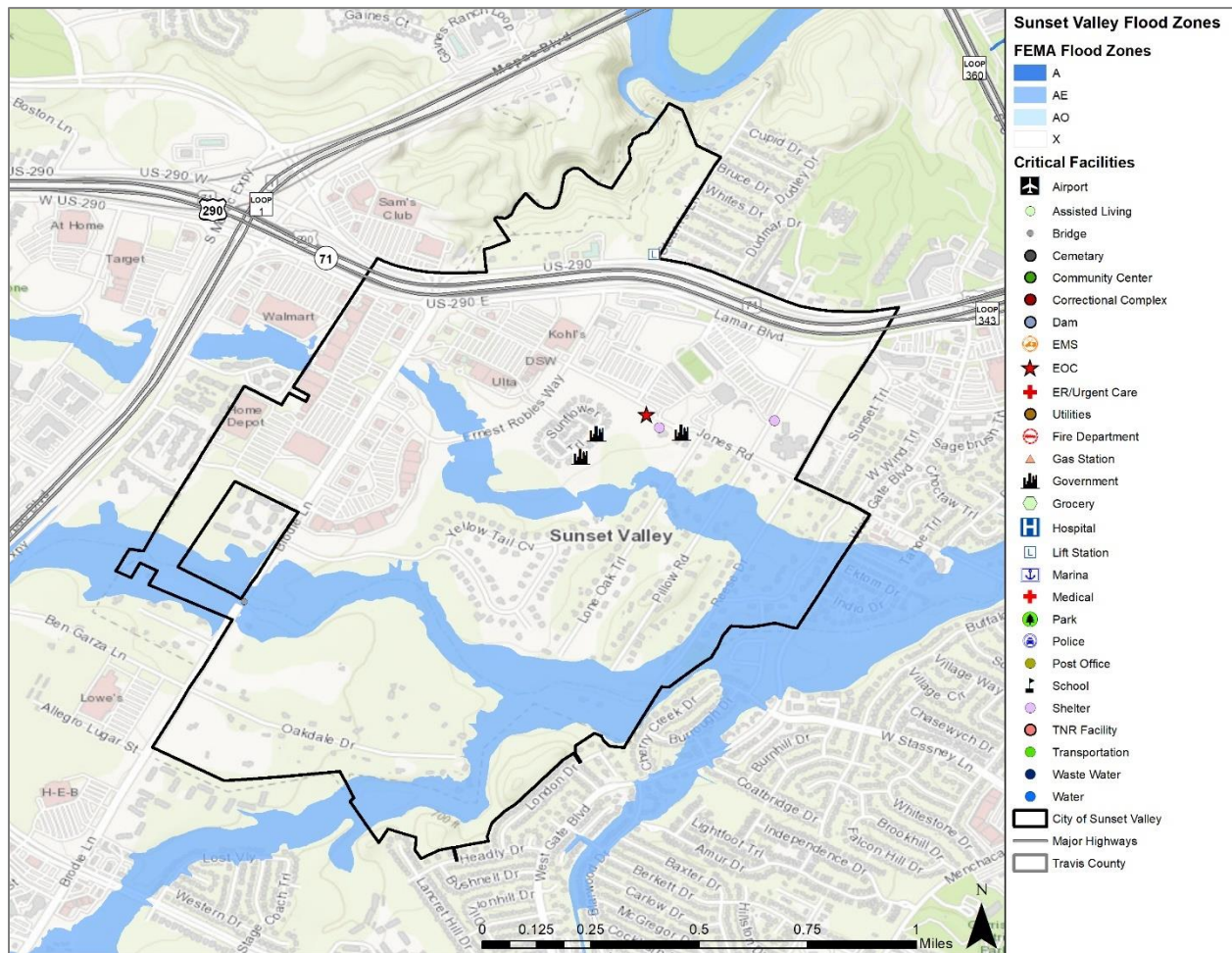


Figure 9-14. Estimated Flood Zones – Village of the Hills

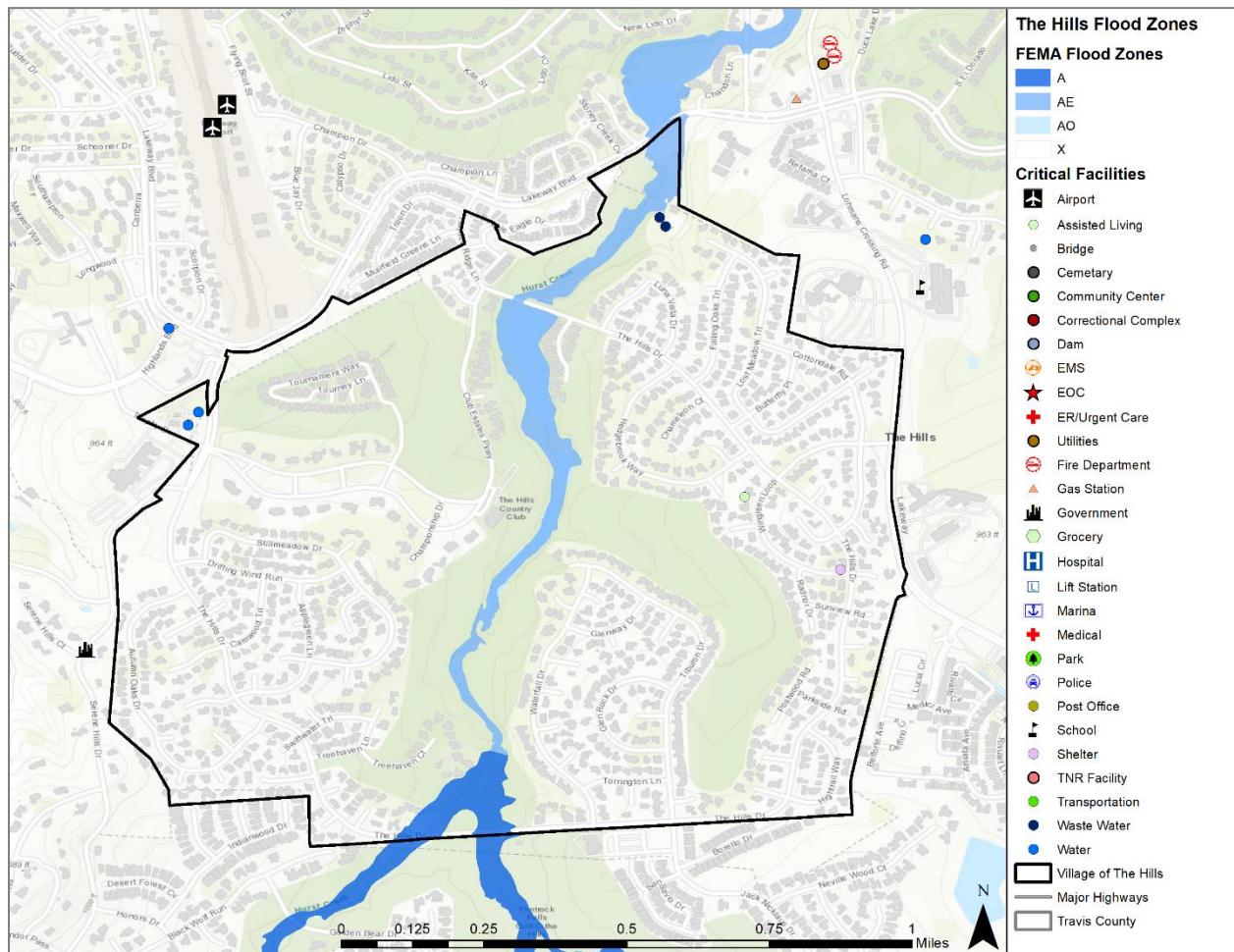
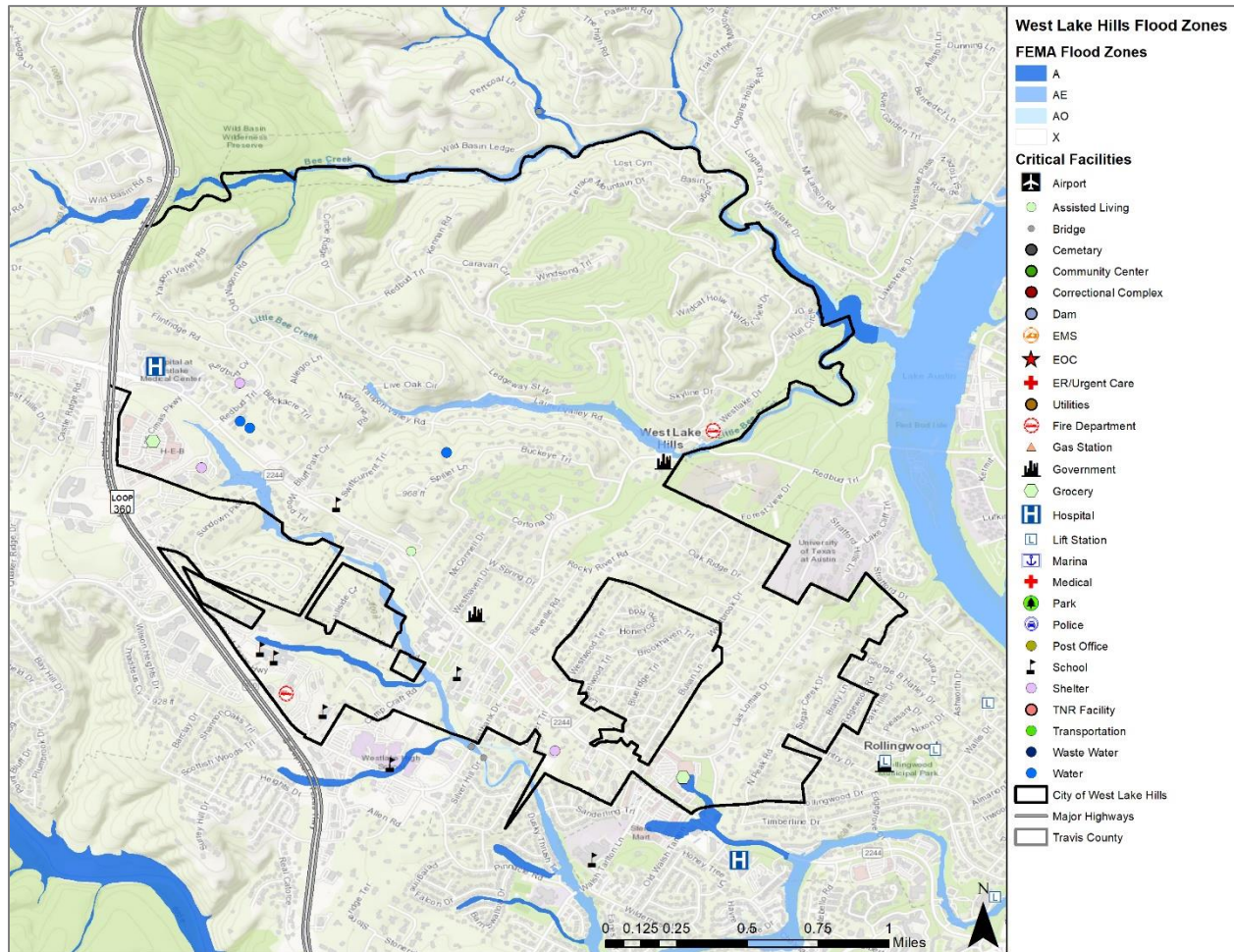
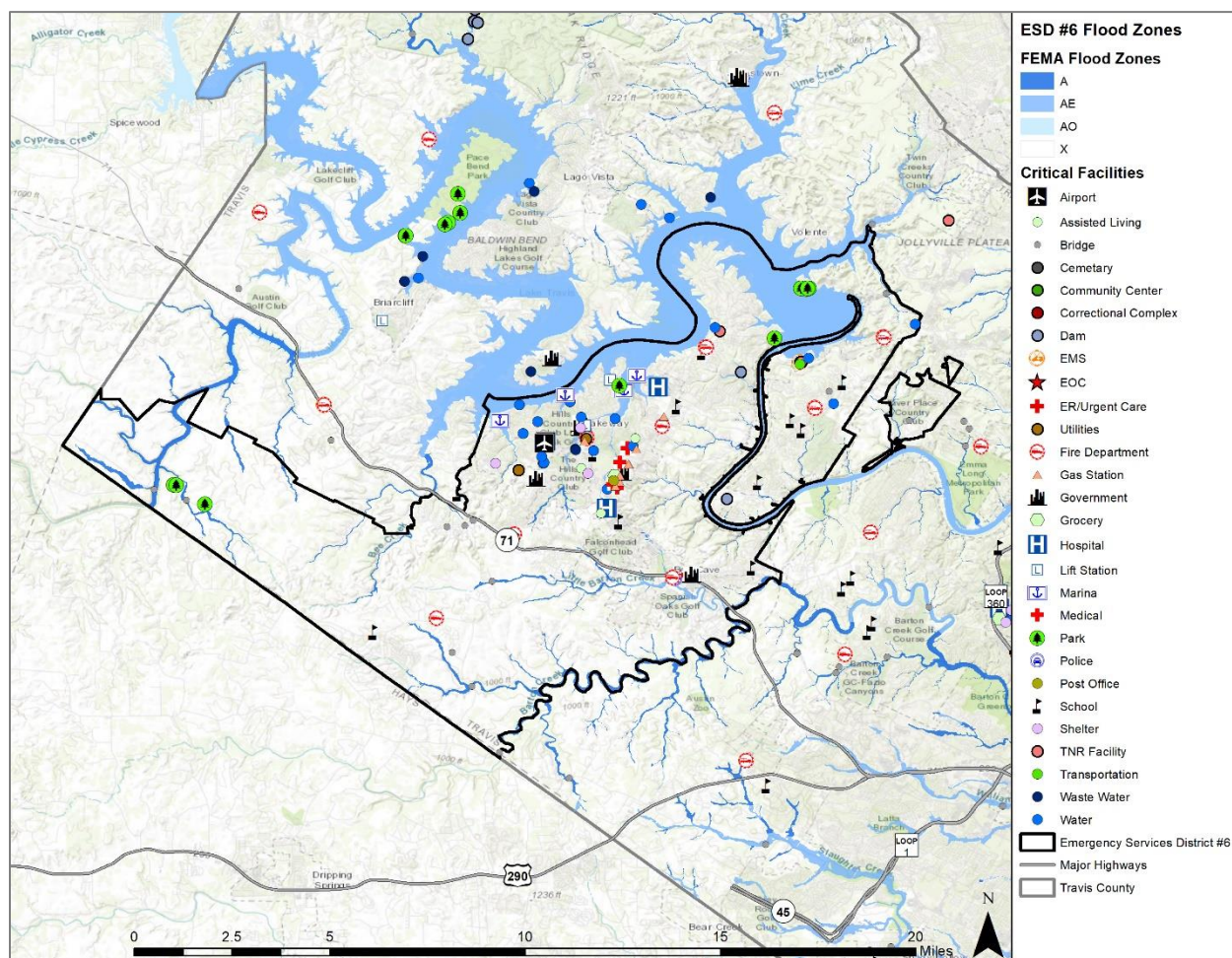




Figure 9-15. Estimated Flood Zones – City of West Lake Hills





**Figure 9-16. Estimated Flood Zones – Emergency Services District #6**

Major flood protection for the planning area is provided by a system of dams and reservoirs developed along the Colorado River, stretching from Lake Buchanan in Llano and Burnet Counties to Lake Austin, the site of the Tom Miller Dam (formerly Lake Austin Dam). Six dams comprise the system, extending like massive steps down the length of the lower Colorado River. The six dams are maintained by the Lower Colorado River Authority. Below this chain lies the smaller channel lake, Lady Bird Lake, which is impounded by Longhorn Dam, built and maintained by the City of Austin. Travis County has adopted ordinances for subdivision design and drainage, and floodplain management regulations.<sup>4</sup>

## EXTENT

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

<sup>4</sup> Flood Insurance Study (FIS) Travis County, Texas and Incorporated Areas, January 22, 2020.

Determining the intensity and magnitude of a flood event is dependent upon the flood zone and location of the flood hazard area in addition to the depths of flood waters. The extent of flood damages can be expected to be more damaging in the areas that will convey a base flood. FEMA categorizes areas on the terrain according to how the area will convey flood water. Flood zones are the categories that are mapped on FIRMs. Table 9-1 provides a description of FEMA flood zones and the flood impact in terms of severity or potential harm. Flood Zones A, AE, AO and X are the hazard areas mapped in the region. Figures 9-1 through 9-16 (above) should be read in conjunction with the extent for flooding in Tables 9-1, 9-2, and 9-3 to determine the intensity of a potential flood event.

**Table 9-1 Flood Zones**

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

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

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

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

The intensity and magnitude of a flood event is also determined by the depth of flood waters. Table 9-2 describes the stream gauge data provided by the United States Geological Survey (USGS).

**Table 9-2. Extent for Travis County<sup>5</sup>**

JURISDICTION <sup>6</sup>	PEAK FLOOD EVENT
Travis County	Colorado River in Austin reached an overflow elevation of 46 feet in July 1869, 41.2 feet in June 1935, and 34.1 feet in May 2015. The average peak flow at this site is 14.9 feet.
Travis County	Slaughter Creek at FM 1826 reached an overflow elevation of 12.03 feet in May of 2019. The average peak flow at this site is 7.3 feet.
Travis County	Bull Creek at Loop 360 near Austin reached an overflow elevation of 14.97 feet in September of

<sup>5</sup> Severity estimated by averaging floods at certain stage level over the history of flood events. Severity and peak events are based on USGS data.

<sup>6</sup> Severity is provided where peak data was provided throughout for the County but unavailable for individual jurisdictions.

JURISDICTION <sup>6</sup>	PEAK FLOOD EVENT
	2010. The average peak flow at this site is 7.68 feet.
Travis County	Barton Creek at Loop 360 in Austin reached an overflow elevation of 19.38 feet in October of 2015. The average peak flow at this site is 8.98 feet.
Travis County	Shoal Creek at Silverway Drive in Austin reached an overflow elevation of 10.72 feet in May of 2015. The average peak flow at this site is 8.66 feet.
Travis County	Williamson Creek at Manchaca Road reached an overflow elevation of 20.63 feet in October of 2013. The average peak flow at this site is 9.82 feet.
Travis County	Walton Creek at Dessau Road reached an overflow elevation of 27.55 feet in May of 2015. The average peak flow at this site is 15.02 feet.
Travis County	Onion Creek at Twin Creeks Road near Manchaca reached an overflow elevation of 36.88 feet in October of 2013. The average peak flow at this site is 16.04 feet.

The range of flood intensity that the planning area can experience is high, or Zone A. Based on historical occurrences, the planning area could expect to experience from 8 to 12 inches of rain within a 24-hour period, resulting in flash flooding.

The data described in Tables 9-1 and 9-2, together with Figures 9-1 through 9-16, and historical occurrences for the area, provides an estimated potential magnitude and severity for the Travis County planning area, including participating jurisdictions and ESD #6.

## HISTORICAL OCCURRENCES

Historical evidence indicates that areas within the planning area are susceptible to flooding, especially in the form of flash flooding. It is important to note that only flood events that have been reported have been factored into this risk assessment, therefore it is likely that additional flood occurrences have gone unreported before and during the recording period. Table 9-3 identifies historical flood events that resulted in damages, injuries, or fatalities within the Travis County planning area. Table 9-4 provides the historical flood event summary by jurisdiction. Historical Data is provided by the Storm Prediction Center (NOAA), National Centers for Environmental Information (NCEI) database for Travis County, and the participating jurisdictions and ESD #6.

There have been 250 recorded flood events in Travis County, including participating jurisdictions and ESD #6. Historical flood data for ESD #6 are provided within the county or city events of the district's boundaries, as the database does not have events reported separately for ESD #6. The Emergency Services District did not report any damages to district facilities due to flooding.



**Table 9-3. Historical Flood Events, 1996-2022<sup>7</sup>**

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	8/24/1996	0	0	\$18,868	\$0
Travis County	8/24/1996	0	0	\$56,605	\$0
Travis County	9/18/1996	0	0	\$5,643	\$0
Travis County	10/28/1996	0	0	\$93,745	\$18,749
Travis County	4/4/1997	0	0	\$27,790	\$0
Travis County	4/25/1997	0	0	\$9,263	\$0
Travis County	4/26/1997	0	0	\$9,263	\$0
Travis County	5/23/1997	0	0	\$92,691	\$0
Travis County	5/27/1997	1	0	\$9,269	\$0
Travis County	6/6/1997	0	0	\$27,773	\$0
Travis County	6/8/1997	1	10	\$185,151	\$0
Travis County	6/17/1997	0	0	\$18,515	\$0
Travis County	6/22/1997	0	0	\$1,851,510	\$92,575
Travis County	7/30/1997	0	0	\$92,460	\$0
Travis County	12/20/1997	1	0	\$92,002	\$0
Travis County	2/21/1998	0	0	\$18,332	\$0
Travis County	10/17/1998	1	50	\$2,714,607	\$180,974
Travis County	10/17/1998	0	50	\$1,809,738	\$90,487
Travis County	6/21/1999	0	0	\$17,858	\$0
Travis County	7/10/1999	0	0	\$8,902	\$0
Travis County	6/9/2000	0	0	\$51,647	\$0
Travis County	11/2/2000	0	0	\$34,095	\$0
Travis County	11/3/2000	0	0	\$34,095	\$0
Travis County	11/23/2000	0	0	\$25,571	\$0
Travis County	5/6/2001	0	0	\$16,702	\$0

<sup>7</sup> Only recorded events with fatalities, injuries, and/or damages are listed; values are in 2023 dollars.



## SECTION 9: FLOOD

Item 8.

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	5/6/2001	0	0	\$33,404	\$0
Travis County	5/20/2001	0	5	\$100,213	\$0
Travis County	8/26/2001	0	0	\$50,163	\$0
Travis County	8/31/2001	0	0	\$33,442	\$0
Travis County	11/15/2001	2	50	\$836,519	\$0
Travis County	7/2/2002	1	0	\$0	\$0
Travis County	9/8/2002	0	2	\$49,193	\$0
Travis County	11/4/2002	0	0	\$16,370	\$0
Travis County	2/20/2003	0	0	\$24,314	\$0
Travis County	1/16/2004	0	0	\$16,026	\$0
Travis County	4/6/2004	0	4	\$0	\$0
Travis County	6/3/2007	0	0	\$71,225	\$0
City of Pflugerville	6/25/2007	0	0	\$42,735	\$0
City of Pflugerville	6/28/2007	0	0	\$71,225	\$0
Travis County	7/6/2007	1	0	\$0	\$0
Travis County	6/11/2009	0	0	\$2,752,032	\$0
Travis County	10/22/2009	0	0	\$686,468	\$0
Travis County	9/7/2010	1	0	\$0	\$0
City of Jonestown	9/13/2012	0	0	\$128,258	\$0
City of West Lake Hills	10/13/2013	1	0	\$2,541,658	\$0
Travis County	10/31/2013	4	0	\$127,082,887	\$0
Travis County	11/22/2013	1	0	\$0	\$0
Travis County	9/18/2014	1	0	\$0	\$0
Travis County	5/25/2015	1	0	\$12,480,688	\$0
Travis County	10/30/2015	0	0	\$12,478,956	\$0
Travis County	10/30/2015	2	0	\$0	\$0
Travis County	10/30/2015	1	0	\$0	\$0

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	5/27/2016	1	0	\$0	\$0
Travis County	6/3/2016	1	0	\$0	\$0
City of Lakeway	10/16/2018	0	0	\$11,736,441	\$0
Travis County	5/8/2019	1	0	\$0	\$0
Travis County	8/15/2021	0	0	\$10,849	\$0

**Table 9-4. Summary of Historical Flood Events, 1996-2022<sup>8</sup>**

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	221	22	171	\$164,044,844	\$382,785
Village of Briarcliff	0	-	-	-	-
City of Creedmoor	5	0	0	\$0	\$0
City of Jonestown	3	0	0	\$128,258	\$0
City of Lago Vista	1	0	0	\$0	\$0
City of Lakeway	2	0	0	\$11,736,441	\$0
City of Manor	1	0	0	\$0	\$0
City of Mustang Ridge	0	-	-	-	-
City of Pflugerville	7	0	0	\$113,960	\$0
Village of Point Venture	0	-	-	-	-
City of Rollingwood	0	-	-	-	-
Village of San Leanna	0	-	-	-	-
City of Sunset Valley	0	-	-	-	-
Village of The Hills	0	-	-	-	-
City of West Lake Hills	10	1	0	\$2,541,658	\$0
ESD #6	0	-	-	-	-
<b>Total Losses</b>	<b>250</b>	<b>23</b>	<b>171</b>	<b>\$178,947,946</b>	

<sup>8</sup> Participating jurisdictions with no reported events show a “-” in table columns where damages, deaths or injuries would be otherwise reported.

Based on the list of historical flood events for the Travis County planning area and including all participating jurisdictions and ESD #6, 52 of the 250 events have occurred since the 2017 Plan.

## SIGNIFICANT EVENTS

### **Flash Flood on October 16, 2018 – Travis County**

After 5-10 inches of rain fell in the Llano River basin flood waters moved into the Colorado River basin along with heavy rain in the basin. Lake Travis rose into its flood pool (681 feet Mean Sea Level (MSL)) on the 16th and eventually rose to 704.3 feet MSL on the 19th. This flood water overwhelmed Austin's water treatment facilities and the city issued a boil water notice on the 22nd. The city and Travis and Williamson Counties distributed bottled water to residents. The Lower Colorado River Authority conducted flood operations opening as many as eight floodgates on Mansfield Dam to reduce the level of the lake. By the 28th the level was sufficiently low to allow the water treatment facilities to operate normally and the boil water notice was lifted. In and around the Lake Travis area there were reportedly nearly 100 homes that experienced Major damage, 76 with Minor damage, and over 200 homes that were affected.

### **Flash Flood on June 3, 2016 – Travis County**

An upper-level trough moved across Texas and interacted with a moist boundary layer to generate thunderstorms across South Central Texas. Some of these storms produced heavy rain that led to flash flooding. The body of a man was discovered in Bull Creek just downstream from a low water crossing. A flooded pickup was found nearby. Time of the incident is estimated since there are no witnesses to the event. The cause of death was ruled as drowning by the medical examiner.

### **Flash Flood on May 27, 2016 – Travis County**

An upper-level trough moved out of the southern Rockies and provided sufficient lift to form thunderstorms along a dry-line in west Texas. These storms moved into South Central Texas and were further enhanced by an outflow boundary that moved out of north Texas. Some of these storms produced large hail, damaging wind gusts, and heavy rain that led to flash flooding. A car was swept away near the intersection of Toll Road 130 and FM812 due to high water. The driver's body was recovered several days later in a nearby retention pond.

### **Flash Flood on October 30, 2015 – Travis County**

A warm front combined with an upper-level trough and deep moisture produced heavy rainfall and severe thunderstorms across much of South Central Texas on October 30 and 31. Damage surveys confirmed 4 tornadoes. Along with the severe weather, excessive rainfall resulted in widespread flash flooding along the Interstate 35 corridor Friday morning. Historic rainfall totals fell at the Austin Airport where over 1 foot of rain fell within a few hours. A record of 12.49 inches of rain for October 30 was recorded, the most ever in one day for the City of Austin area. Other daily rainfall totals exceeded 15 inches. Record flooding occurred in southern Travis County and portions of Hays County. Reports indicate more than 2,000 homes were flooded in or near this I-35 corridor, and many of them were destroyed or sustained Major damage. A man drowned when his vehicle was flooded, and he was swept downstream on Dry Creek just west of Highway 183 in southern Travis County. A woman was swept out of her house and drowned when Dry Creek flooded due to heavy rainfall. Her husband was also swept out of the house but survived. A man was stranded in his car near Toll 130 and FM 812; he was swept away, and his body was recovered the next day near McAngus Road.

**Flash Flood on May 25, 2015 – Travis County**

Thunderstorms produced heavy rain that caused flash flooding in the City of Austin. There were multiple water rescues around the city including 1 along Shoal Creek at House Park. Little Walnut Creek was out of its banks at Dottie Jordan Park, where the swimming pool overflowed and water knocked down fences. The Loyola Lane bridge over Walnut Creek was closed with water covering it. A 23-year-old man died when his vehicle was swept away on Jesse Bohls Drive near the City of Pflugerville. Twenty homes sustained major damage across Travis County for this event, while 14 businesses saw minor flood impacts.

**Flash Flood on October 15, 2001 – Travis County**

Flash flooding developed early in the day, causing power outages for several hours to almost 40,000 homes. Most low water crossings flooded and dozens of rescues were required. More than 80 people were evacuated from around the Onion Creek area south of City of Austin. Two firefighters had to be rescued when their rescue boat overturned. They clung to tree branches until fellow firefighters could get to them. A woman in a flood-prone area drove long nails into a tree and used the nails to climb to the top of the tree for shelter until the flood waters receded. Several area schools delayed sending students home on school buses due to high water. A 17-year-old male died after his car stalled in a low water crossing. He tried to walk through 3-to-4-foot-deep water but was washed off his feet and beneath his vehicle. In another death, a 51-year-old woman drowned after her car stalled in a low water crossing in the City of Mustang Ridge area. Apparently, she had left the vehicle and called to say that she was on her way home. Her body was found 1/4 mile downstream.

**Flash Flood on October 17, 1998 – Travis County**

Severe storm systems crossing the region dropped record rainfall. All rivers, creeks, and streams along and east of a San Antonio to Austin line remained at or above flood stage from Saturday, October 17 through Sunday, October 18, with a majority continuing to flood through Monday, October 19. This event broke rainfall records across South Central Texas, producing 18 floods of record in South Central Texas streams. October became the wettest month in climate records for the region since 1885. 1 death and 50 injuries were directly attributed to the flooding in the Travis County planning area.

**Flash Flood on June 8, 1997 – Travis County**

Rainfall of approximately 2 to 3 inches fell over 4 counties, with isolated totals nearing 5 inches. Widespread flash flooding was reported. Some 90 residents of a mobile home park in Travis County were evacuated as Walnut Creek flooded the area. Severe flooding took place along Onion Creek and Barton Creek as well. Water was reported over the I-35 Bridge in Georgetown. Numerous rescues were performed in Comal and Travis Counties. Two young ladies in City of Austin were trying to cross an old road across Slaughter Creek around noon when their vehicle was swept into the creek. One managed to scramble to safety and go for help. She called in an EMS team who tied ropes around themselves to reach the second young lady. Several families were evacuated from their homes in Del Valle in Travis County as waters rose rapidly. In the evening, a young woman was walking along Williamson Creek near 1st Street and William Cannon when she slipped on debris left from the flooding. She fell into the flood waters and drowned.



## PROBABILITY OF FUTURE EVENTS

Based on 250 recorded historical occurrences within a 27-year reporting period within the Travis County planning area, including all participating jurisdictions and ESD #6, flooding is highly likely with 9 to 10 events per year anticipated.

## VULNERABILITY AND IMPACT

A property's vulnerability to a flood depends on its location and proximity to the floodplain. Structures that lie along banks of a waterway are the most vulnerable and are often repetitive loss structures. Travis County encourages development outside of the floodplain, and the impact for flood for the entire planning area would be considered "Limited", with critical facilities and services shutdown for 24-hours or less and less than 10 percent of properties destroyed or with major damage. However, due to 23 reported fatalities and 171 past injuries reported, the impact of flood events for the planning area is considered "Substantial," with multiple deaths or injuries possible.

The Travis County Planning Team identified the following critical facilities (Table 9-5) as assets that are considered the most important to the planning area and are susceptible to a range of impacts from a variety of natural hazards, including those facilities located in the regulatory floodplain. For a comprehensive list by participating jurisdiction see Appendix C.

**Table 9-5. Critical Facilities in the Floodplain by Participating Jurisdiction**

CRITICAL FACILITY TYPES	POTENTIAL IMPACTS
<p>Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers</p> <p>(1 EMS Facility located in flood hazard area)</p>	<ul style="list-style-type: none"> <li>Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>Emergency vehicles can be damaged by rising flood waters.</li> <li>Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way.</li> <li>Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities and increasing sheltering needs for displaced residents.</li> <li>Power outages could disrupt communications, delaying emergency response times.</li> <li>Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities.</li> <li>Washed out roads and bridges can impede emergency response vehicle access to areas.</li> <li>Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel.</li> <li>First responders are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions.</li> <li>Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>

CRITICAL FACILITY TYPES	POTENTIAL IMPACTS
<p>Airport, Academic Institutions, Animal Shelter, Evacuation Centers &amp; Shelters, Governmental Facilities, Residential/ Assisted Living Facilities</p> <p>(1 Cemetery, 2 Community Centers, 18 Park Facilities, located in flood hazard area)</p>	<ul style="list-style-type: none"> <li>Structures can be damaged by rising flood waters.</li> <li>Power outages could disrupt critical care.</li> <li>Backup power sources could be damaged, inundated or otherwise inoperable.</li> <li>Critical staff may be impacted and unable to report for duty, limiting response capabilities.</li> <li>Evacuations may be necessary due to extended power outages, gas line ruptures, or inundation of facilities.</li> <li>Additional emergency responders and critical aid workers may not be able to reach the area for days.</li> <li>Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations.</li> <li>Temporary break in operations may significantly inhibit post event evacuations.</li> <li>Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.</li> </ul>
<p>Commercial Supplier (food, fuel, etc.)</p> <p>(1 Grocery Store located in flood hazard area)</p>	<ul style="list-style-type: none"> <li>Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible.</li> <li>Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed.</li> </ul>
<p>Utility Services and Infrastructure (electric, water, wastewater, communications)</p> <p>(155 Bridges, 3 Lift Stations, 3 Marinas, 1 TRN Facility, 3 Wastewater Facilities, and 9 Water Treatment Facilities located in flood hazard area)</p>	<ul style="list-style-type: none"> <li>Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>Emergency service vehicles can be damaged by rising flood waters.</li> <li>Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing emergency service workers in harm's way.</li> <li>Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel.</li> <li>Service responders are exposed to downed power lines, contaminated and unusual debris, hazardous materials, and generally unsafe conditions.</li> <li>Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>

Historic loss estimates due to flood are presented in Table 9-6 below. Considering 250 flood events over a 27-year period, frequency is approximately nine to ten events every year.

**Table 9-6. Potential Annualized Losses by Jurisdiction, 1996-2022<sup>9</sup>**

JURISDICTION	NUMBER OF EVENTS	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Travis County	221	\$164,427,629	\$6,089,912
Village of Briarcliff	0	-	-
City of Creedmoor	5	\$0	\$0
City of Jonestown	3	\$128,258	\$4,750
City of Lago Vista	1	\$0	\$0
City of Lakeway	2	\$11,736,441	\$434,683
City of Manor	1	\$0	\$0
City of Mustang Ridge	0	-	-
City of Pflugerville	7	\$113,960	\$4,221
Village of Point Venture	0	-	-
City of Rollingwood	0	-	-
Village of San Leanna	0	-	-
City of Sunset Valley	0	-	-
Village of The Hills	0	-	-
City of West Lake Hills	10	\$2,541,658	\$94,135
ESD #6	0	-	-
<b>PLANNING AREA</b>	<b>250</b>	<b>\$178,947,946</b>	<b>\$6,627,702</b>

While all citizens are at risk of the impacts of a flood, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 10.7 percent of the planning area population live below the poverty level (Table 9-7). While warning times for these type of hazard events should be substantial enough for individuals to seek shelter, individuals who work and recreate outside are also vulnerable to potential impacts of a flood event.

<sup>9</sup> Participating jurisdictions with no reported events show a “-” in table columns where damages would be otherwise reported.

**Table 9-7. Populations at Greatest Risk by Jurisdiction<sup>10</sup>**

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Travis County	135,654
Village of Briarcliff	66
City of Creedmoor	60
City of Jonestown	229
City of Lago Vista	316
City of Lakeway	554
City of Manor	975
City of Mustang Ridge	85
City of Pflugerville	3,392
Village of Point Venture	47
City of Rollingwood	0
Village of San Leanna	9
City of Sunset Valley	26
Village of The Hills	62
City of West Lake Hills	209
ESD #6	N/A

The severity of a flooding event varies depending on the relative risk to citizens and structures located within each jurisdiction. Table 9-8 depicts the level of impact for Travis County planning area, including all participating jurisdictions and ESD #6.

**Table 9-8. Impact by Jurisdiction**

JURISDICTION	IMPACT	DESCRIPTION
Travis County	Substantial	While Travis County would typically have limited property damages resulting from flood events (critical facilities would be shut down for 24 hours or less, and less than 10 percent of property would be destroyed or damaged), the historical loss of life and number of injuries indicates a potential “substantial” impact, resulting in potentially multiple deaths and injuries.

<sup>10</sup> U.S. Census Bureau 2021 data for Travis County.



## SECTION 9: FLOOD

Item 8.

JURISDICTION	IMPACT	DESCRIPTION
Village of Briarcliff	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the village.
City of Creedmoor	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
City of Jonestown	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
City of Lago Vista	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
City of Lakeway	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
City of Manor	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
City of Mustang Ridge	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
City of Pflugerville	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
Village of Point Venture	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the village.
City of Rollingwood	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
Village of San Leanna	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24

JURISDICTION	IMPACT	DESCRIPTION
		hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the village.
City of Sunset Valley	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the city.
Village of The Hills	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the village.
City of West Lake Hills	Substantial	While the City of West Lake Hills would typically have limited <i>property</i> damages resulting from flood events (critical facilities would be shut down for 24 hours or less, and less than 10 percent of property would be destroyed or damaged), the historical loss of life indicates a potential “substantial” impact, resulting in potentially multiple deaths and injuries.
ESD #6	Limited	Any injuries or illnesses would be treatable with first aid. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property or assets of ESD #6 would be destroyed or damaged.

## ASSESSMENT OF IMPACTS

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

- Flood-related rescues may be necessary at swift water and low water crossings or in flooded neighborhoods where roads have become impassable, hazardous materials have contaminated water, live power lines may be down, and hazardous, unstable debris may be present, placing first responders in harm’s way and significantly hindering emergency response time.
- Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities and increasing sheltering needs for displaced residents.
- Health risks and threats to residents are elevated after the flood waters have receded due to contaminated flood waters (untreated sewage and hazardous chemicals) and mold growth typical in flooded buildings and homes.
- Significant flood events often result in widespread power outages, increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety and increased structure fires and/or carbon monoxide poisoning, as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Emergency operations and services may be significantly impacted due to damaged facilities.

- Significant flooding can result in the inability of emergency response vehicles to access areas of the community.
- Critical staff may suffer personal losses or otherwise be impacted by a flood event and be unable to report for duty, limiting response capabilities.
- City, village or county departments may be flooded, delaying response and recovery efforts for the entire community.
- Private sector entities that the planning area and its residents rely on, such as utility providers, financial institutions, and medical care providers, may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Some businesses not directly damaged by the flood may be negatively impacted while utilities are being restored or water recedes, and displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures substantially damaged by a flood may not be rebuilt for years and uninsured or underinsured residential structures may never be rebuilt, reducing the tax base for the community.
- Large floods may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities may be unavailable, and tourism can be unappealing for years following a large flood event, devastating directly related local businesses and negatively impacting economic recovery.
- Flooding may cause significant disruptions of clean water and sewer services, elevating health risks and delaying recovery efforts.
- The psychosocial effects on flood victims and their families can traumatize them for long periods of time, creating long term increases in medical treatment and services.
- Extensive or repetitive flooding can lead to decreases in property value for the affected community.
- Flood poses a potential catastrophic risk to annual and perennial crop production and overall crop quality, leading to higher food costs.
- Flood related declines in production may lead to an increase in unemployment.
- Large floods may result in loss of livestock, potential increased livestock mortality due to stress and water borne disease, and increased cost for feed.

The overall extent of damages caused by floods is dependent on the extent, depth, and duration of flooding, in addition to the velocities of flows in the flooded areas. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a flood event.

## CLIMATE CHANGE CONSIDERATIONS

River flooding in Texas is projected to have no substantial change through 2036. This is in large part due to the construction of dams and reservoirs for flood management in the 20th century.

There is a mixture of historical trends categorized by season, with no single clear trend to project. In addition, meteorological drivers of river flooding (increased rainfall intensity, decreased soil moisture) are projected to have competing influences. On balance, if an increasing trend is present in river 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.<sup>11</sup>

The University of Texas at Austin recently completed a technical report on future climate changes that indicated that annual precipitation for the Travis County planning area is projected to increase while the number of extreme precipitation (>2") will remain relatively consistent.<sup>12</sup>

## NATIONAL FLOOD INSURANCE PROGRAM (NFIP) PARTICIPATION

Flood insurance offered through the National Flood Insurance Program (NFIP) is the best way for home and business owners to protect themselves financially against the flood hazard. All of the participating jurisdictions in the planning area participate in the NFIP and are in good standing.

As an additional indicator of floodplain management responsibility, communities may choose to participate in FEMA's Community Rating System (CRS). This is an incentive-based program that allows communities to undertake flood mitigation activities that go beyond NFIP requirements. Currently, 2 of the participating communities in the planning area participate in CRS, including the City of Pflugerville (CR 7) and the City of Sunset Valley (CR 7).

Travis County and participating jurisdictions in the NFIP currently have in place, at minimum, the NFIP standards for new construction and substantial improvements of structures. The Travis County Commissioners Court initially approved Floodplain Management Regulations for Travis County on December 15, 1975. The regulations adopted by the Court were stricter and continue to be more stringent than those required to participate in the NFIP. The current Travis County floodplain management regulations:

- Restrict or prohibit land uses that are dangerous to health, safety, or property in times of flood, or cause excessive increases in erosion, flood heights, or velocities;
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- Control filling, grading, dredging, and other development which may increase flood damage; and
- Regulate, including prohibiting, the construction of flood barriers.

The Cities of Pflugerville and Sunset Valley have also adopted additional floodplain standards above the minimum requirement in their respective flood damage prevention ordinances, further reducing risk to structures and reducing flood insurance costs to residents. The City of Manor has

<sup>11</sup> Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

<sup>12</sup> University of Texas at Austin, Technical Report, February 2023, *Austin Future Climate, Climate Change Predictions for the City of Austin 2022*



## SECTION 9: FLOOD

a very small SFHA. The city does not issue permits for development for any property located in a SFHA. All jurisdictions are considering adopting additional higher regulatory NFIP standards to limit floodplain development.

The flood hazard areas throughout Travis County are subject to periodic inundation, which may adversely affect public safety, resulting in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief. Travis County has aggressively worked towards mitigating floods throughout the county since joining the NFIP. After the October 1998 flood, the Travis County Commissioners Court began to buy-out flood prone properties mostly along Onion Creek in Southeastern Travis County. In 2001, the Court partnered with the City of Austin, LCRA, the City of Sunset Valley, and the United States Army Corps of Engineers (USACE) to find cost effective solutions to flood events along Onion and Walnut Creeks and the Colorado River, including Lake Travis. As a result of the studies, the Court has cost shared a flood evacuation and park project in the Timber Creek neighborhood along Onion Creek.

Flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, flood-proofed, or otherwise protected from flood damage. Mitigation actions are included to address flood maintenance issues as well, including routinely clearing debris from roadside ditches and bridges, and expanding drainage culverts and storm water structures to more adequately convey flood waters.

It is the purpose of Travis County and NFIP jurisdictions participating in the Hazard Mitigation plan to continue to promote the public health, safety, and general welfare by minimizing public and private losses due to flood conditions in specific areas with flood mitigation projects similar to the Onion Creek acquisition and park project.

Each of the NFIP participating jurisdictions in the Plan are guided by their local Flood Damage Prevention Ordinance. These communities will continue to comply with NFIP requirements through their local permitting, inspection, and record-keeping requirements for new and substantially developed construction. As active members of the Texas Floodplain Management Association (TFMA), the Travis County Environmental Health office has positioned itself to effectively manage the county NFIP Program and maintain their Certified Floodplain Manager (CFM) status through continuing education. Furthermore, the NFIP program for each of the participating jurisdictions promotes sound development in floodplain areas and includes provisions designed to:

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

## SECTION 9: FLOOD

- Ensure that potential buyers are notified that property is in a flood area.

In order to accomplish these tasks, Travis County and participating NFIP jurisdictions seek to observe the following guidelines in order to achieve flood mitigation:

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

## NFIP COMPLIANCE AND MAINTENANCE

As mentioned, Travis County has participated in multiple mitigation activities to reduce flood losses and protect citizens and property. The county continues to partner with local communities to identify and implement sound mitigation actions. After the devastating October 31, 2015 flood, Travis County began a post-flood analysis and mitigation study for Dry Creek East and Onion, Bear, and Little Bear Creeks in southeastern Travis County. The study will attempt to find root causes of the flood and seek to find cost effective mitigation alternatives for the Arroyo Doble/Twin Creeks Subdivisions, Thoroughbred Farms Subdivision, and the Bluff Springs Road Areas. Similarly in 2017, Travis County conducted a study of Maha Creek in southeastern Travis County. This study identified mitigation alternatives in the Swiss Alpine Village and Plover Place neighborhoods, and developed a regulatory flood model of Maha Creek which was an unstudied "A" zone of the FIRM. Travis County continues buy-out properties on Onion, Bear, Dry, and Maha Creeks.

Travis County and participating jurisdictions have developed additional mitigation actions that relate to either NFIP maintenance or compliance. Compliance and maintenance actions can be found in Section 18.

Flooding was identified by the majority of the communities as a moderate to high-risk hazard during hazard ranking activities at the Risk Assessment Workshop. Many of the mitigation actions were developed with flood mitigation in mind. A majority of these flood actions address compliance with the NFIP and implementing flood awareness programs. County-wide, communities recognize the need and are working towards adopting higher NFIP regulatory standards to further minimize flood risk in their community. Smaller no-growth communities that typically do not have personnel or funds to implement more stringent NFIP compliance measures are focusing on NFIP public awareness activities. This includes promoting the availability of flood insurance by placing NFIP brochures and flyers in public libraries or public meeting places.

Each jurisdiction participating in this planning process is a NFIP participant and has a designated floodplain administrator. All floodplain administrators in the planning area will continue to maintain compliance with the NFIP, including continued floodplain administration, zoning ordinances, and development regulation. The floodplain ordinance adopted by each participating jurisdiction outlines the minimum requirements for development in Special Flood Hazard Areas.

All participating jurisdictions have a permitting process in place and each local floodplain administrator is responsible for coordinating inspections of damaged homes located in the floodplain. Following a flood event, local officials inspect damaged homes to make a substantial damage determination. Substantially damaged homes must be brought into compliance. Similarly, proposed improvements to homes located in the floodplain are reviewed by local building officials to determine if a substantial improvement is proposed. The floodplain administrator oversees permitted repairs and improvements to ensure compliance during the rebuilding or improvement process.

## REPETITIVE LOSS

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

Repetitive Loss properties are defined as structures that are:

- Any insurable building for which 2 or more claims of more than \$1,000 each, paid by the National Flood Insurance Program (NFIP) within any 10-year period, since 1978;
- May or may not be currently insured under the NFIP.

Severe Repetitive Loss properties are defined as structures that are:

- Covered under the NFIP and have at least 4 flood related damage claim payments (building and contents) over \$5,000.00 each, and the cumulative amount of such claims payments exceed \$20,000; or
- At least 2 separate claim payments (building payments only) have been made, with the cumulative amount of the building portion of such claims exceeding the market value of the building.

In either scenario, at least 2 of the referenced claims must have occurred within any 10-year period and must be greater than 10 days apart.<sup>13</sup> Table 9-9 shows repetitive loss and severe repetitive loss properties for Travis County, including all participating jurisdictions. It should be noted that ESD #6 is not eligible to participate in the NFIP. There are no repetitive/severe repetitive loss properties reported for the following jurisdictions: City of Creedmoor, City of

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<sup>13</sup> Source: Texas Water Development Board.

Lakeway, City of Manor, City of Mustang Ridge, Village of Point Venture, Village of San Leanna, and the Village of The Hills.

**Table 9-9. Repetitive Loss and Severe Repetitive Loss Properties<sup>14</sup>**

JURISDICTION	BUILDING TYPE	NUMBER OF STRUCTYURES	NUMBER OF LOSSES
Travis County	2-4 Family	7	24
	Assumed Condo	9	26
	Non-Residential	23	77
	Other Residential	4	9
	Single Family*	487	1,414
Village of Briarcliff	Single Family	1	2
City of Jonestown	Single Family*	5	14
City of Lago Vista	Single Family*	5	18
City of Pflugerville	Single Family*	3	10
City of Rollingwood	Single Family*	2	4
City of Sunset Valley	Single Family	1	10
City of West Lake Hills	Single Family	3	14

<sup>14</sup> The City of Austin is not participating in the Travis County Hazard Mitigation Plan Update but has been included under Travis County on the *Repetitive Loss and Severe Repetitive Loss Properties* table. \*Some repetitive loss properties were assumed to be single family residential. Source: Texas Water Development Board Repetitive Loss portal, <https://twdb-wsc.maps.arcgis.com/apps/webappviewer/index.html?id=eb2ecdeed6d349999382efa6fda70aa6>



# SECTION 10

# THUNDERSTORM WIND



Hazard Description .....	1
Location .....	1
Extent .....	2
Historical Occurrences .....	3
Significant Events .....	9
Probability of Future Events .....	9
Vulnerability and Impact .....	10
Assessment of Impacts .....	14
Climate Change Considerations .....	15

## HAZARD DESCRIPTION

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

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

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



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

## LOCATION

Thunderstorm wind events can develop in any geographic location and are considered a common occurrence in Texas. Therefore, a thunderstorm wind event could occur at any location within the Travis County planning area, including participating jurisdictions and ESD #6. These storms develop randomly and are not confined to any geographic area within the County. It is assumed that the entire Travis County planning area is uniformly exposed to the threat of thunderstorm winds.

## EXTENT

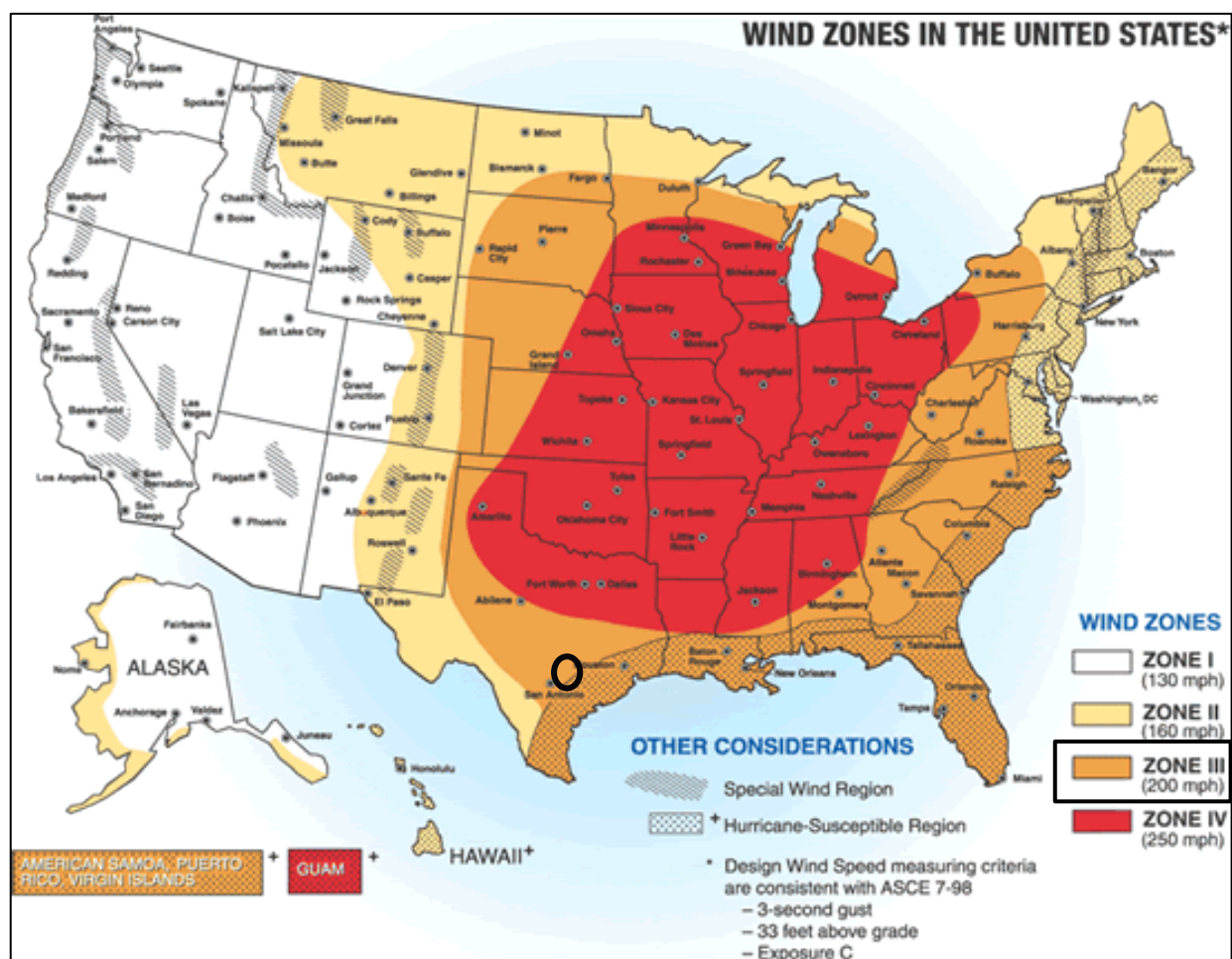
The extent or magnitude of a thunderstorm wind event is measured by the Beaufort Wind Scale. Table 10-1 describes the different intensities of wind in terms of speed and effects, from calm to violent and destructive.

**Table 10-1. Beaufort Wind Scale<sup>1</sup>**

FORCE	WIND (MHP)	WIND (Knots)	WMO CLASSIFICATION	APPEARANCE OF WIND EFFECTS
0	Less than 1	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-7	4-6	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	8-12	7-10	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	13-18	11-16	Moderate Breeze	Dust, leaves and loose paper lifted, small tree branches move
5	19-24	17-21	Fresh Breeze	Small trees in leaf begin to sway
6	25-31	22-27	Strong Breeze	Larger tree branches moving, whistling in wires
7	32-38	28-33	Near Gale	Whole trees moving, resistance felt walking against wind
8	39-46	34-40	Gale	Whole trees in motion, resistance felt walking against wind
9	47-54	41-47	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	55-63	48-55	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	64-72	56-63	Violent Storm	If experienced on land, widespread damage
12	72-83	64-71	Hurricane	Violence and destruction

Figure 10-1 displays the wind zones as derived from NOAA.

<sup>1</sup> Source: World Meteorological Organization

Figure 10-1. Wind Zones in the United States<sup>2</sup>

On average, the planning area experiences 4 to 5 thunderstorm wind events every year. The Travis County planning area, including participating jurisdiction and ESD #6, is located within Wind Zone III, meaning it can experience winds up to 200 mph. The Travis County planning area has experienced a significant wind event, or an event with winds in the range of “Force 12” on the Beaufort Wind Scale with winds above 72 mph. This is the worst to be anticipated for the entire planning area based on historic events.

Based on a search of past events between 1956 through 2022, the greatest magnitude wind event that Travis County planning area experienced was 75 knots, or 86 mph, during an event occurring on May 5, 1978. No impacts were reported as a result of this event.

## HISTORICAL OCCURRENCES

The National Centers for Environmental Information (NCEI) Storm Events database is a national data source organized under the National Oceanic and Atmospheric Administration. The NCEI is the largest archive available for historic storm events data; however, it is important to note that only incidents recorded in the NCEI have been factored into this risk assessment unless otherwise

<sup>2</sup> Travis County planning area is indicated by the black circle.

## SECTION 10: THUNDERSTORM WIND

noted. It is likely that a high number of occurrences have gone unreported over the past 67 years. Tables 10-2 and 10-3 depict historical occurrences of thunderstorm wind events for the Travis County planning area according to the NCEI database.

Since 1956, 296 thunderstorm wind events are known to have occurred in the Travis County planning area. Based upon NCEI records 86 events caused damages. Table 10-3 presents information on known historical events impacting the Travis County planning area, including participating jurisdictions and ESD #6, resulting in damages, injuries, or fatalities. The strongest event reported in the planning area occurred in Travis County in May of 1978 with reported wind speeds of 75 knots, or 86 mph. The most damaging event in the planning area was reported in Travis County in 2008 and caused more than \$68,502,576 in damages (2022 dollars).

It is important to note that high wind events associated with other hazards, such as tornadoes, are not accounted for in this section. Property damage estimates are not always available. Where an estimate has been provided in a table for losses, the dollar amounts have been modified for inflation to indicate the damage in 2022 dollars.

Historical thunderstorm wind data for the ESD #6 is provided within the jurisdiction in which the special district resides as they do not have events reported separate and apart from jurisdiction events. There have been no reported losses as a result of thunderstorm wind for the special district.

**Table 10-2. Historical Thunderstorm Wind Speeds, 1956-2022**

MAXIMUM WIND SPEED RECORDED (KNOTS)	NUMBER OF REPORTED EVENTS
0-30	55
31-40	6
41-50	31
51-60	122
61-70	62
71-80	4
81-90	0
91-100+	0
Unknown	16

**Table 10-3. Historical Thunderstorm Wind Events, 1956-2022<sup>3</sup>**

JURISDICTION	DATE	TIME	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Lakeway	10/19/1993	10:45 PM	0	0	0	\$0	\$101,852

<sup>3</sup> Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2022 dollars.

## SECTION 10: THUNDERSTORM WIND

Item 8.

JURISDICTION	DATE	TIME	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	10/19/1993	11:25 PM	0	0	0	\$10,185	\$10,185
Travis County	5/30/1993	6:59 PM	51	0	0	\$0	\$10,291
Travis County	5/29/1994	10:52 PM	53	0	0	\$100,609	\$10,061
Travis County	5/30/1994	12:15 AM	0	0	0	\$100,609	\$10,061
Travis County	11/4/1994	11:55 PM	57	0	0	\$9,913	\$0
Travis County	3/8/1995	1:39 AM	74	0	0	\$98,018	\$0
City of West Lake Hills	5/31/1995	11:02 PM	68	0	0	\$195,005	\$0
Travis County	6/11/1995	1:26 AM	65	0	0	\$19,462	\$19,462
Travis County	9/7/1995	8:00 PM	0	0	7	\$5,811,952	\$0
Travis County	8/31/1996	8:50 PM	Unknown	0	0	\$9,434	\$0
Travis County	9/20/1996	8:55 PM	Unknown	0	0	\$37,617	\$0
Travis County	4/4/1997	6:30 PM	Unknown	0	0	\$370,533	\$0
Travis County	3/7/1998	5:50 PM	Unknown	0	0	\$274,473	\$0
City of Creedmoor	4/8/1998	4:10 AM	Unknown	0	0	\$45,661	\$0
Travis County	4/26/1998	7:50 PM	Unknown	0	0	\$146,115	\$0
Travis County	8/29/1998	5:40 PM	Unknown	0	0	\$18,164	\$0
Travis County	5/24/1999	8:30 PM	Unknown	0	0	\$89,289	\$0
Travis County	5/26/1999	5:25 PM	Unknown	0	0	\$125,005	\$0
Travis County	4/11/2000	11:42 PM	51	0	0	\$34,652	\$0
City of Pflugerville	9/2/2000	5:20 PM	Unknown	0	0	\$136,694	\$0
Travis County	3/12/2001	1:30 AM	Unknown	0	5	\$252,665	\$0
City of Pflugerville	5/20/2001	9:10 PM	Unknown	0	10	\$3,340,428	\$167,021
Travis County	9/3/2001	8:05 PM	Unknown	0	0	\$83,230	\$0
Travis County	6/16/2002	2:00 AM	Unknown	0	0	\$82,489	\$0
Travis County	6/26/2002	7:20 PM	Unknown	0	0	\$164,979	\$0
Travis County	6/26/2002	7:00 PM	69	0	0	\$494,937	\$0
Travis County	12/23/2002	6:25 AM	Unknown	0	0	\$16,407	\$0



## SECTION 10: THUNDERSTORM WIND

Item 8.

JURISDICTION	DATE	TIME	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	6/13/2003	3:45 PM	56	0	0	\$161,566	\$0
Travis County	8/8/2003	3:23 PM	57	0	0	\$160,778	\$0
Travis County	8/11/2003	7:05 PM	60	0	0	\$964,671	\$0
Travis County	6/28/2004	4:40 PM	60	0	0	\$31,291	\$0
Travis County	5/4/2006	9:30 PM	64	0	0	\$146,566	\$0
Travis County	10/10/2006	6:17 AM	55	0	0	\$147,075	\$0
Travis County	4/13/2007	8:30 PM	55	0	0	\$71,799	\$0
Travis County	5/14/2008	11:30 PM	70	0	0	\$68,502,576	\$0
Travis County	6/21/2008	1:00 PM	50	0	0	\$6,782	\$0
Travis County	3/25/2009	4:45 PM	39	0	0	\$69,766	\$0
Travis County	4/2/2009	10:29 AM	45	0	0	\$13,918	\$0
Travis County	4/2/2009	1:07 PM	45	0	0	\$13,918	\$0
Travis County	4/2/2009	1:37 PM	40	0	0	\$13,918	\$0
Travis County	4/2/2009	1:55 PM	39	0	0	\$13,918	\$0
Travis County	4/2/2009	2:17 PM	40	0	0	\$13,918	\$0
Travis County	4/2/2009	2:40 PM	45	0	0	\$139,184	\$0
Travis County	8/12/2009	2:55 PM	50	0	0	\$2,750	\$0
Travis County	8/26/2009	7:32 PM	52	0	0	\$2,750	\$0
Travis County	8/27/2009	4:40 PM	50	0	0	\$13,751	\$0
City of Manor	4/11/2011	4:05 AM	50	0	0	\$660	\$0
Travis County	5/20/2011	7:10 PM	40	0	0	\$1,313	\$0
Travis County	7/15/2012	4:25 PM	50	0	0	\$19,432	\$0
Travis County	4/7/2014	6:35 PM	48	0	0	\$2,504	\$0
Travis County	5/26/2014	11:00 AM	35	0	0	\$1,248	\$0
City of Lakeway	6/12/2014	8:45 PM	70	0	0	\$6,226	\$0
City of Lakeway	6/12/2014	9:05 PM	74	0	0	\$249,050	\$0
Travis County	4/18/2015	8:25 PM	50	0	0	\$1,254	\$0
Travis County	4/18/2015	8:30 PM	50	0	0	\$12,544	\$0

## SECTION 10: THUNDERSTORM WIND

Item 8.

JURISDICTION	DATE	TIME	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	4/18/2015	8:30 PM	50	0	0	\$12,544	\$0
Travis County	10/30/2015	8:50 AM	50	0	0	\$623,948	\$0
Travis County	4/2/2017	8:40 AM	52	0	0	\$18,207	\$0
City of Lakeway	4/2/2017	8:20 AM	70	0	0	\$1,213,775	\$0
City of Lakeway	4/2/2017	8:19 AM	70	0	0	\$1,213,775	\$0
Travis County	5/28/2017	5:45 PM	61	0	0	\$1,213	\$0
Travis County	5/28/2017	5:55 PM	52	0	0	\$1,213	\$0
Travis County	5/28/2017	5:58 PM	52	0	0	\$1,213	\$0
Travis County	4/13/2018	9:00 PM	56	0	0	\$59,230	\$0
Travis County	5/15/2018	6:09 PM	61	0	0	\$58,985	\$0
Travis County	6/3/2018	11:41 PM	56	0	0	\$2,356	\$0
Travis County	6/3/2018	11:42 PM	56	0	0	\$1,178	\$0
City of Pflugerville	6/3/2018	11:15 PM	56	0	0	\$1,178	\$0
Travis County	6/4/2018	12:00 AM	65	0	2	\$29,445	\$0
Travis County	6/9/2019	6:37 PM	61	0	0	\$5,794	\$0
Travis County	6/9/2019	6:42 PM	61	0	0	\$5,794	\$0
City of Creedmoor	6/9/2019	6:30 PM	52	0	0	\$5,794	\$0
City of Jonestown	6/9/2019	6:53 PM	56	0	0	\$2,317	\$0
City of Manor	6/9/2019	6:15 PM	52	0	0	\$11,587	\$0
Travis County	4/29/2020	4:03 AM	52	0	0	\$1,158	\$0
Travis County	7/31/2020	3:25 PM	56	0	0	\$2,291	\$0
Travis County	8/22/2020	5:05 AM	61	0	0	\$1,141,887	\$0
Travis County	9/9/2020	12:10 PM	65	0	0	\$11,403	\$0
Travis County	10/27/2021	3:55 AM	52	0	0	\$5,365	\$0
Travis County	1/15/2022	11:00 AM	48	0	0	\$2,111	\$0
Travis County	5/24/2022	10:18 PM	52	0	0	\$1,015	\$0
Travis County	5/24/2022	10:20 PM	52	0	0	\$1,015	\$0
City of Pflugerville	5/24/2022	10:34 PM	52	0	0	\$1,015	\$0

## SECTION 10: THUNDERSTORM WIND

Item 8.

JURISDICTION	DATE	TIME	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Pflugerville	5/24/2022	10:27 PM	52	0	0	\$1,015	\$0
City of Creedmoor	7/10/2022	4:32 PM	65	0	0	\$100,176	\$0
Travis County	10/24/2022	8:03 PM	52	0	0	\$1,992	\$0
Travis County	10/24/2022	8:25 PM	52	0	0	\$4,980	\$0
<b>TOTALS</b>			<b>(MAX EXTENT)</b>	<b>5</b>	<b>26</b>	<b>\$87,398,620</b>	<b>\$328,933</b>

**Table 10-4. Summary of Historical Events by Jurisdiction, 1956-2022<sup>4</sup>**

JURISDICTION	NUMBER OF EVENTS	MAGNITUDE (knots)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	265	75	5	16	\$80,874,264	\$60,060
Village of Briarcliff	0	-	-	-	-	-
City of Creedmoor	3	65	0	0	\$151,631	\$0
City of Jonestown	1	56	0	0	\$2,317	\$0
City of Lago Vista	0	-	-	-	-	-
City of Lakeway	8	74	0	0	\$2,682,826	\$101,852
City of Manor	8	70	0	0	\$12,247	\$0
City of Mustang Ridge	0	-	-	-	-	-
City of Pflugerville	10	63	0	10	\$3,480,330	\$167,021
Village of Point Venture	0	-	-	-	-	-
City of Rollingwood	0	-	-	-	-	-
Village of San Leanna	0	-	-	-	-	-
City of Sunset Valley	0	-	-	-	-	-
Village of The Hills	0	-	-	-	-	-
City of West Lake Hills	1	68	0	0	\$195,005	\$0
ESD #6	0	-	-	-	-	-
<b>TOTALS</b>	<b>296</b>	<b>(MAX EXTENT)</b>	<b>5</b>	<b>26</b>	<b>\$87,727,553</b>	

<sup>4</sup> Participating jurisdictions with no reported events show a “-” in table columns where damages, deaths or injuries would be otherwise reported.

Based on the list of historical thunderstorm wind events for the Travis County planning area, including participating jurisdictions and ESD #6, 42 of the events have occurred since the 2017 Plan that have caused impacts to the planning area.

### SIGNIFICANT EVENTS

#### **August 22, 2020 – Travis County**

An upper-level low over the Lower Mississippi River valley and a stationary boundary combined to generate thunderstorms within South Central Texas producing damaging wind gusts. Wind gusts were estimated to be around 60 and 70 knots (69 to 80 mph). Reports indicated damage sustained to boats, docks, and roofs at the Lake Travis Marina. Total damages estimates were estimated at \$1,141,887 (2022 dollars).

#### **April 2, 2017 – Travis County / City of Lakeway**

An upper-level low moved out of Mexico and pushed a cold front through Texas, generating severe thunderstorms. Several houses sustained damages around the City of Lakeway area, in addition to several lake shore marinas and a floating restaurant sustaining damages due to estimated winds at around 70 knots (80 mph). Estimates of damage were reported to be incomplete but estimated to be around \$1,193,925 (2022 dollars).

#### **March 25, 2014 – Travis County**

An upper-level low and surface cold front moved through South Central Texas producing thunderstorms. These storms produced a few tornadoes and damaging wind gusts across many areas of South Central Texas. Within Travis County, near Austin-Lakeway Airport, a thunderstorm produced wind gusts estimated around 74 knots (85 mph) cause residential structure damages to roofs and deck in addition to down trees impacting residences. Total damages were reported to be \$247,242 (2022 dollars).

#### **May 20, 2001 – City of Pflugerville**

A thunderstorm complex headed eastward resulting in winds measuring between 50 and 60 knots (56 mph and 69 mph), with estimated high of 80 knots (92 mph). These winds were accompanied by very large hail which resulted in residential structural damage to roof and down power lines between City of Round Rock and City of Pflugerville. Nearly 300 mobile homes were damaged by the winds. The storm event left nearly 20,000 residents without power for several hours. Total damage estimates were approximate total losses \$3,507,449 (2022 dollars), with approximately 10 injuries sustained from the event.

### PROBABILITY OF FUTURE EVENTS

Most thunderstorm winds occur during the spring and fall seasons and during the months of March, April, May, and September. Based on available records of historic events, there have been a total of 296 events in a 67-year reporting period, which provides a probability of five to six events every year. Even though the intensity of thunderstorm wind events is not always damaging for the Travis County planning area, including participating jurisdictions and ESD #6, the frequency of occurrence for a thunderstorm wind event is highly likely. This means that an event is probable within the next year for the Travis County planning area. See additional information on climate change at the end of this section.

## SECTION 10: THUNDERSTORM WIND

### VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since thunderstorm wind events can occur at different strength levels, in random locations, and can create relatively narrow paths of destruction. Due to the randomness of these events, all existing and future structures and facilities within the Travis County planning area, including participating jurisdictions and ESD #6, could potentially be impacted and remain vulnerable to possible injury and property loss from strong winds.

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

According to the American Community Survey (ACS) five-year estimates for 2021, a total of 18,252 manufactured homes are located in the Travis County planning area (3.3 percent of total housing stock). In addition, 27 percent (approximately 149,603 structures) of the housing units were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant wind events. Based on 2021 ACS five-year estimates, the City of Lakeway and the City of Pflugerville have the highest reported number of single-family residences built before 1980, indicating greater vulnerability in terms of at-risk structures.

**Table 10-5. Structures at Greater Risk by Participating Jurisdiction**

JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980	MANUFACTURED HOMES
Travis County <sup>5</sup>	149,603	18,252
Village of Briarcliff	79	0
City of Creedmoor	42	21
City of Jonestown	269	74
City of Lago Vista	706	239
City of Lakeway	1,040	0
City of Manor	312	289
City of Mustang Ridge	82	140
City of Pflugerville	779	408

<sup>5</sup> County totals includes all jurisdictions and unincorporated areas within the county.



JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980	MANUFACTURED HOMES
Village of Point Venture	226	0
City of Rollingwood	223	0
Village of San Leanna	92	0
City of Sunset Valley	87	0
Village of The Hills	30	0
City of West Lake Hills	546	9
ESD #6	0	0

While all citizens are vulnerable to the impacts of thunderstorm wind, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 10.7 percent of the planning area population live below the poverty level (Table 10-6). While warning times for these type of hazard events should be substantial enough for these individuals to seek shelter, individuals who work and recreate outside (Table 10-7) are also vulnerable to potential impacts of a thunderstorm wind event.

**Table 10-6 Populations at Greatest Risk by Jurisdiction<sup>6</sup>**

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Travis County	135,654
Village of Briarcliff	66
City of Creedmoor	60
City of Jonestown	229
City of Lago Vista	316
City of Lakeway	554
City of Manor	975
City of Mustang Ridge	85
City of Pflugerville	3392
Village of Point Venture	47
City of Rollingwood	0

<sup>6</sup> US Census Bureau 2022 data for Travis County.

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Village of San Leanna	9
City of Sunset Valley	26
Village of The Hills	62
City of West Lake Hills	209
ESD #6	N/A

**Table 10-7. Outdoor Employees by Participating Special District**

ESD	EMPLOYEES WORKING OUTDOORS
ESD #6	108

The Travis County Planning Team identified the following critical facilities (Table 10-8) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by thunderstorm wind events. The critical infrastructure with the greatest vulnerability to thunderstorms are power and communications facilities. Failures of these facilities can result in a loss of service and cascading impacts such as posing enormous risk to individuals dependent on electricity as a medical necessity. For a comprehensive list by participating jurisdiction see Appendix C.

**Table 10-8. Critical Facilities Vulnerable to Thunderstorm Wind Event**

CRITICAL FACILITY TYPE	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	<ul style="list-style-type: none"> <li>Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>Emergency vehicles can be damaged by falling trees or flying debris.</li> <li>Power outages could disrupt communications, delaying emergency response times.</li> <li>Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities.</li> <li>Debris/downed trees can impede emergency response vehicle access to areas.</li> <li>Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel.</li> <li>First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.</li> </ul>
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters,	<ul style="list-style-type: none"> <li>Structures can be damaged by falling trees or flying debris.</li> <li>Power outages could disrupt critical care.</li> <li>Backup power sources could be damaged.</li> </ul>

CRITICAL FACILITY TYPE	POTENTIAL IMPACTS
Governmental Facilities, Residential/ Assisted Living Facilities	<ul style="list-style-type: none"> <li>• Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities.</li> <li>• Evacuations may be necessary due to extended power outages, gas line ruptures, or structural damage to facilities.</li> <li>• Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations.</li> <li>• Temporary break in operations may significantly inhibit post event evacuations.</li> <li>• Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.</li> </ul>
Commercial Supplier (food, fuel, etc.)	<ul style="list-style-type: none"> <li>• Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable.</li> <li>• Essential supplies like medicines, water, food, and equipment deliveries may be delayed.</li> <li>• Economic disruption due to power outages and fires negatively impact airport services as well as area businesses reliant on airport operations.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)	<ul style="list-style-type: none"> <li>• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>• Emergency vehicles can be damaged by falling trees or flying debris.</li> <li>• Power outages could disrupt communications, delaying emergency response times.</li> <li>• Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities.</li> <li>• Debris/downed trees can impede emergency response vehicle access to areas.</li> <li>• Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel.</li> </ul>

A thunderstorm wind event can also result in traffic disruptions, injuries and in rare cases, fatalities. Impact of thunderstorms winds experienced in the Travis County planning area has resulted in twenty-six injuries and five fatalities. Impact of thunderstorm wind events experienced in Travis County planning area, including participating jurisdictions and ESD #6, would be considered “Limited,” with less than 10 percent of property expected to be destroyed and critical facilities shut down for less than 24-hours. However, with twenty-six injuries and five fatalities, the impact is considered “Substantial” with multiple injuries possible depending on the severity of the event. Overall, in the past 67 years there has been a total of \$87,727,553 damages (in 2022 dollars) in the Travis County planning area due to thunderstorm wind events. The estimated average annual loss from a thunderstorm wind event is \$1,309,367.

**Table 10-9. Estimated Annualized Losses by Participating Jurisdiction**

JURISDICTION	TOTAL PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Travis County	\$80,934,324	\$1,207,975
Village of Briarcliff	-	-
City of Creedmoor	\$151,631	\$2,263
City of Jonestown	\$2,317	\$35
City of Lago Vista	-	-
City of Lakeway	\$2,784,678	\$41,562
City of Manor	\$12,247	\$183
City of Mustang Ridge	-	-
City of Pflugerville	\$3,647,351	\$54,438
Village of Point Venture	-	-
City of Rollingwood	-	-
Village of San Leanna	-	-
City of Sunset Valley	-	-
Village of The Hills	-	-
City of West Lake Hills	\$195,005	\$2,911
ESD #6	-	-
<b>TOTALS</b>	<b>\$87,727,553</b>	<b>\$1,309,367</b>

## ASSESSMENT OF IMPACTS

Thunderstorm wind events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. Thunderstorm wind conditions can be frequently associated with a variety of impacts, including:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.

## SECTION 10: THUNDERSTORM WIND

- Thunderstorm wind events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Critical staff may be unable to report for duty, limiting response capabilities.
- Private sector entities that residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by thunderstorm wind events may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures, specifically those built before 1980 (27 percent of the planning area), were built to less stringent building codes may suffer greater damage as they are typically more vulnerable to thunderstorm winds.
- Recreational areas such as community parks and green spaces may be damaged or inaccessible due to downed trees or debris, causing temporary impacts to associated businesses in the area.
- Historical sites and properties are placed at a higher risk of impact due to materials used and the inability to change properties due to their historic status. One site in the Travis County planning area, the City of Pflugerville East Main Street Historic District, is listed on the National Register of Historic Places.

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

## CLIMATE CHANGE CONSIDERATIONS

The impacts on the frequency and severity of severe thunderstorm wind events due to climate change are unclear. According to the Texas A&M 2021 Climate Report Update, changes in severe thunderstorm reports over time have been more closely linked to changes in population than changes in the hazard event. At this time there is low confidence of an ongoing trend in the overall frequency and severity of thunderstorm events, due to the lack of climate data records for severe thunderstorms. Based on climate models that are available, the environmental conditions needed for severe thunderstorms are estimated to become more likely, resulting in an overall increase in the number of days capable of producing a severe thunderstorm event.<sup>7</sup>

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<sup>7</sup> Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 Update.



## SECTION 10: THUNDERSTORM WIND

Item 8.

According to the University of Texas at Austin technical report for the City of Austin, the expected number of windy days are projected to increase for the planning area while the number of calm days, or days where wind speed is less than 2 meters per seconds, are expected to decrease.<sup>8</sup>

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<sup>8</sup> University of Texas at Austin, February 2023, Austin Future Climate, Climate Change Predictions for the City of Austin 2022, Technical Report.



# SECTION 11

# HAIL



Hazard Description .....	1
Location .....	1
Extent .....	2
Historical Occurrences .....	3
Significant Events .....	6
Probability of Future Events .....	7
Vulnerability and Impact .....	7
Assessment of Impacts .....	11
Climate Change Considerations .....	12

## HAZARD DESCRIPTION



Hailstorm events are a potentially damaging outgrowth of severe thunderstorms. During the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere, and the subsequent cooling of the air mass. Frozen droplets gradually accumulate into ice crystals until they fall as precipitation that is round or irregularly shaped masses of ice typically greater than 0.75 inches in diameter. The size of hailstones is a direct result of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a by-product of heating on the Earth's surface. Higher temperature gradients above Earth's surface result in increased suspension time and hailstone size.

According to the National Insurance Crime Bureau (NICB), between 2018 and 2020 the State of Texas had the greatest number of hail loss claims in the U.S. with 605,866 loss claims (23 percent of total hail claims in the U.S.) due to hail events. In this two-year period Texas experienced a total of 584 severe hail days. Five of the top ten cities for hail loss claims between 2017 and 2019 were in Texas, three of which were in the Dallas-Fort Worth metropolitan area.<sup>1</sup>

In 2021, 6.8 million properties in the U.S. experienced one or more damaging hail events, resulting in a total of \$16.5 billion in insured losses. Texas had the highest number of properties affected by hail with over 1.5 million properties or 17 percent of total properties in the state affected; an increase of 80,000 properties affected between 2020 and 2021. Texas hailstorms accounted for almost a quarter of total U.S. properties affected by hail in 2021.

## LOCATION

Hailstorms are an extension of severe thunderstorms that could potentially cause severe damage. As a result, they are not confined to any specific geographic location and can vary greatly in size, location, intensity, and duration. Therefore, the entire Travis County planning area, including

<sup>1</sup> Manasek, Thomas, "2018-2020 United States Hail Loss Claims and Questionable Claims" (National Insurance Crime Bureau, March 15, 2021). <http://www.rmiaa.org/downloads/PUBLIC%202018%20-%202020%20Hail%20foreCAST-%20TJM.pdf>

participating jurisdictions and ESD #6, is equally at risk to the hazard of hail. Refer to Figure 11-1 for the location of past hail events in the planning area.

## EXTENT

The National Weather Service (NWS) classifies a storm as “severe” if there is hail three-quarters of an inch in diameter (approximately the size of a penny) or greater, based on radar intensity or as seen by observers. The intensity category of a hailstorm depends on hail size and the potential damage it could cause, as depicted in the National Centers for Environmental Information (NCEI) Intensity Scale in Table 11-1.

**Table 11-1. Hail Intensity and Magnitude<sup>2</sup>**

SIZE CODE	INTENSITY CATEGORY	SIZE (Diameter Inches)	DESCRIPTIVE TERM	TYPICAL DAMAGE
H0	Hard Hail	Up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33 – 0.60	Marble	Slight damage to plants and crops
H2	Potentially Damaging	0.60 – 0.80	Dime	Significant damage to plants and crops
H3	Severe	0.80 – 1.20	Nickel	Severe damage to plants and crops
H4	Severe	1.2 – 1.6	Quarter	Widespread glass and auto damage
H5	Destructive	1.6 – 2.0	Half Dollar	Widespread destruction of glass, roofs, and risk of injuries
H6	Destructive	2.0 – 2.4	Ping Pong Ball	Aircraft bodywork dented and brick walls pitted
H7	Very Destructive	2.4 – 3.0	Golf Ball	Severe roof damage and risk of serious injuries
H8	Very Destructive	3.0 – 3.5	Hen Egg	Severe damage to all structures
H9	Super Hailstorms	3.5 – 4.0	Tennis Ball	Extensive structural damage, could cause fatal injuries
H10	Super Hailstorms	4.0 +	Baseball	Extensive structural damage, could cause fatal injuries

The intensity scale in Table 11-1 ranges from H0 to H10, with increments of intensity or damage potential in relation to hail size (distribution and maximum), texture, fall speed, speed of storm translation, and strength of the accompanying wind. Based on the best available data regarding the previous occurrences for the area, the Travis County planning area, including participating

<sup>2</sup> NCEI Intensity Scale, based on the TORRO Hailstorm Intensity Scale.

## SECTION 11: HAIL

jurisdictions and ESD #6, may experience hailstorms ranging from an H0 (pea size) to an H10 (baseball size). The largest hail event in the Travis County planning area took place on May 14, 2008, and resulted in hail measuring 4 inches in diameter, or a H10, which is considered a very destructive hailstorm that can cause severe damage to structures. Refer to the Historical Occurrences section below for more details on this event. This is likely the greatest extent the planning area can anticipate in the future.

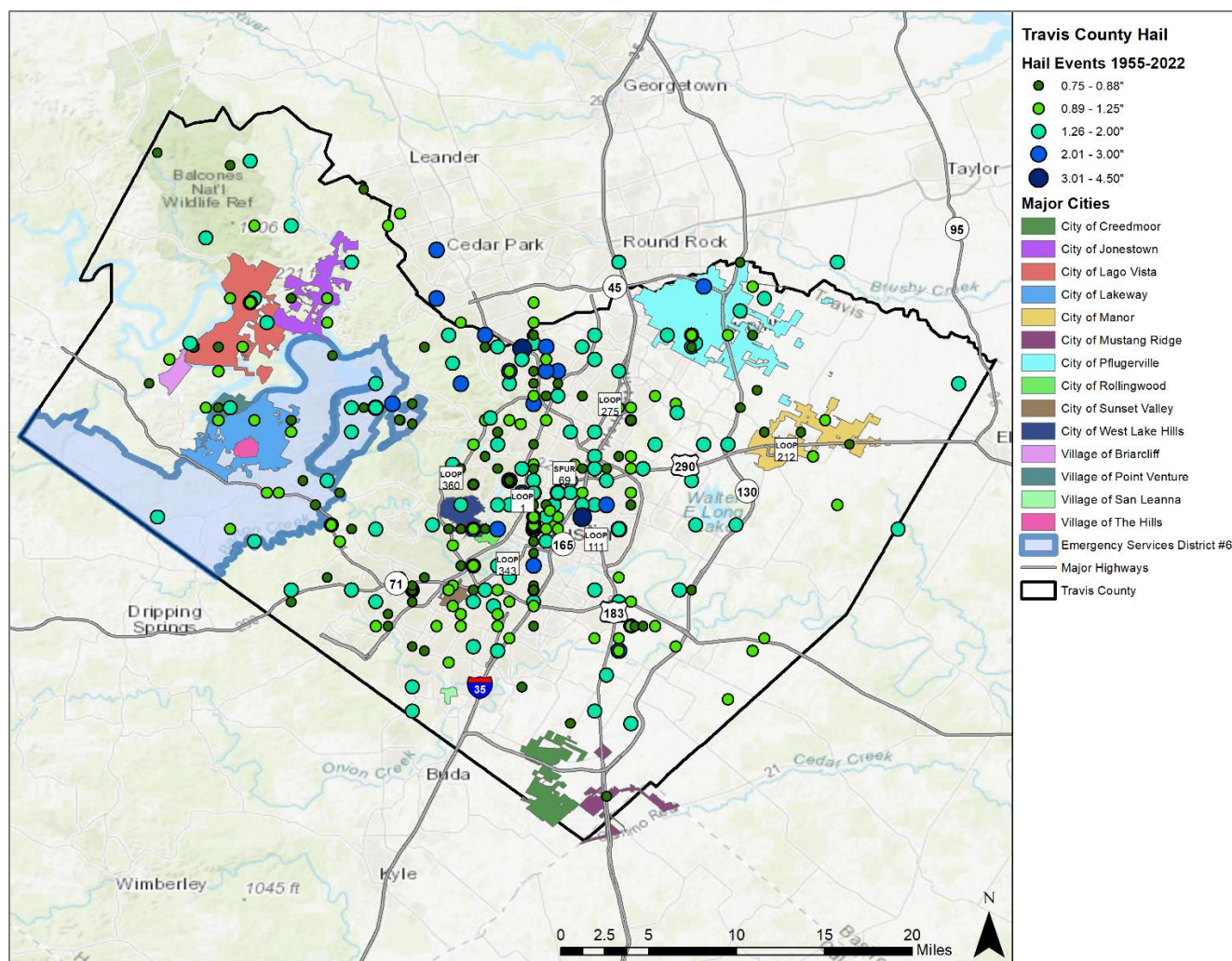
### HISTORICAL OCCURRENCES

Historical evidence shown in Figure 11-1 demonstrates that the planning area is vulnerable to hail events overall. Historical events with reported damages, injuries, or fatalities are shown in Table 11-2. A total of 426 reported historical hail events impacted the Travis County planning area, including participating jurisdictions and ESD #6, between 1955 through 2022; these events were reported to NCEI and NOAA databases and may not represent all hail events to have occurred during the past 68 years. Only those events for the Travis County planning area with latitude and longitude available were plotted (Figure 11-1).

Historical hail data for the ESD #6 are provided within the county or city events per the NCEI database as they do not have events reported separate and apart from those jurisdictions. According to the Planning Team, there have been no reported losses as a result of hail events for the district.



Figure 11-1. Spatial Historical Hail Events, 1955-2022

Table 11-2. Historical Hail Events, 1955-2022<sup>3</sup>

JURISDICTION	DATE	MAGNITUDE (Inches)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Austin	3/25/1993	1.75	0	0	\$103,342	\$0
Travis County	3/25/1993	1.5	0	0	\$103,342	\$0
City of Austin	3/25/1993	1.75	0	0	\$1,033,416	\$0
Travis County	3/25/1993	2	0	0	\$103,341,574	\$0
City of Austin	3/25/1993	2	0	0	\$155,012,361	\$10,334

<sup>3</sup> Only recorded events with damages are listed. No reports of injuries or fatalities were recorded in the NCEI database. Events reported for the City of Austin have been included under Travis County events within the Historic Hail Events Summary Table 11-3. The City of Austin is not a participant in this plan.

## SECTION 11: HAIL

Item 8.

JURISDICTION	DATE	MAGNITUDE (Inches)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	3/25/1993	1.75	0	0	\$103,342	\$0
City of Pflugerville	5/30/1993	1.25	0	0	\$102,912	\$0
City of Austin	4/5/1994	0.75	0	0	\$1,006,774	\$100,677
Travis County	9/20/1996	2	0	0	\$18,808	\$0
Northwest Austin	10/17/1996	1.5	0	0	\$37,498	\$0
City of Austin	10/17/1996	Unknown	0	0	\$18,749	\$0
City of Austin	10/20/2002	1.75	0	0	\$818,525	\$0
City of Austin	8/11/2003	1.75	0	0	\$160,778	\$0
City Lago Vista	4/6/2004	1.75	0	0	\$315,741	\$0
City Lago Vista	4/13/2004	1	0	0	\$789,354	\$0
City Lago Vista	3/25/2005	2	0	0	\$153,542,162	\$0
(Aus)Mueller Muni Airport	5/14/2008	2.75	0	0	\$137,005	\$0
(Aus)Mueller Muni Airport	5/14/2008	4	0	0	\$1,370	\$0
City of Austin	5/14/2008	1.75	0	0	\$1,370	\$0
Austin Mabry	5/14/2008	2	0	0	\$137,005	\$0
(Aus)Mueller Muni Airport	5/14/2008	2.75	0	0	\$137,005	\$0
Travis County	3/25/2009	2	0	0	\$13,953	\$0
City of Jonestown	3/25/2009	3	0	0	\$223,251,108	\$0
Travis County	4/27/2014	1.25	0	0	\$1,252	\$0
City Pflugerville	4/15/2021	2	0	0	\$1,111	\$0
<b>TOTALS</b>		<b>(Max Extent)</b>	<b>0</b>	<b>0</b>	<b>\$640,189,857</b>	<b>\$142,013</b>

**Table 11-3. Historical Hail Events Summary, 1955-2022<sup>4</sup>**

JURISDICTION	NUMBER of EVENTS	MAX MAGNITUDE (Inches)	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Travis County	383	4	0	0	\$262,187,469	\$142,013

<sup>4</sup> Participating jurisdictions with no reported events show a “-” in table columns where damages, deaths or injuries would be otherwise reported.

## SECTION 11: HAIL

Item 8.

JURISDICTION	NUMBER of EVENTS	MAX MAGNITUDE (Inches)	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Village of Briarcliff	0	-	-	-	-	-
City of Creedmoor	1	0.88	0	0	\$0	\$0
City of Jonestown	4	3	0	0	\$223,251,108	\$0
City of Lago Vista	9	2	0	0	\$154,647,257	\$0
City of Lakeway	7	1.75	0	0	\$0	\$0
City of Manor	4	1	0	0	\$0	\$0
City of Mustang Ridge	0	-	-	-	-	-
City of Pflugerville	13	2	0	0	\$104,023	\$0
Village of Point Venture	0	-	-	-	-	-
City of Rollingwood	0	-	-	-	-	-
Village of San Leanna	0	-	-	-	-	-
City of Sunset Valley	0	-	-	-	-	-
Village of The Hills	0	-	-	-	-	-
City of West Lake Hills	5	1.75	0	0	\$0	\$0
ESD #6	0	-	-	-	-	-
<b>TOTAL LOSSES</b>	<b>426</b>	<b>(Max Extent)</b>	<b>0</b>	<b>0</b>	<b>\$640,189,857</b>	<b>\$142,013</b>

Based on the list of historical hail events for the Travis County planning area (listed above), including participating jurisdictions and ESD #6, 75 of the events have occurred since 2017 Plan according to reports in the NCEI database. Unincorporated Travis County has had the greatest number of events (383) over the reporting period followed by City of Pflugerville (13) and City of Lago Vista (9). The most significant event in relation to damages occurred on March 25, 2009, in the City of Jonestown, with just over \$223 million in damages (2022 dollars) with hail reported as large as 3 inches in diameter.

### SIGNIFICANT EVENTS

#### March 25, 2021 – Travis County

An upper-level low moved into west Texas and provided lift to generate convection. There was a warm, moist airmass over South Central Texas and a warm front just north of the area. The front acted as a focus for convection and some of the storms produced large hail. Hail 1 inch to 2 inches were reported northeast of the City of Austin.

## SECTION 11: HAIL

### **March 25, 2009 – Travis County**

A cold front stalled across South Central Texas on the morning of March 25th. Thunderstorms reached the Edwards Plateau by early afternoon and continued moving toward the east into the evening. Total estimated loss from this storm is around \$223 million (2022 dollars), the most ever for a Travis County hailstorm. The storm produced hail ranging from quarter to teacup size. The Emergency Operations Center (EOC) received 14 reports of severe size hail, 9 of which were 2 inches or larger. The teacup size hail was reported by the media and fell near the Austin Arboretum.

### **May 14, 2008 – Travis County**

A severe thunderstorm to the southwest of the City of Austin moved northeast across the downtown area causing extensive damage from winds and large hail. Numerous windows were broken from large hail near the 26th and Rio Grande intersection on the UT campus. Reports of nickel to golf ball size hail were reported.

### **March 25, 2005 – Travis County**

On the evening of March 25, the most destructive hailstorm in 10 years struck Travis County. The total damage to homes, vehicles, businesses, and property has been estimated at over \$100 million. The event began as two supercells located near Marble Falls and Round Mountain merged into a line of thunderstorms as they moved eastward into Travis County. This new line stretched from near City of Lago Vista on the north edge, across Lake Travis and City of Lakeway, to near Bee Cave. The storm began producing hail up to golf-ball-size at Lake Travis and City of Lakeway. At the same time, near the mid part of the line, a combination of large hail and damaging winds struck near FM 620 and Anderson Mill Road. The storm knocked out power to 5,000 homes from northwest City of Austin to the Oak Hills area. As the hailstorm crossed the central and south portions of the county, it shattered windows in hundreds of homes and thousands of cars, as well as denting thousands of cars. The storm continued on toward City of Manor, producing 1 inch hail in 3-to-6-inch drifts in the City of Manor area, just prior to producing an F1 tornado.

## PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, 426 events in a 68-year reporting period for Travis County provides an average annual occurrence of six events per year. This frequency supports a highly likely probability of future events for the Travis County planning area, including participating jurisdictions and ESD #6. See additional information on climate change at the end of this section.

## VULNERABILITY AND IMPACT

Much of the damage inflicted by hail is to crops. Even relatively small hail can shred plants to ribbons in a matter of minutes. Vehicles, roofs of buildings and homes, and landscaping are most commonly damaged by hail.

Utility systems on roofs at school districts and of county-wide buildings and critical facilities would be vulnerable and could be damaged. Hail could cause a significant threat to people, as they could be struck by hail and falling trees and branches. Outdoor activities and events may elevate the risk to residents and visitors when a hailstorm strikes with little warning. Portable buildings typically utilized by schools and commercial sites such as construction areas would be more vulnerable to hail events than the typical site-built structures.

## SECTION 11: HAIL

The Travis County planning area features mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to hail events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area including all participating jurisdictions which would also be more vulnerable. The U.S. Census data indicates a total of 18,252 (3.3 percent of total housing stock) manufactured homes located in the Travis County planning area. In addition, 27 percent (approximately 149,603 structures) of the housing structures in the Travis County planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant wind events.

**Table 11-4. Structures at Greater Risk by Participating Jurisdiction**

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Travis County	18,252	149,603
Village of Briarcliff	0	79
City of Creedmoor	21	42
City of Jonestown	74	269
City of Lago Vista	239	706
City of Lakeway	0	1,040
City of Manor	289	312
City of Mustang Ridge	140	82
City of Pflugerville	408	779
Village of Point Venture	0	226
City of Rollingwood	0	223
Village of San Leanna	0	92
City of Sunset Valley	0	87
Village of The Hills	0	30
City of West Lake Hills	9	546
ESD #6	0	0

While all citizens are at risk of the impacts of a hail, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 10.7 percent of the planning area population live below the poverty level (Table 11-5). While warning times for this type of hazard events should be substantial enough for these individuals to seek shelter,



individuals who work and recreate outside (Table 11-6) are also vulnerable to potential impacts of a hail event.

**Table 11-5. Populations at Greatest Risk by Jurisdiction<sup>5</sup>**

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Travis County	135,654
Village of Briarcliff	66
City of Creedmoor	60
City of Jonestown	229
City of Lago Vista	316
City of Lakeway	554
City of Manor	975
City of Mustang Ridge	85
City of Pflugerville	3392
Village of Point Venture	47
City of Rollingwood	0
Village of San Leanna	9
City of Sunset Valley	26
Village of The Hills	62
City of West Lake Hills	209
ESD #6	N/A

**Table 11-6. Outdoor Employees by Participating Special District**

ESD	EMPLOYEES WORKING OUTDOORS
ESD #6	108

The Travis County Planning Team identified the following critical facilities (Table 11-7) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by hail events. For a comprehensive list by participating jurisdiction see Appendix C.

<sup>5</sup> US Census Bureau 2021 data for Travis County

**Table 11-7. Critical Facilities Vulnerable to Hail**

CRITICAL FACILITY TYPE	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	<ul style="list-style-type: none"> <li>• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>• Emergency vehicles can be damaged by hailstones.</li> <li>• Power outages could disrupt communications, delaying emergency response times.</li> <li>• Accumulated hail on the streets may impede emergency response vehicle access to areas.</li> <li>• Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	<ul style="list-style-type: none"> <li>• Structures can be damaged by hailstones.</li> <li>• Power outages could disrupt critical care.</li> <li>• Backup power sources could be damaged.</li> <li>• Evacuations may be necessary due to extended power outages, gas line ruptures, or structural damage to facilities.</li> <li>• Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations.</li> <li>• Temporary break in operations may significantly inhibit post event evacuations.</li> <li>• Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.</li> </ul>
Commercial Supplier (food, fuel, etc.)	<ul style="list-style-type: none"> <li>• Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible.</li> <li>• Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)	<ul style="list-style-type: none"> <li>• Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>• Power outages could disrupt communications, delaying emergency response times.</li> <li>• Accumulated hail on the streets may impede service response vehicle access to areas.</li> <li>• Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>

Hail has been known to cause injury to humans and occasionally has been fatal. Overall, the average loss estimate of property and crops in the planning area is considered \$56,189,978 with an average annualized loss of \$826,324. Based on historic loss and damages, the impact of hail damages on the Travis County planning area can be considered “Limited” severity of impact, meaning minor quality of life lost, critical facilities and services shut down for 24 hours or less, and less than 10 percent of property destroyed or with major damage.

**Table 11-8. Estimated Annualized Losses by Jurisdiction**

<b>JURISDICTION</b>	<b>TOTAL PROPERTY &amp; CROP LOSS</b>	<b>ANNUAL LOSS ESTIMATE</b>
Travis County	\$262,329,482	\$3,857,787
Village of Briarcliff	\$0	\$0
City of Creedmoor	\$0	\$0
City of Jonestown	\$223,251,108	\$3,283,105
City of Lago Vista	\$154,647,257	\$2,274,224
City of Lakeway	\$0	\$0
City of Manor	\$0	\$0
City of Mustang Ridge	\$0	\$0
City of Pflugerville	\$104,023	\$1,530
Village of Point Venture	\$0	\$0
City of Rollingwood	\$0	\$0
Village of San Leanna	\$0	\$0
City of Sunset Valley	\$0	\$0
Village of The Hills	\$0	\$0
City of West Lake Hills	\$0	\$0
ESD #6	\$0	\$0
<b>Planning Area Totals</b>	<b>\$640,331,870</b>	<b>\$9,416,645</b>

## ASSESSMENT OF IMPACTS

Hail events have the potential to pose a significant risk to people and can create dangerous situations. Hail conditions can be frequently associated with a variety of impacts, including:

- Hail may create hazardous road conditions during and immediately following an event, potentially delaying critical staff from reporting for duty as well as delaying first responders from providing for or preserving public health and safety and.
- Individuals and first responders who are exposed to the storm may be struck by hail, falling branches, or downed trees resulting in injuries or possible fatalities.
- Large hail events will likely cause extensive roof damage to residential structures along with siding damage and broken windows, creating a spike in insurance claims and a rise in premiums, and potentially result in physical harm to occupants.
- Automobile damage may be extensive depending on the size of the hail and length of the storm.

## SECTION 11: HAIL

- Hail events can result in power outages over widespread areas increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage can result in an increase in structure fires and/or carbon monoxide poisoning, as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, damaged structures, hazardous spills, and debris that often accompany hail events, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Some businesses not directly damaged by the hail event may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damage without a backup power source.
- Depending on the severity and scale of damage caused by large hail events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A significant hail event could significantly damage agricultural crops, resulting in extensive economic losses for the community and surrounding area.
- Hail events may injure or kill livestock and wildlife or destroy wildlife habitat at locations such as the Balcones Canyonland Preserve and the National Wildlife Refuge.
- A large hail event could impact the accessibility of recreational areas and parks due to extended power outages or debris clogged access roads.
- Historical sites and properties are placed at a higher risk of impact due to materials used and the inability to change properties due to their historic status. One site in the Travis County planning area, the City of Pflugerville East Main Street Historic District, is listed on the National Register of Historic Places.

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

## CLIMATE CHANGE CONSIDERATIONS

While the impact of climate change on the frequency and severity hailstorm events is unclear, the increase of warmer temperatures will likely lead to less hail events during the summer months but is expected to increase the risk of large hailstones during the spring season.<sup>6</sup>

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<sup>6</sup> Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.



# SECTION 12 WINTER STORM



Hazard Description .....	1
Location .....	3
Extent .....	3
Historical Occurrences .....	5
Significant Events .....	7
Probability of Future Events .....	7
Vulnerability and Impact .....	8
Assessment of Impacts .....	11
Climate Change Considerations .....	12

## HAZARD DESCRIPTION



A severe winter storm event is identified as a storm with snow, ice, or freezing rain. This type of storm can cause significant problems for area residents. Winter storms are associated with freezing or frozen precipitation such as freezing rain, sleet, snow, and the combined effects of winter precipitation and strong winds. Wind chill is a function of temperature and wind. Low wind chill is a product of high winds and freezing temperatures.

Winter storms that threaten the Travis County planning area, including participating jurisdictions and ESD #6, usually begin as powerful cold fronts that push south from central Canada. Although the county is at risk of ice hazards, extremely cold temperatures, and snow, the effects and frequencies of winter storm events are generally mild and short-lived.

As indicated in Figure 12-1, the Travis County planning area, including participating jurisdictions and ESD #6, is located in USDA Hardiness Zone 8a and 8b, with annual minimum temperatures between 10°F and 20°F. During times of ice and snow accumulation, response times will increase until public works road crews are able to make major roads passable. Table 12-1 describes the types of winter weather possible to occur in the Travis County planning area, including participating jurisdictions and ESD #6.

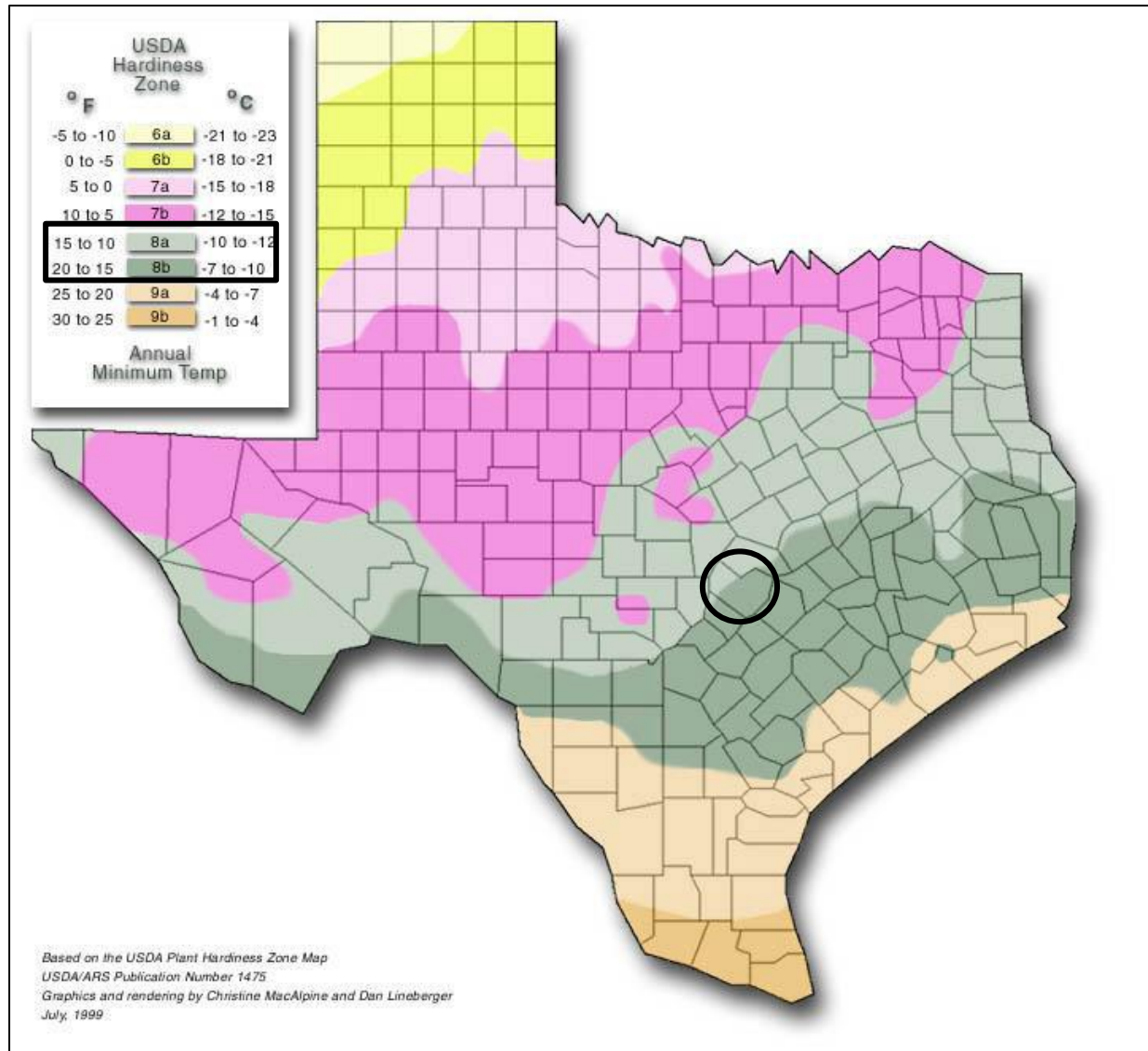
Figure 12-1. Annual Minimum Temperature<sup>1</sup>

Table 12-1. Types of Winter Weather

TYPE OF WINTER WEATHER	DESCRIPTION
Freezing Rain or Freezing Drizzle	Rain or drizzle is likely to freeze upon impact, resulting in a coating of ice glaze on roads and all other exposed objects.
Sleet	Small particles of ice usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.
Blizzard	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most perilous winter storm with visibility dangerously restricted.

<sup>1</sup> USDA

TYPE OF WINTER WEATHER	DESCRIPTION
Frost/Freeze	Below freezing temperatures are expected and may cause significant damage to plants, crops, and fruit trees.
Wind Chill	A strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degrees lower in a calm atmosphere. The combined cooling power of the wind and temperature on exposed flesh is called the wind-chill factor.

## LOCATION

Winter storm events are not confined to specific geographic boundaries. Therefore, all existing and future buildings, facilities, and populations in the Travis County planning area, including all participating jurisdictions and ESD #6, are considered to be exposed to a winter storm hazard and could potentially be impacted.

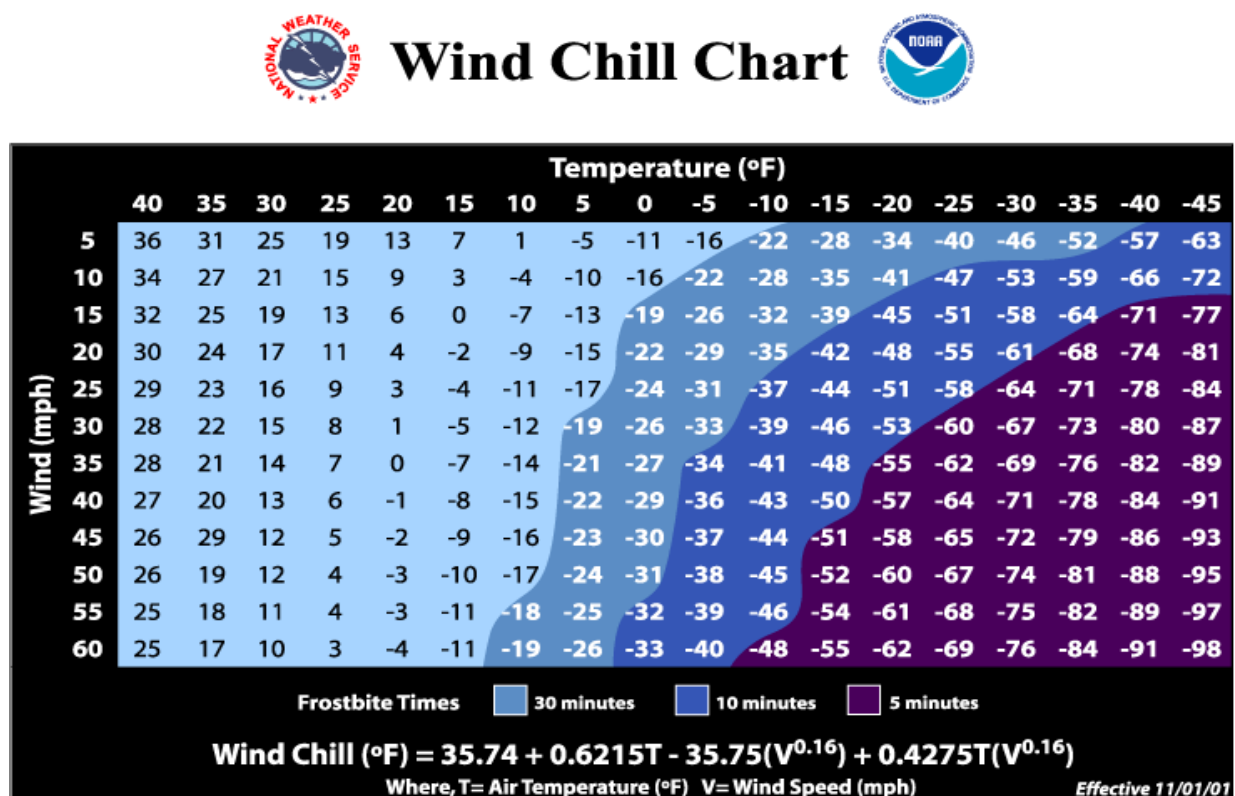
## EXTENT

The extent or magnitude of a severe winter storm is measured in intensity based on the temperature and level of accumulations as shown in Table 12-2. Table 12-2 should be read in conjunction with the wind-chill factor described in Figure 12-2 to determine the intensity of a winter storm. The chart is not applicable when temperatures are over 50°F or winds are calm. This is an index developed by the National Weather Service.

**Table 12-2. Magnitude of Severe Winter Storms**

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

Figure 12-2. Wind Chill Chart



Wind chill temperature is a measure of how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30°F day would feel just as cold as a calm day with 0°F temperatures. The Travis County planning area has 37 previous occurrences recorded from 1996 through January 2023. The planning area has never experienced a blizzard but it has been subject to ice storms, sleet, and winter storms.

The average number of cold days is similar for the entire planning area. Therefore, the intensity or extent of a winter storm event to be mitigated for the area ranges from mild to moderate according to the definitions at Table 12-2. The Travis County planning area, including all participating jurisdictions and ESD #6, can expect anywhere between 0.1 to 4.0 inches of ice and snow during a winter storm event, and temperatures between 10°F and below 20°F with winds ranging from 0 to over 35 mph.

The National Weather Service Austin/San Antonio Weather Forecast Office issues a winter storm watch, advisory or warning in advance of an event in order to give people enough time to prepare for an event. Travis County could be under any of these warning types in advance of a winter storm event. Table 12-3 describes when each warning type would be issued.

Table 12-3. Winter Storm Watch, Advisory, Warning Descriptions

TYPE OF WINTER WEATHER	DESCRIPTION
Winter Weather Advisory	This alert may be issued for a variety of severe conditions. Weather advisories may be announced for snow, blowing or drifting snow, freezing drizzle, freezing rain, or a combination of weather events.

TYPE OF WINTER WEATHER	DESCRIPTION
Winter Storm Watch	Severe winter weather conditions may affect your area (freezing rain, sleet, or heavy snow may occur separately or in combination).
Winter Storm Warning	Severe winter weather conditions are imminent.
Freezing Rain or Freezing Drizzle	Rain or drizzle is likely to freeze upon impact, resulting in a coating of ice glaze on roads and all other exposed objects.
Sleet	Small particles of ice usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.
Blizzard	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most perilous winter storm with visibility dangerously restricted.
Frost/Freeze	Below freezing temperatures are expected and may cause significant damage to plants, crops, and fruit trees.
Wind Chill	A strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degrees lower in a calm atmosphere. The combined cooling power of the wind and temperature on exposed flesh is called the wind-chill factor.

## HISTORICAL OCCURRENCES

According to historical records and the best available data there have been 37 recorded winter storm events in Travis County planning area. Historical winter storm information, as provided by the NCEI, identifies winter storm activity across a multi-county forecast area for each event. The appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event, when appropriate. Historical winter storm data for the planning area is provided on a County-wide basis per the NCEI database. Table 12-4 shows historical incident information for the planning area.

**Table 12-4. Historical Winter Storm Events, 1996-2023<sup>2</sup>**

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	2/1/1996	0	0	\$0	\$0
Travis County	1/7/1997	0	0	\$0	\$0
Travis County	1/11/1997	0	0	\$0	\$0
Travis County	12/23/1998	0	0	\$0	\$0
Travis County	12/12/2000	0	0	\$0	\$0
Travis County	11/28/2001	0	0	\$0	\$0

<sup>2</sup> Values are in 2022 dollars. The reporting period for this hazard was extended one month (through January 2023) to include Winter Storm Mara (DR-4705), which was a declared April 21, 2023 and included the Travis County planning area.



## SECTION 12: WINTER STORM

Item 8.

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	2/24/2003	0	0	\$0	\$0
Travis County	12/7/2005	0	0	\$0	\$0
Travis County	1/15/2007	0	0	\$2,346,036	\$0
Travis County	1/27/2009	0	0	\$0	\$0
Travis County	2/3/2011	0	0	\$0	\$0
Travis County	2/9/2011	0	0	\$0	\$0
Travis County	12/5/2013	0	0	\$0	\$0
Travis County	12/7/2013	0	0	\$0	\$0
Travis County	1/23/2014	0	0	\$0	\$0
Travis County	1/27/2014	0	0	\$0	\$0
Travis County	3/4/2014	0	0	\$0	\$0
Travis County	1/9/2015	0	0	\$0	\$0
Travis County	1/23/2015	0	0	\$0	\$0
Travis County	2/16/2015	0	0	\$0	\$0
Travis County	2/23/2015	0	0	\$0	\$0
Travis County	2/27/2015	0	0	\$0	\$0
Travis County	3/4/2015	0	0	\$0	\$0
Travis County	12/7/2017	0	0	\$0	\$0
Travis County	1/16/2018	0	0	\$0	\$0
Travis County	11/11/2019	0	0	\$0	\$0
Travis County	2/5/2020	0	0	\$0	\$0
Travis County	1/10/2021	0	0	\$0	\$0
Travis County	2/11/2021	0	0	\$1,128,446	\$0
Travis County	2/13/2021	0	0	\$0	\$0
Travis County	2/16/2021	0	0	\$0	\$0
Travis County	1/11/2022	0	0	\$0	\$0
Travis County	1/20/2022	0	0	\$0	\$0
Travis County	2/3/2022	0	0	\$0	\$0
Travis County	2/12/2022	0	0	\$0	\$0
Travis County	2/23/2022	0	0	\$0	\$0
Travis County	1/30/2023	1	0	\$0	\$0
<b>TOTALS</b>		<b>1</b>	<b>0</b>	<b>\$3,474,482</b>	

**Table 12-5. Historical Winter Storm Events Summary, 1996-2022**

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGES	CROP DAMAGES
Travis County	37	1	0	\$3,474,482	\$0

Based on the list of historical winter storm events for the Travis County planning area, 13 of the events have occurred since the 2017 Plan.

## SIGNIFICANT EVENTS

### **January 30, 2023 – Winter Storm Mara - Travis County (DR-4705)**

A cold front moved into the area producing light freezing rain and freezing drizzle for several days. Freezing rain began on January 30th and continued through February 2nd. Within the City of Pflugerville, police closed ramps between Hwy 130 and Hwy 45 due to ice on the roadway. Other portions of Travis County reported thousands of power outages when trees took out power lines. By the end of the storm, it was recorded that 0.69 inches of ice was experienced within the area. In addition, there were multiple car accidents as a result of the storm, one of which resulted in a fatality. There have been no reported damages available as a result of this event.

### **February 13, 2021 – Winter Storm Uri – Travis County (DR-4586)**

Winter Storm Uri was one of the most impactful winter events in the state's history. The winter storm event lasted a week and brought snow, sleet, and freezing rain to the Southeast region. The presence of the storm began on February 10, 2021, when a cold front brought a surge of cold air to the Area. On February 13th, the winter storm hit the region and areas north and west of Harris County, including Travis County, were placed under a Winter Storm Warning.

Fatalities across the state were attributed to hypothermia, vehicle accidents, carbon monoxide poisoning, and chronic medical conditions complicated by a lack of electricity over several days. Statewide, more than 69 percent of households lost power at some point during the event, with average disruptions lasting 42 hours, 21 of which were consecutive. Water service was also disrupted, with 49 percent of households losing running water with an average disruption of 52 hours.<sup>3</sup>

Broadcast media in the Travis County area reported power flashes in and around the City of Austin. Significant ice accumulation led to reports of power lines down and carports collapsing due to the weight of ice and snow. Ice buildup was a continuing problem with ice accretion on tree branches and exposed surfaces increasing to more than 0.75 inches as the storm continued. The ice event was followed by snow on the 18th. Snowfall totals in the county ranged from 1.2 inches in Lost Creek to 3.8 inches in Jollyville.

## PROBABILITY OF FUTURE EVENTS

According to historical records, the Travis County planning area is expected to experience approximately one to two winter storm events each year. The probability of a future winter storm event affecting the Travis County planning area, including participating jurisdictions and ESD #6, is considered "Highly Likely", with a winter storm likely to occur within the next year. The end of

<sup>3</sup> Donald, Jess. "Winter Storm Uri. The Economic Impact of the Storm". October 2021. Fiscal Notes. Texas Comptroller of Public Accounts. <https://comptroller.texas.gov/economy/fiscal-notes/2021/oct/winter-storm-impact.php>

this section addresses climate change and its impacts on future winter storms in the planning area.

## VULNERABILITY AND IMPACT

During periods of extreme cold and freezing temperatures, water pipes can freeze and crack, and ice can build up on power lines, causing them to break under the weight or causing tree limbs to fall on the lines. These events can disrupt electric service for long periods.

An economic impact may occur due to increased consumption of heating fuel, which can lead to energy shortages and higher prices. House fires and resulting deaths tend to occur more frequently from increased and improper use of alternate heating sources. Fires during winter storms also present a greater danger because water supplies may freeze and impede firefighting efforts.

The Travis County Planning Team identified the following critical facilities (Table 12-6) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by winter storm events. For a comprehensive list by participating jurisdiction see Appendix C.

**Table 12-6. Critical Facilities Vulnerable to Winter Storm Events**

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	<ul style="list-style-type: none"> <li>Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications.</li> <li>Exposure to extreme cold can cause illnesses in first responders if exposed for a period of time.</li> <li>Roads may become impassable due to snow and/or ice impacting response times by emergency services.</li> <li>Extended power outages due to increased usage may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	<ul style="list-style-type: none"> <li>Power outages due to increased usage could disrupt critical care.</li> <li>Backup power sources could be damaged.</li> <li>Increased number of patients due to exposure to cold temperatures could lead to a strain on staff.</li> <li>Water pipes can freeze and burst leading to flooding within facilities.</li> <li>Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable.</li> <li>Essential supplies like medicines, water, food, and equipment deliveries may be delayed.</li> <li>Economic disruption due to power outages negatively impact airport services as well as area businesses reliant on airport operations.</li> <li>Exposure risks to outdoor workers.</li> </ul>

CRITICAL FACILITIES	POTENTIAL IMPACTS
Commercial Supplier (food, fuel, etc.)	<ul style="list-style-type: none"> <li>Facilities, infrastructure, or critical equipment including communications may be damaged, destroyed or otherwise inoperable.</li> <li>Essential supplies like medicines, water, food, and equipment deliveries may be delayed.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)	<ul style="list-style-type: none"> <li>Emergency operations, services and response times may be significantly impacted due to power outages, and/or loss of communications.</li> <li>Roads may become impassable due to snow and/or ice impacting response times by emergency services.</li> <li>Power outages due to increased usage could disrupt critical care.</li> <li>Backup power sources could be damaged.</li> <li>Water pipes can freeze and burst leading to flooding within facilities.</li> </ul>

People and animals are subject to health risks from extended exposure to cold air (Table 12-7). Elderly people are at greater risk of death from hypothermia during these events, especially in the neighborhoods with older housing stock. According to the U.S. Center for Disease Control, every year hypothermia kills about 600 Americans, half of whom are 65 years of age or older. Another segment of the population at risk are those whose jobs consist of strenuous labor outdoors (Table 12-8). In addition, populations living below the poverty level may not be able to afford to run heat on a regular basis or extend period of time.

Population over 65 and under the age of 5 in the Travis County planning area is estimated at 16 percent of the total population or an estimated total of 202,434<sup>4</sup> potentially vulnerable residents in the planning area based on age. An estimated 10.7 percent of the planning area population live below the poverty level.

Older homes tend to be more vulnerable to the impacts of winter storm events. Approximately 149,603 housing units (27 percent) in the planning area were built before 1980 (Table 12-9).

**Table 12-7. Populations at Greater Risk of Winter Storm Events**

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Travis County	126,480	75,954	135,654
Village of Briarcliff	277	173	66
City of Creedmoor	95	0	60
City of Jonestown	525	39	229
City of Lago Vista	2,477	275	316
City of Lakeway	4,154	686	554
City of Manor	345	1,821	975

<sup>4</sup> US Census Bureau, American Community Survey Five-Year Estimates 2017-2021

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
City of Mustang Ridge	105	123	85
City of Pflugerville	6,009	4,718	3,392
Village of Point Venture	279	40	47
City of Rollingwood	238	42	0
Village of San Leanna	132	28	9
City of Sunset Valley	169	28	26
Village of The Hills	857	109	62
City of West Lake Hills	799	68	209
ESD #6	N/A	N/A	N/A

**Table 12-8. Outdoor Employees by Participating Special District**

ESD	EMPLOYEES WORKING OUTDOORS
ESD #6	108

**Table 12-9. Structures at Greater Risk of Winter Storm Events<sup>5</sup>**

JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980
Travis County	149,603
Village of Briarcliff	79
City of Creedmoor	42
City of Jonestown	269
City of Lago Vista	706
City of Lakeway	1,040
City of Manor	312
City of Mustang Ridge	82
City of Pflugerville	779
Village of Point Venture	226

<sup>5</sup> Manufactured structures and/or portable building numbers are reported by the participating special district.



JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980
City of Rollingwood	223
Village of San Leanna	92
City of Sunset Valley	87
Village of The Hills	30
City of West Lake Hills	546
ESD #6	0

Winter Storms have been known to cause injury to humans and occasionally have been fatal. Overall, the average loss estimate of property and crops in the planning area is considered \$3,474,482 with an average annualized loss of \$128,685. Based on historic loss and damages, the impact of hail damages on the Travis County planning area, including participating jurisdictions and ESD #6, can be considered “Limited” severity of impact, meaning minor quality of life lost, critical facilities and services shut down for 24 hours or less, and less than 10 percent of property destroyed or with major damage. However, due to the loss of life, the impact of winter storm events for the planning area is considered “Substantial,” with multiple deaths or injuries possible.

**Table 12-10. Winter Storm Event Damage Totals, 1996-2022**

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Travis County	\$3,474,482	\$128,685

## ASSESSMENT OF IMPACTS

The greatest risk from a winter storm hazard is to public health and safety. The impact of climate change could produce longer, more intense winter storm events, exacerbating the current winter storm impacts. Worsening winter storm conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly (10 percent of total population) and children under 5 (6 percent of total population), can face serious or life-threatening health problems from exposure to extreme cold including hypothermia and frostbite.
- Power outages are possible throughout the planning area due to downed trees and power lines and/or rolling blackouts, resulting in increased fire risk (alternate heat sources) and injuries or illness (gas, carbon monoxide, generator use).
- Response personnel, including utility workers, public works personnel, debris removal staff, tow truck operators, and other first responders, are subject to injury or illness resulting from exposure, and dangerous road or work conditions.
- Critical facilities without emergency backup power may not be operational during power outages.

## SECTION 12: WINTER STORM

- Emergency response and service operations may be impacted by limitations on access and mobility if roadways are closed, unsafe, or obstructed.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by ice and snow events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- Winter storms reduced the efficacy of shaded fuel breaks for wildfire mitigation as treated areas were more likely to have downed trees and limbs than untreated areas. Winter storms resulted in damage to endangered species habitat and increased fuel loads within forested habitats.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to impacts of winter storm events. 27 percent of homes in the County were built before 1980. Similarly, historic buildings and sites are placed at a higher risk of impact due to materials used and the inability to change properties due to their historic status. One site in the Travis County planning area, the City of Pflugerville East Main Street Historic District, is listed on the National Register of Historic Places.
- Schools may be forced to shut early due to treacherous driving conditions or power outages, increasing traffic hazards at and near impacted schools.
- Exposed water pipes may be damaged by severe or late season winter storms at both residential and commercial structures, causing significant damages.

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

## CLIMATE CHANGE CONSIDERATIONS

Climate change is expected to reduce the number of extreme cold events statewide but increase in the variability of events.<sup>6</sup> Extreme cold events will continue to be possible but overall winters are becoming milder, and the frequency of extreme winter weather events are decreasing due to the warming of the Arctic and less extreme cold air coming from that region.<sup>7</sup> A trend that is expected to continue with winter extremes estimated to be milder by 2036 compared to extremes in the historic record.<sup>8</sup> According to the University of Texas at Austin technical report for the City of Austin, the planning area is projected to experience fewer cold spells are projected to occur per year but the length of cold spells will be longer when they do occur.<sup>9</sup>

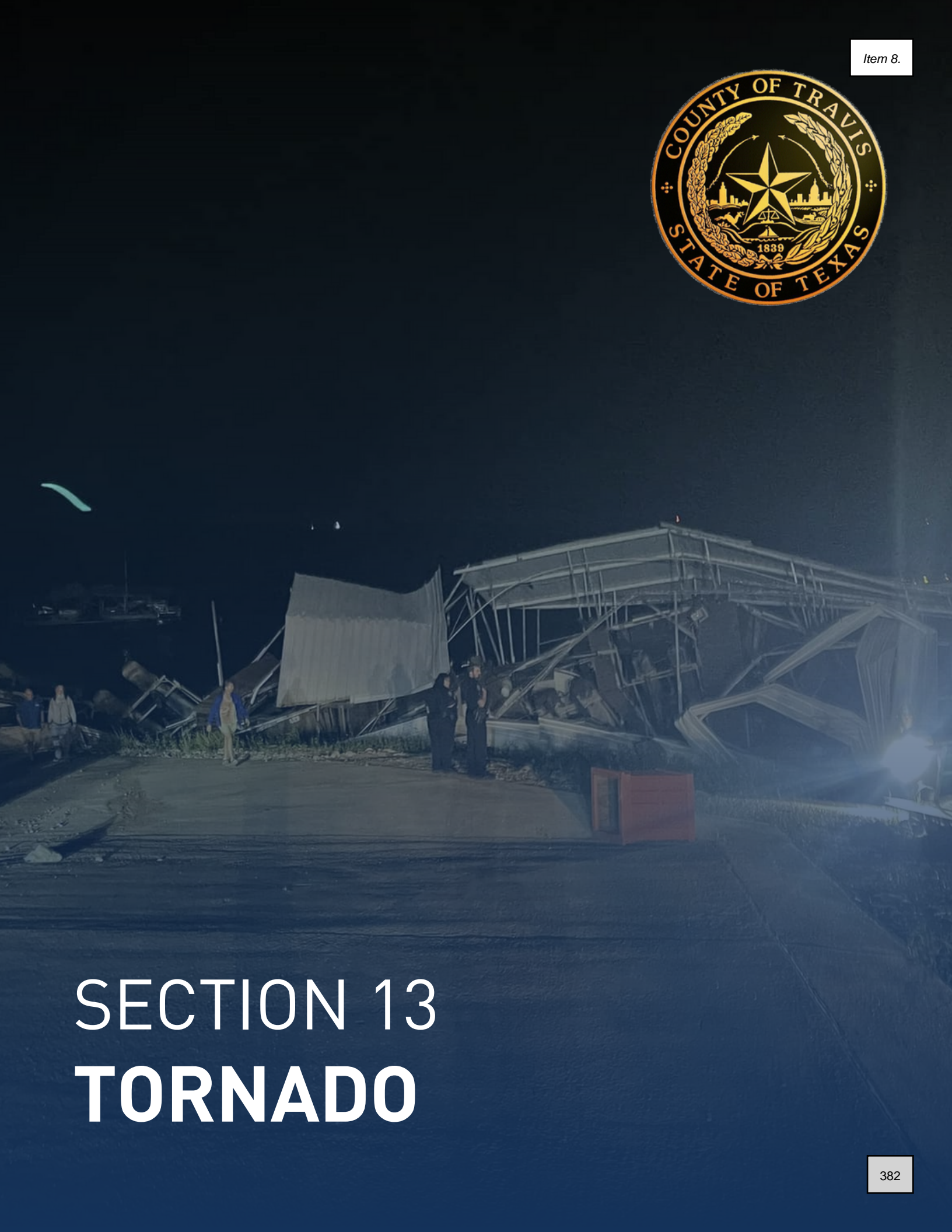
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<sup>6</sup> Fourth National Climate Assessment. Chapter 23 Southern Great Plains. U.S. Global Change Program. 2018.

<sup>7</sup> Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

<sup>8</sup> Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.

<sup>9</sup> University of Texas at Austin, February 2023, Austin Future Climate, Climate Change Predictions for the City of Austin 2022, Technical Report.



# SECTION 13 TORNADO

Hazard Description .....	1
Location .....	1
Extent .....	2
Historical Occurrences .....	4
Significant Events .....	8
Probability of Future Events .....	9
Vulnerability and Impact .....	9
Assessment of Impacts .....	14
Climate Change Considerations .....	15

## HAZARD DESCRIPTION



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

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

**Table 5-1. Variations among Tornadoes**

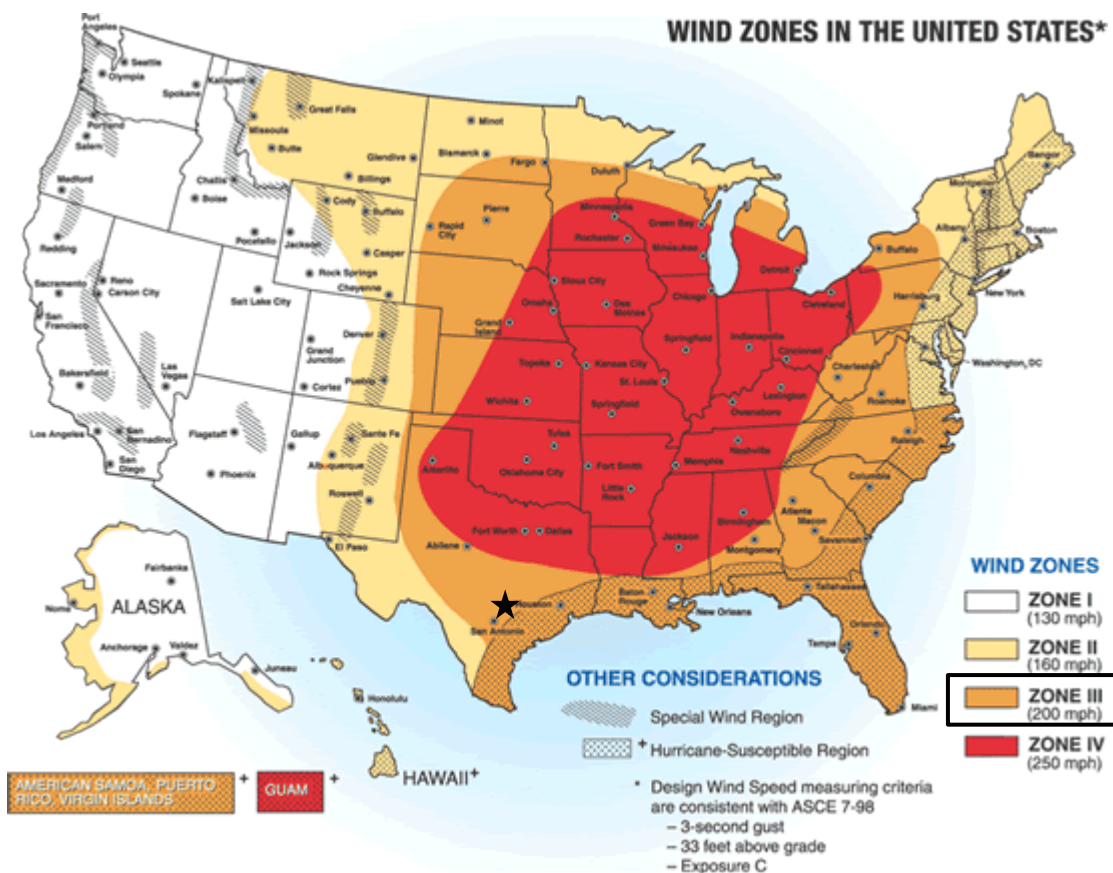
WEAK TORNADOES	STRONG TORNADOES	VIOLENT TORNADOES
<ul style="list-style-type: none"> <li>• 69% of all tornadoes</li> <li>• Less than 5% of tornado deaths</li> <li>• Lifetime 1-10+ minutes</li> <li>• Winds less than 110 mph</li> </ul>	<ul style="list-style-type: none"> <li>• 29% of all tornadoes</li>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

## LOCATION

Tornadoes do not have any specific geographic boundary and can occur throughout the county uniformly. It is assumed that the entire Travis County planning area, including participating jurisdictions and ESD #6, are uniformly exposed to tornado activity. The entire Travis County planning area is located in Wind Zone III (Figure 13-1), where tornado winds can be as high as 200 mph.



Figure 13-1. FEMA Wind Zones in the United States



## EXTENT

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

Tornado magnitudes prior to 2007 were determined using the traditional version of the Fujita Scale, which estimated tornado wind speeds based on the damage caused by an event. Since February 2007, the Enhanced Fujita Scale has been utilized to classify tornadoes, which included improvements to the original scale. The original Fujita scale had limitations, such as a lack of damage indicators, no account for construction quality and variability, and no definitive correlation between damage and wind speed. These limitations led to some tornadoes being rated in an inconsistent manner and, in some cases, an overestimate of tornado wind speeds. The Enhanced Fujita scale retains the same basic design and six strength categories as the previous scale. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures. Table 13-2 includes both scales for reference when analyzing historical tornadoes since tornado events prior to 2007 will follow the original Fujita Scale.



Table 13-2. Fujita and Enhanced Fujita Tornado Scale<sup>1</sup>

Enhanced Fujita Scale			Fujita Scale			
Category	Wind Speed	Damage	Category	Wind Speed	Intensity	Damage
<b>EF0</b>	65 - 85 MPH	The environment sustained minor damage: tree branches are broken, some shallow-rooted trees are uprooted, and some chimneys are damaged.	<b>F0</b>	45 - 78 MPH	Gale	Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
<b>EF1</b>	86 - 110 MPH	The environment sustained moderate damage: mobile homes are tipped over, windows are broken, roof tiles may be blown off, and some tree trunks have snapped.	<b>F1</b>	79 - 117 MPH	Moderate	Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads
<b>EF2</b>	111 - 135 MPH	The environment sustained considerable damage: mobile homes are destroyed, roofs are damaged, debris flies in the air, and large trees are snapped or uprooted.	<b>F2</b>	118 - 161 MPH	Significant	Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
<b>EF3</b>	136 - 165 MPH	The environment sustained severe damage: roofs and walls are ripped off buildings, small buildings are destroyed, and most trees are uprooted.	<b>F3</b>	162 - 209 MPH	Severe	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
<b>EF4</b>	166 - 200 MPH	The environment sustained devastating damage: well-built homes are destroyed, buildings are lifted off their foundations, cars are blown away, and large debris flies in the air.	<b>F4</b>	210 - 261 MPH	Devastating	Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
<b>EF5</b>	200+ MPH	The environment sustained incredible damage: well-built homes are lifted from their foundations, reinforced concrete buildings are damaged, the bark is stripped from trees, and car-sized debris flies through the air.	<b>F5</b>	261 - 317 MPH	Incredible	Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.

<sup>1</sup> Source: <https://www.tornadofujitascale.com/>

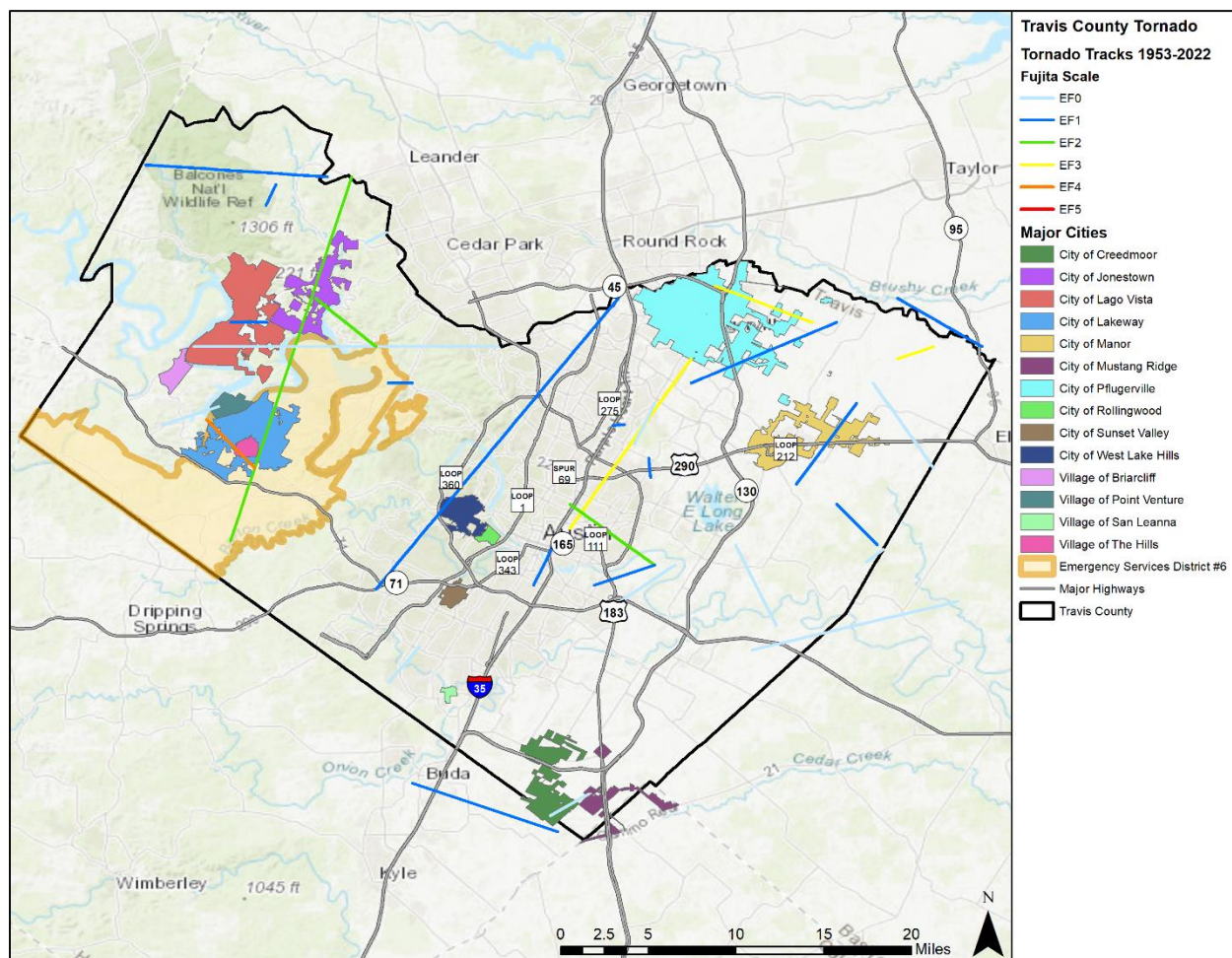
The greatest magnitude reported within the planning area is F4 (an EF5 when converted to the on the Enhanced Fujita Scale), a “Devastating Tornado.” Based on the planning area’s location in Wind Zone III, all participating jurisdictions and ESD #6, have the potential to experience anywhere from an EF0 to an EF5 depending on the wind speed. Previous tornado events in the Travis County planning area (converted from the Fujita Scale) have been between EF0 and EF5 (Figure 13-2).

## HISTORICAL OCCURRENCES

The National Centers for Environmental Information (NCEI) Storm Events database is a national data source organized under the National Oceanic and Atmospheric Administration (NOAA). The NCEI is the largest archive available for historic storm events data; however, it is important to note that only incidents recorded in the NCEI have been factored into this risk assessment unless otherwise noted. It is likely that a high number of occurrences have gone unreported over the past 71 years.

Historical tornado data for ESD #6 does not have events reported separate and apart from the reported county and city events. At this time, ESD #6 did not report losses as a result of a tornado.

Figure 13-2 identifies the locations of previous occurrences in the Travis County planning area from 1953 through 2022. A total of 75 events have been recorded by NOAA’s Storm Prediction Center and National Centers for Environmental Information (NCEI) databases for the Travis County planning area. The strongest event reported in the planning area was an F4 tornado which touched down in the City of Lakeway. In terms of injuries and fatalities, the most significant event occurred in Travis County on May 9, 1974, and included 10 injuries, however the most recent event with injuries and fatalities occurred on May 27, 1997, that accounted for five injuries and one fatality. Estimated damages for this event were \$27,807,339 (2022 dollars).

Figure 13-2. Spatial Historical Tornado Events, 1953-2022<sup>2</sup>Table 13-3. Historical Tornado Events, 1953-2022<sup>3</sup>

JURISDICTION	DATE	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	10/23/1953	F1	0	0	\$274,812	\$0
Travis County	3/31/1957	F2	0	0	\$2,669,038	\$0
Travis County	3/31/1957	F2	0	0	\$266,904	\$0
Travis County	3/31/1957	F1	0	0	\$2,669	\$0
Travis County	4/22/1957	Unavailable	0	0	\$2,659	\$0
Travis County	4/24/1957	F0	0	0	\$319	\$0

<sup>2</sup> Source: NOAA Storm Prediction Center<sup>3</sup> Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2022 dollars.

## SECTION 13: TORNADO

Item 8.

JURISDICTION	DATE	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	5/10/1959	F3	0	0	\$2,558,595	\$0
Travis County	7/20/1960	F1	0	0	\$25,067	\$0
Travis County	5/17/1965	F1	0	0	\$2,363	\$0
Travis County	9/20/1967	F0	0	0	\$22,083	\$0
Travis County	9/20/1967	F0	0	0	\$22,083	\$0
Travis County	9/20/1967	F0	0	0	\$22,083	\$0
Travis County	9/20/1967	F1	0	1	\$22,083	\$0
Travis County	9/20/1967	F1	0	0	\$22,083	\$0
Travis County	9/21/1967	Unavailable	0	0	\$22,083	\$0
Travis County	7/4/1970	F2	1	4	\$0	\$0
Travis County	8/3/1972	F0	0	0	\$176,665	\$0
Travis County	1/20/1973	F2	0	0	\$174,177	\$0
Travis County	3/10/1973	F1	0	2	\$1,713,609	\$0
Travis County	5/9/1974	F1	0	10	\$1,526,734	\$0
Travis County	5/7/1975	F2	0	0	\$1,394,723	\$0
Travis County	3/5/1976	F0	0	0	\$132,736	\$0
Travis County	3/30/1976	F0	0	8	\$1,327,357	\$0
Travis County	4/14/1977	F2	0	0	\$1,236,654	\$0
Travis County	5/2/1977	Unavailable	0	0	\$12,305	\$0
Travis County	4/7/1980	F3	0	3	\$916,040	\$0
Travis County	8/10/1980	F2	0	4	\$890,747,299	\$0
Travis County	8/10/1980	F0	0	0	\$890,747	\$0
Travis County	8/10/1980	F1	0	0	\$890,747	\$0
Travis County	6/13/1981	F1	0	0	\$81,898	\$0
Travis County	6/22/1982	F0	0	0	\$92	\$0
Travis County	5/18/1983	F1	0	0	\$7,480	\$0
City of Lago Vista	9/20/1996	F1	0	0	\$9,404	\$0
Travis County	5/27/1997	F2	0	0	\$92,691	\$18,538

## SECTION 13: TORNADO

Item 8.

JURISDICTION	DATE	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	5/27/1997	F1	0	0	\$9,269	\$0
City of Lakeway	5/27/1997	F4	1	5	\$27,807,339	\$0
Travis County	8/29/1998	F1	0	0	\$54,491	\$0
Travis County	11/15/2001	F0	0	0	\$50,191	\$0
Travis County	11/15/2001	F1	0	0	\$167,304	\$0
Travis County	11/15/2001	F1	0	0	\$133,843	\$0
Travis County	11/15/2001	F0	0	0	\$25,096	\$0
City of Manor	12/23/2002	F1	0	1	\$328,134	\$0
Travis County	6/8/2004	F0	0	0	\$234,684	\$0
City of Manor	3/25/2005	F1	0	0	\$153,542	\$0
City of Lakeway	4/2/2017	EF0	0	0	\$121,377	\$0
TOTALS		(MAX EXTENT)	2	38	\$936,351,552	\$18,538

**Table 13-4. Summary of Historical Tornado Events, 1953-2022<sup>4</sup>**

JURISDICTION	NUMBER OF EVENTS	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Travis County	63	EF3	1	32	\$907,931,756	\$18,538
Village of Briarcliff	0	-	-	-	-	-
City of Creedmoor	1	EF0	0	0	\$0	\$0
City of Jonestown	2	EF1	0	0	\$0	\$0
City of Lago Vista	2	EF1	0	0	\$9,404	\$0
City of Lakeway	2	EF4	1	5	\$27,928,716	\$0
City of Manor	2	EF1	0	1	\$481,676	\$0
City of Mustang Ridge	0	-	-	-	-	-
City of Pflugerville	3	EF0	0	0	\$0	\$0
Village of Point Venture	0	-	-	-	-	-

<sup>4</sup> Participating jurisdictions with no reported events show a “-” in table columns where damages, deaths or injuries would be otherwise reported.



JURISDICTION	NUMBER OF EVENTS	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Rollingwood	0	-	-	-	-	-
Village of San Leanna	0	-	-	-	-	-
City of Sunset Valley	0	-	-	-	-	-
Village of The Hills	0	-	-	-	-	-
City of West Lake Hills	0	-	-	-	-	-
ESD #6	0	-	-	-	-	-
<b>TOTALS</b>	<b>75</b>	<b>(MAX EXTENT)</b>	<b>2</b>	<b>38</b>	<b>\$936,370,090</b>	

In summary, Travis County (including unincorporated jurisdictions) experienced the greatest number of tornado events within 63 reported events based on the NCEI, with the City of Pflugerville reporting the second greatest number of events (3), following the remaining participating cities: Jonestown (2), Lago Vista (2), Lakeway (2), Manor (2), and Creedmoor (1). The remaining participating jurisdictions and ESD #6 did not report tornado events based through the NCEI database or during the planning update process. Based on the list of historical tornado events for the Travis County planning area including all participating jurisdictions and ESD #6, there have been two recorded events since the 2017 Plan.

## SIGNIFICANT EVENTS

### April 2, 2017 – Travis County

An upper-level low from Mexico pushed a cold front through Texas generating severe thunderstorms. A small tornado developed over the Lake Travis area. Reports indicated numerous downed trees causing damage throughout the area. Several marinas were damaged as the small tornado crossed the lake. It is believed the tornado came ashore near the park area of Village of Point Venture. Reports indicate that concrete evidence of a tornado is unavailable with suspicions that the path of the EF0 tornado ended on the far west side of Village of Point Venture. Winds were estimated to be approximately 80 mph with a maximum width of 100 yards. The path length is estimated to be about 3 miles. Total damage estimates were approximately \$121,377 (2022 dollars).

### December 23, 2002 – City of Manor

The National Weather Service reported an F1 tornado touching down 1 mile southeast of City of Manor and moving 5 miles northeastward before dissipating. The event damaged nearly a dozen homes, four mobile homes, in addition to two businesses. The tornado caused vehicle damage as well. As a result of the event, approximately \$328,134 (2022 dollars) in damages were reported and one injury sustained due to the tornado overturning her mobile home.

### May 27, 1997 – Travis County

The Pedernales Valley tornado began on the shore of Lake Travis destroying trees and a floating marina where nearly all of the watercrafts were destroyed. Approximately 2.2 miles from the lake,

## SECTION 13: TORNADO

the tornado path took a southwest turn and crossed a major power distribution line. One steel tower was destroyed bringing all lines to the ground. The tornado continued to move through the area described as the Hazy Hills subdivision where numerous houses and several mobile homes were significantly destroyed, some of which were deemed uninhabitable. There was only one fatality reported, a man whose mobile home was demolished. It was unclear if he was inside his mobile home or had left it to drive away, as his vehicle was tossed several hundred feet away. The tornado continued west-southwest moving across State Road (SR) 71, approaching another subdivision with widely separated houses in the Lick Creek valley, a steep walled creek that feeds into the Pedernales River. One stone-walled house located just north of Pedernales Drive and west of SR 71 was completely deroofed, while other structures sustained roof damage in the F2 range. Total damages as a result were \$27,807,339 (2022 dollars), with reports of five injuries and one fatality.

### PROBABILITY OF FUTURE EVENTS

Tornadoes can occur at any time of year and at any time of day, but they are typically more common in the spring months during the late afternoon and evening hours. A smaller, high frequency period can emerge in the fall during the brief transition between the warm and cold seasons. With 75 historical events over a 70- year reporting period, Travis County, including participating jurisdictions and ESD #6, can anticipate a tornado touchdown approximately once every year. This frequency supports a “Highly Likely” probability of future events for the Travis County planning area.

### VULNERABILITY AND IMPACT

Because tornadoes often cross jurisdictional boundaries, all existing and future buildings, facilities, and populations in the entire Travis County planning area, including participating jurisdictions and ESD #6, are considered to be exposed to this hazard and could potentially be impacted. The damage caused by a tornado is typically a result of high wind velocity, wind-blown debris, lightning, and large hail.

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

- Manufactured Homes;
- Homes built of peer and beam construction (more susceptible to lift); and
- Buildings with large spans, such as shopping malls, gymnasiums, and factories.

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

The Travis County planning area features mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to tornado events than typical site built structures. In addition, manufactured homes are located sporadically throughout the planning

area, which would also be more vulnerable. The U.S. Census data indicates a total of 18,252 (3.3 percent of total housing stock) manufactured homes located in the Travis County planning area. In addition, 27 percent (approximately 149,603 structures) of the single family residential (SFR) structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damage during significant wind events (Table 13-5). Based on 2021 American Community Survey (ACS) five-year estimates the City of Lakeway and the City of Pflugerville have the highest reported number of single-family residences built before 1980, causing these jurisdictions to potentially sustain more structural damage due to a tornado event. For additional information on building inventory growth rates please refer to Section 3 of this plan.

**Table 13-5. Structures at Greater Risk by Participating Jurisdiction**

JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980	MANUFACTURED HOMES
Travis County <sup>5</sup>	149,603	18,252
Village of Briarcliff	79	0
City of Creedmoor	42	21
City of Jonestown	269	74
City of Lago Vista	706	239
City of Lakeway	1,040	0
City of Manor	312	289
City of Mustang Ridge	82	140
City of Pflugerville	779	408
Village of Point Venture	226	0
City of Rollingwood	223	0
Village of San Leanna	92	0
City of Sunset Valley	87	0
Village of The Hills	30	0
City of West Lake Hills	546	9
ESD #6	0	0

<sup>5</sup> County totals includes all jurisdictions and unincorporated areas within the county.

While all citizens are at risk to the impacts of a tornado, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 10.7 percent of the planning area population live below the poverty level (Table 13-6), with the City of Pflugerville having the highest percentage of residents living below poverty level.

**Table 13-6. Populations at Greatest Risk by Jurisdiction<sup>6</sup>**

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Travis County	135,654
Village of Briarcliff	66
City of Creedmoor	60
City of Jonestown	229
City of Lago Vista	316
City of Lakeway	554
City of Manor	975
City of Mustang Ridge	85
City of Pflugerville	3392
Village of Point Venture	47
City of Rollingwood	0
Village of San Leanna	9
City of Sunset Valley	26
Village of The Hills	62
City of West Lake Hills	209
ESD #6	N/A

The Travis County Planning Team identified the following critical facilities as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by tornado events (Table 13-7). The critical infrastructure with the greatest vulnerability to tornadoes are power and communications facilities. Failures of these facilities can result in a loss of service and cascading impacts such as posing enormous risk to individuals dependent on electricity as a medical necessity. For a comprehensive list by participating jurisdiction see Appendix C.

<sup>6</sup> U.S. Census Bureau 2021 data for Travis County

**Table 13-7. Critical Facilities Vulnerable to Tornado Event**

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	<ul style="list-style-type: none"> <li>Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>Emergency vehicles can be damaged by falling trees or flying debris.</li> <li>Power outages could disrupt communications, delaying emergency response times.</li> <li>Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities.</li> <li>Debris/downed trees can impede emergency response vehicle access to areas.</li> <li>Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel.</li> <li>First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.</li> <li>Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	<ul style="list-style-type: none"> <li>Structures can be damaged by falling trees damaged by lightning.</li> <li>Power outages could disrupt critical care.</li> <li>Backup power sources could be damaged.</li> <li>Evacuations may be necessary due to extended power outages, fires, or other associated damage to facilities.</li> <li>Power outages and infrastructure damage may prevent larger airports from acting as temporary command centers for logistics, communications, and emergency operations.</li> <li>Temporary break in operations may significantly inhibit post event evacuations.</li> <li>Damaged or destroyed highway infrastructure may substantially increase the need for airport operations.</li> </ul>
Commercial Supplier (food, fuel, etc.)	<ul style="list-style-type: none"> <li>Facilities or infrastructure may be damaged, destroyed or otherwise inaccessible.</li> <li>Essential supplies like medicines, water, food, and equipment deliveries may be significantly delayed.</li> <li>Additional emergency responders and critical aid workers may not be able to reach the area for days.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)	<ul style="list-style-type: none"> <li>Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.</li> <li>Emergency vehicles can be damaged by falling trees or flying debris.</li> <li>Power outages could disrupt communications, delaying emergency response times.</li> <li>Critical staff may be injured or otherwise unable to report for duty, limiting response capabilities.</li> </ul>



CRITICAL FACILITIES	POTENTIAL IMPACTS
	<ul style="list-style-type: none"> <li>Debris/downed trees can impede emergency response vehicle access to areas.</li> <li>Increased number of structure fires due to gas line ruptures and downed power lines, further straining the capacity and resources of emergency personnel.</li> <li>First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.</li> <li>Extended power outages and evacuations may lead to possible looting, destruction of property, and theft, further burdening law enforcement resources.</li> </ul>

The average annual loss estimate due to tornado events is \$936,370,090 (in 2022 dollars), having an approximate annual loss estimate of \$13,376,716. Based on historic damages and best available data the impact of a tornado event on the Travis County planning area, including participating jurisdictions and ESD #6, would be considered “Limited”, with critical facilities and services shutdown for 24-hours or less and less than 10 percent of properties destroyed or with major damage. However, due to the loss of life and number of past injuries, the impact of tornado events for the planning area is considered “Substantial,” with multiple deaths or injuries possible.

**Table 13-8. Estimated Average Annual Losses by Jurisdiction<sup>7</sup>**

JURISDICTION	TOTAL PROPERTY & CROP LOSS	AVERAGE ANNUAL LOSS ESTIMATES
Travis County	\$907,950,294	\$12,970,719
Village of Briarcliff	-	-
City of Creedmoor	\$0	\$0
City of Jonestown	\$0	\$0
City of Lago Vista	\$9,404	\$134
City of Lakeway	\$27,928,716	\$398,982
City of Manor	\$481,676	\$6,881
City of Mustang Ridge	-	-
City of Pflugerville	\$0	\$0
Village of Point Venture	-	-
City of Rollingwood	-	-
Village of San Leanna	-	-

<sup>7</sup> Participating jurisdictions with no reported events show a “-” in table columns where damages, deaths or injuries would be otherwise reported.

JURISDICTION	TOTAL PROPERTY & CROP LOSS	AVERAGE ANNUAL LOSS ESTIMATES
City of Sunset Valley	-	-
Village of The Hills	-	-
City of West Lake Hills	-	-
ESD #6	-	-
<b>Planning Area</b>	<b>\$936,370,090</b>	<b>\$13,376,716</b>

### ASSESSMENT OF IMPACTS

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

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Manufactured homes may suffer substantial damage as they would be more vulnerable than typical site-built structures, especially within the Cities of Manor and Pflugerville.
- Portable classrooms may also suffer substantial damage as they would be more vulnerable than other classroom structures.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- Tornadoes often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages can result in an increase in structure fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Tornadoes can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders must enter the damage area shortly after the tornado passes to begin rescue operations and to organize cleanup and assessments efforts, therefore they are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Emergency operations and services may be significantly impacted due to damaged facilities, loss of communications, and damaged emergency vehicles and equipment.
- Private sector entities such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.

## SECTION 13: TORNADO

- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue, especially if damage is sustained to major employers within the planning area including state government, as the State of Texas is the largest employer in the Travis County planning area with more than 63,900 employees.
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- When the community is affected by significant property damage it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures destroyed by a tornado may not be rebuilt for years, reducing the tax base for the community.
- Large or intense tornadoes may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities at locations such as parks or green spaces throughout the planning area, may be unavailable and tourism can be unappealing for years following a large tornado, devastating directly related local businesses.
- Tornadoes may destroy or degrade endangered species habitat in places such as on the Balcones Canyonlands Preserve and National Wildlife Refuge.
- Historical sites and properties are placed at a higher risk of impact due to materials used and the inability to change properties due to their historic status. One site in the Travis County planning area, the City of Pflugerville East Main Street Historic District, is listed on the National Register of Historic Places.

The economic and financial impacts of a tornado event on the community will depend on the scale of the event, what is damaged, costs of repair or replacement, lost business days in impacted areas, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a tornado event. Warning sirens/alert systems have been integrated into some participating communities to promote early warning and communication, (including Travis County, Lago Vista, Lakeway, Pflugerville, Rollingwood, San Leanna, Sunset Valley, The Hills, West Lake Hills, and ESD #6) reducing the potential economic and financial impacts of tornado events.

## CLIMATE CHANGE CONSIDERATIONS

The impacts on the frequency and severity of tornado events due to climate change are unclear. According to the Texas A&M 2021 Climate Report Update, the most robust trend in tornado activity in Texas is a likelihood for a greater number of tornadoes in large outbreaks, although the factors contributing to this trend are not expected to continue. Tornadoes spawn from less than 10 percent of thunderstorms, usually supercell thunderstorms that are in a wind shear

## SECTION 13: TORNADO

Item 8.

environment that promotes rotation.<sup>8</sup> Based on climate models that are available, the environmental conditions needed for severe thunderstorm events are estimated to become more likely, resulting in an overall increase in the number of days capable of producing a severe thunderstorm event and potential tornadoes to develop from these storms.<sup>9</sup>

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<sup>8</sup> Treisman, Rachel. *The exact link between tornadoes and climate change is hard to draw. Here's why*. NPR. December 13, 2021. <https://www.npr.org/2021/12/13/1063676832/the-exact-link-between-tornadoes-and-climate-change-is-hard-to-draw-heres-why>

<sup>9</sup> Assessment of Historic and Future Trends of Extreme Weather in Texas, 1900-2036, Texas A&M University Office of the Texas State Climatologist, 2021 update.





# SECTION 14 DAM FAILURE



## SECTION 14: DAM FAILURE

Item 8.

Portions of the Travis County Hazard Mitigation Plan are considered confidential and not for release to the public. The information in this section is covered under Privacy Act of 1974 (5 U.S.C. Section 552a).





# SECTION 15

# EXPANSIVE SOILS



## SECTION 15: EXPANSIVE SOILS

Hazard Description .....	1
Location .....	1
Extent .....	4
Historical Occurrences .....	7
Probability of Future Events .....	8
Vulnerability and Impact.....	8
Assessment of Impacts.....	10
Climate Change Considerations.....	12

### HAZARD DESCRIPTION

Expansive soils are soils and soft rocks with a relatively high percentage of clay minerals that are subject to changes in volume as they swell and shrink with changing moisture conditions. Expansive soils contain minerals such as smectite clays that are capable of absorbing water. When these clays absorb water, they increase in volume and expand. The change in soil volume and resulting expansion can exert enough force on a building or other structure to cause damage.



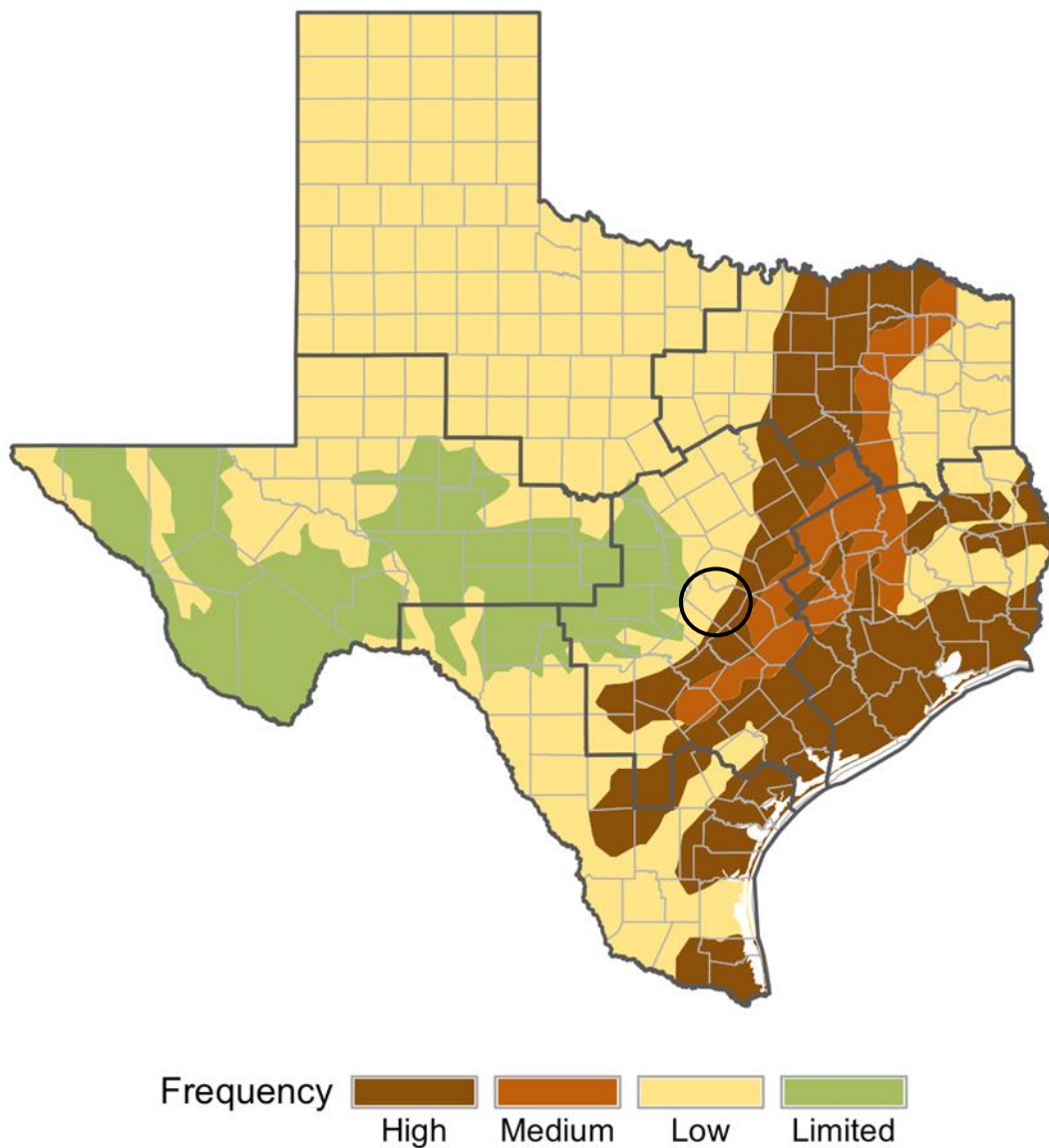
Expansive soils will also lose volume and shrink when they dry. Drought conditions can cause soils to contract in response to a loss of soil moisture. A reduction in soil volume can affect the support to buildings or other structures and result in damage. Fissures in the soil can also develop and facilitate the deep penetration of water when moist conditions or runoff occurs. This produces a cycle of shrinkage and swelling that place repetitive stress on structures. The effect of expansive soil is most prevalent in regions prone to prolonged periods of drought followed by periods of moderate to high precipitation.

### LOCATION

In Texas the most expansive soils are in a band 200 miles west from the coastline, stretching approximately from Beaumont down to Brownsville. These areas receive the most moisture and are also vulnerable to droughts, which can cause the soil to contract. In the Travis County planning area, the problems associated with expansive soil typically occur during drought periods. Expansive soils (bentonite, smectite, or other reactive clays) expand when the soil particles attract water and can shrink when the clay dries.

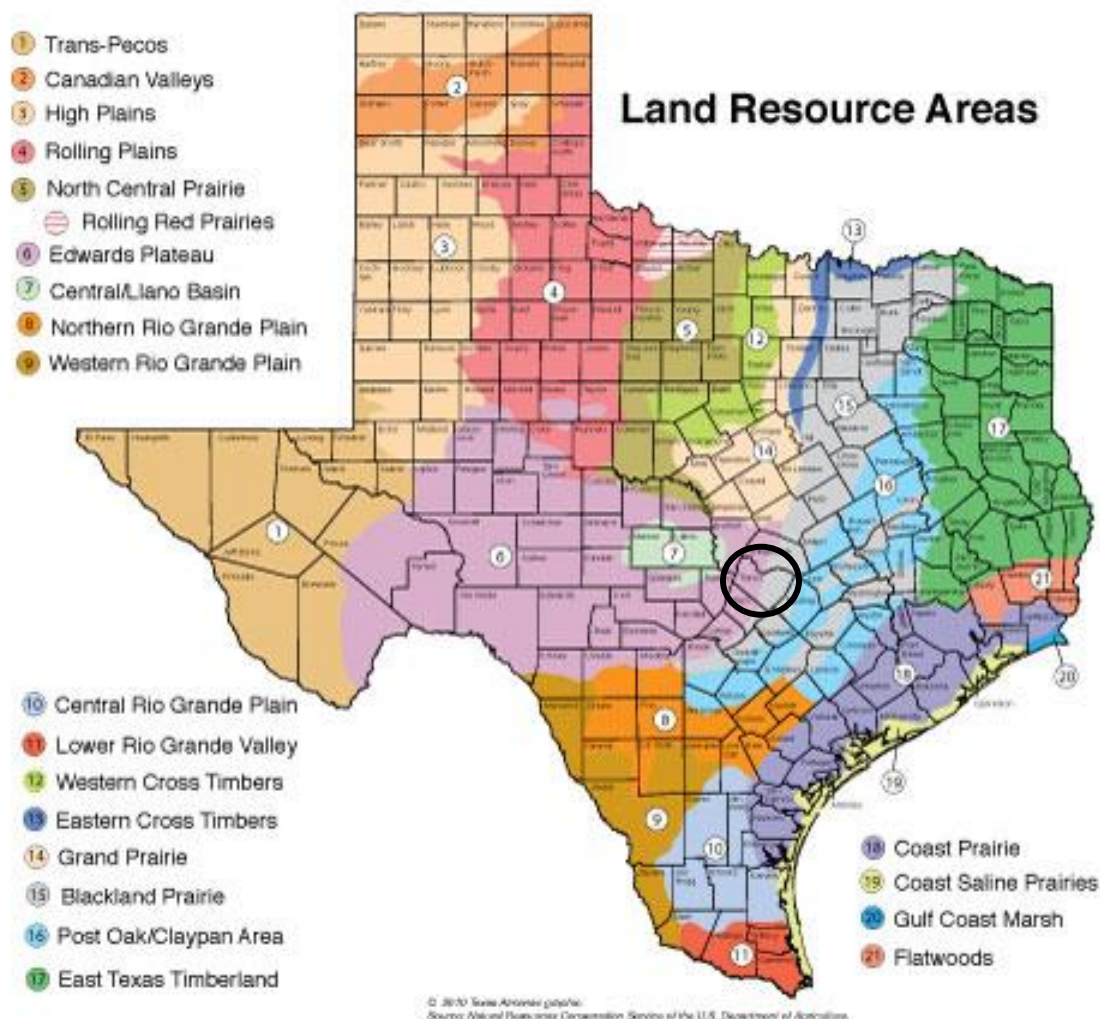
Figure 15-1 shows areas of expansive soil in Texas. Most of Travis County falls within the low risk area, indicated in yellow, while the eastern portion falls within the medium risk area, indicated in light brown. Figure 15-2 depicts the types of land resources in the State of Texas due to their soil types.

**Figure 15-1. Location of Expansive Soils in Texas<sup>1</sup>**



Source: Tavakoli, E. (2016). *Laboratory Evaluation of TX-PROCHEM as an Ionic Liquid Soil Stabilizer*. [Master's Thesis].

<sup>1</sup> Tavakoli, E. (2016). *Laboratory Evaluation of TX-PROCHEM as an Ionic Liquid Soil Stabilizer*. [Master's Thesis].

Figure 15-2. Texas Geological Survey<sup>2</sup>

The Travis County planning area, including all participating jurisdictions and ESD #6, is located within the Edwards Plateau and Blackland Prairie, as identified within the black circle in Figure 15-2. The entire planning area is located in an area affected by expansive soils.

**Edwards Plateau:** The 22.7 million acres of the Edwards Plateau are in South Central Texas, east of the Trans-Pecos and west of the Blackland Prairie. Uplands are nearly level to undulating, except near large stream valleys, where the landscape is hilly with deep canyons and steep slopes. There are many cedar brakes in this area and surface drainage is rapid.

Upland soils are mostly shallow, stony, or gravelly, and consisting of dark alkaline clays and clay loams underlain by limestone. Lighter-colored soils are on steep side slopes and deep, less-stony

<sup>2</sup> Source: USDA, <http://www.nrcs.usda.gov>



## SECTION 15: EXPANSIVE SOILS

soils are in the valleys. Bottomland soils are mostly deep, dark-gray or brown, with alkaline loams and clays.

Raising beef cattle is the main enterprise in this region, but it is also the center of Texas' and the nation's mohair and wool production. The area provides a major deer habitat and hunting leases produce income. Cropland is mostly in the valleys on the deeper soils and is used mainly for growing forage crops and hay. The major soil-management concerns are brush control, large stones, low fertility, excess lime, and limited soil moisture.

**Blackland Prairie:** The Blackland Prairies consist of about 12.6 million acres of east-central Texas, extending southwesterly from the Red River to Bexar County. There are smaller areas to the southeast. The landscape is undulating with few scattered wooded areas that are mostly in the bottomlands. Surface drainage is moderate to rapid.

Both upland and bottomland soils are deep, dark-gray to black, and consist of alkaline clays. Some soils in the western part are shallow to moderately deep over chalk. Soils on the eastern edge are typically neutral to slightly acidic, grayish clays and loams over mottled clay subsoils (sometimes called graylands). Blackland soils are known as "cracking clays" because of their high shrink-swell property and the large, deep cracks that form in dry weather. This high shrink-swell property can cause serious damage to foundations, highways, and other structures, and is a safety hazard in pits and trenches.

Land use is almost equally cropland and grassland. Cotton, grain sorghums, corn, wheat, oats, and hay are grown in this area. Grassland is mostly improved pastures, with native range on the shallower and steeper soils. Water erosion, cotton root rot, soil tilth, and brush control are the major management problems.

### EXTENT

The extent to which soil expansion is present in an area can be determined using the predominant soil composition and associated permeability. The Soil Survey was developed by the USDA Soils Conservation Service and contains information that can be applied in determining the suitability of soils in the planning area when selecting sites for roads, structures, and infrastructure.<sup>3</sup>

The expansion index (EI) provides an indication of swelling potential for a compacted soil. The EI measures volumetric swelling and is calculated by bringing a soil sample to 50 percent saturation and then multiplying the percentage of soil swelling by the fraction of soil to pass through a No. 4 sieve, and then by 100. Soils are measured in terms of swelling potential or volumetric swell to determine an estimate of the potential severity. The American Society for Testing and Materials (ASTM) soil expansion index is considered to have a greater range and better sensitivity of expansion than other indexes. Table 15-1 provides the extent categories for expansive soils per the ASTM:

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<sup>3</sup> Source: USDA, <http://www.nrcs.usda.gov>

**Table 15-1. Expansive Soils Index<sup>4</sup>**

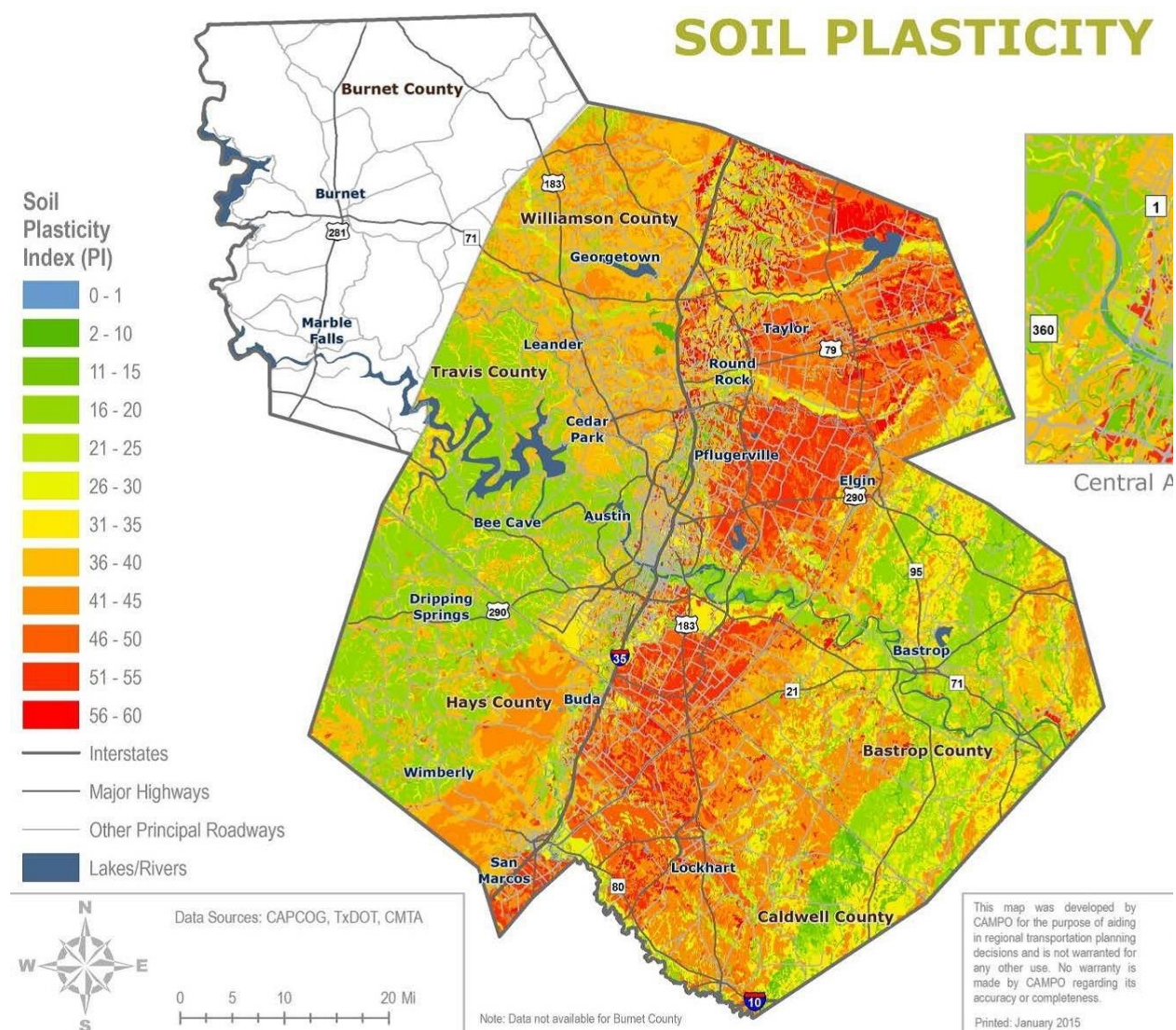
POTENTIAL EXPANSION	EXPANSION INDEX
Low	0 – 15
Medium	10-35
High	20-55
Very High	35+

The amount and depth of potential swelling that can occur in a clay material are, to some extent, functions of the cyclical moisture content in the soil. In drier climates where the moisture content in the soil near the ground surface is low because of evaporation, there is a greater potential for extensive swelling than in the same soil in wetter climates where the variations of moisture content are not as severe. Volume changes in highly expansive soils range between 7 and 10 percent, however under abnormal conditions, they can reach as high as 25 percent.

The Web Soil Survey is used to measure the extent of expansive soils by measuring the type of soils and their moisture content. Figure 15-3 depicts the plasticity index of the soils in the Travis County planning area.

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<sup>4</sup> Panjaitan, Surta Ria Nurliana. "The Effects of Lime Content on the Bearing Capacity and Swelling Potential of Expansive Soil". Journal of Civil Engineering Research. 2014.

Figure 15-3. Plasticity Index of Travis County Planning Area Soils<sup>5</sup>

The red and orange areas shown in Figure 15-3 indicate locations with relatively higher plasticity soils, which can exhibit greater sensitivity to drought conditions. High plasticity soils are prone to shrink and swell as soil moisture changes, which can degrade pavement, causing longitudinal cracking and edge drop-off. This effect can damage foundations of buildings and homes.

Table 15-2. Swelling Potential of Soils and Plasticity Index by Jurisdiction

Jurisdiction	Soil Plasticity Index	Potential Expansion
Travis County	2-60	Low, Medium, High, Very High

<sup>5</sup> Source: United States Department of Agriculture (USDA)

Jurisdiction	Soil Plasticity Index	Potential Expansion
Village of Briarcliff	16-30	Medium, High
City of Creedmoor	46-60	High, Very High
City of Jonestown	16-40	Medium, High, Very High
City of Lago Vista	16-40	Medium, High, Very High
City of Lakeway	11-30	Low, Medium
City of Manor	36-60	High, Very High
City of Mustang Ridge	36-60	High, Very High
City of Pflugerville	36-60	High, Very High
Village of Point Venture	16-40	Medium, High, Very High
City of Rollingwood	16-40	Medium, High, Very High
Village of San Leanna	11-30	Low, Medium
City of Sunset Valley	21-40	Medium, High
Village of The Hills	11-30	Low, Medium
City of West Lake Hills	16-40	Medium, High, Very High
ESD #6	11-45	Low, Medium, High, Very High

## HISTORICAL OCCURRENCES

Expansive soil is a condition that is native to Texas soil characteristics and cannot be documented as a time-specific event, except when it leads to structural and infrastructure damage. Extreme conditions can damage roads, structures, and infrastructure, including projects still under construction. Damages from expansive soils are typically associated with droughts, previous occurrences for expansive soils can be correlated with previous occurrences of drought, which are typically negligible.

Damages to roads in the planning area caused by expansive soils were recorded and photographed in 2008 and 2009, according to the Capital Area Metropolitan Planning Organization (CAMPO) Risk Assessment. The photos (below) were included as an example of the types of longitudinal cracking damage to roadways in the planning area that can occur. There are no other recorded impacts caused by expansive soils, but the planning team indicated that incidents of damages are known to occur on occasion to infrastructure in the planning area.





*Left: Photo of pavement cracks in a new City of Austin subdivision in 2009. Right: Longitudinal cracking on Golden Falls Drive in Travis County in 2008. Photo credit: City of Austin.*

## PROBABILITY OF FUTURE EVENTS

The Texas Department of Licensing and Regulation requires structures built after 2005 to include soil tests to be conducted for the likelihood of soil expansion, compression or shifting. In such cases, top or subsoils are required to be removed and remaining soils stabilized. Builders must ensure that water drains away from the structure on all sides and building owners notified of the potential for damage if changes in drainage flow occur. These measures significantly reduce the probability of expansive soil impacts on newer and future development.

It is considered “Likely” that the high-risk areas in the Travis County planning area will experience some expansive soil impacts such as problems with foundations, roadways, sidewalks and other structures and infrastructure in the future, especially during seasonal changes. Older structures will be impacted with greater frequency due to the soil testing and stabilization requirements for newer structures (Refer to Table 15-3 below). See additional information on impacts of climate change on the frequency and magnitude of expansive soil hazards.

## VULNERABILITY AND IMPACT

The effects of expansive soils are most prevalent when periods of moderate to high precipitation are followed by drought and then again by periods of rainfall. Other cases of damage result from increases in moisture volume from such sources as broken or leaking water and sewer lines. Dry clays are capable of absorbing water and will increase in volume in an amount proportional to the amount of water absorbed. Soils capable of changes in volume present a hazard to structures built over them and to the pipelines buried in them. Houses and one-story commercial buildings are more apt to be damaged by the expansion of swelling clays than are multi-story buildings, which are usually heavy enough to counter swelling pressures. However, if constructed on wet clay,





multi-story buildings may also be damaged by clay shrinkage when moisture levels are substantially reduced.

Cracked foundations and floors, jammed windows and doors, and ruptured pipelines are typical types of damage resulting from swelling soils. Damage to the upper floors of larger buildings can occur when motion in the structure is significant. While all infrastructure within the planning area is minimally vulnerable, slab on grade structures are more likely to suffer damages from expansive soils. In addition, older structures built to less stringent building codes may also be more susceptible to damage than new construction.

While the number of slabs on grade structures is not available, the U.S. Census data indicates approximately 149,603 of the housing units (27 percent of all housing units) in the planning area were built before 1980 and may be more susceptible to damages.

**Table 15-3. Residential Structures at Greatest Risk<sup>6</sup>**

JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980
Travis County	149,603
Village of Briarcliff	64
City of Creedmoor	60
City of Jonestown	204
City of Lago Vista	577
City of Lakeway	919
City of Manor	283
City of Mustang Ridge	93
City of Pflugerville	786
Village of Point Venture	199
City of Rollingwood	219
Village of San Leanna	78
City of Sunset Valley	67
Village of The Hills	26
City of West Lake Hills	604
ESD #6	0

<sup>6</sup> Manufactured structures and/or portable building numbers are reported by the participating special district.

The Travis County Planning Team identified the following critical facilities (Table 15-4) as assets that are considered the most important to the planning area and are susceptible to a range of impacts caused by expansive soils. For a comprehensive list by participating jurisdiction see Appendix C.

**Table 15-4. Critical Facilities Vulnerable to Expansive Soils**

CRITICAL FACILITIES	POTENTIAL IMPACTS
Emergency Response Services (EOC, Fire, Police, EMS), Hospitals and Medical Centers	<ul style="list-style-type: none"> <li>• Uneven settling and shifting cause cracks in building foundations impacting the integrity of critical facility structures and lead to doors being unable to open or close properly.</li> <li>• Damages and cracks in streets and highway infrastructure may lead to emergency vehicles being unable to access areas increasing the need for emergency operations.</li> <li>• Ruptured water pipes can lead to loss of function or water pressure impacting drinking water availability and firefighting capabilities.</li> </ul>
Airport, Academic Institutions, Animal Shelter, Evacuation Centers & Shelters, Governmental Facilities, Residential/ Assisted Living Facilities	<ul style="list-style-type: none"> <li>• Uneven settling and shifting cause cracks in building foundations impacting the integrity of critical facility structures and lead to doors being unable to open or close properly.</li> <li>• Damages and cracks in streets and highway infrastructure may lead to emergency vehicles being unable to access areas increasing the need for emergency operations.</li> </ul>
Commercial Supplier (food, fuel, etc.)	<ul style="list-style-type: none"> <li>• Essential supplies like medicines, water, food, and equipment deliveries may be delayed.</li> </ul>
Utility Services and Infrastructure (electric, water, wastewater, communications)	<ul style="list-style-type: none"> <li>• Wastewater and drinking water facilities and infrastructure may be damaged or destroyed resulting in services disruption or outage for multiple days or weeks.</li> <li>• Disruptions and outages impact public welfare as safe drinking water is critical.</li> <li>• A break in essential and effective wastewater collection and treatment is a health concern, potentially spreading disease.</li> <li>• Exposure to untreated wastewater is harmful to people and the environment.</li> </ul>

## ASSESSMENT OF IMPACTS

Expansive soils are generally influenced by how wet or dry reactive clay types of soils become, so the climate of an area, and more specifically the seasonal precipitation-drought cycle associated with arid or semi-arid regions influences the occurrence and severity of these hazards. Problems associated with expansive soils in the Travis County planning area, including participating jurisdictions and ESD #6, typically occur during extended periods of drought.

Lightweight buildings and other infrastructure are vulnerable to expansive soil hazards. Uneven settling and shifting in such structures may occur, causing cracks in foundations, walls, streets, driveways, and sidewalks; ruptured pipes; and windows and doors that do not open and close

## SECTION 15: EXPANSIVE SOILS

properly. Special provisions are necessary in the construction of footings and slabs resting on expansive soils to minimize damages due to the expansiveness. Homeowners and public agencies that assume they cannot afford preventative measures such as more costly foundations and floor systems, often incur the largest percentage of damage and costly repairs from expanding soil. No figures are available for the total damage to homes in the planning area from expansive clays. The greatest damage occurs when structures are constructed when clays are dry (such as during a drought) and then subsequent soaking rains swell the clay.

Infrastructure such as pipelines can be damaged, causing increased maintenance and repairs, replacement, or damage to the point of failure. Sewer and water lines are can also affected by shrinking and swelling soils. The movement of the soil can snap water and sewer and water lines, producing a minimum of temporary discomfort, and a maximum of a serious health and welfare risk. Field monitoring and testing should be conducted on a regular basis, especially during extended drought periods, to avoid loss of function or water pressure, which could impact drinking water and firefighting capabilities. In addition, highways and roads (I-35, U.S. Hwy 183, 290 and State Hwy 1, 45, 71) can be affected by expansive soils and could hinder evacuations if deemed not usable during disasters.

Unlike many other environmental hazards, the effects of expansive soil are deceptive in that they are not revealed suddenly or caused by a single event, but rather become increasingly evident and destructive over time. As such, the vast majority of expansive soil impacts are relatively benign in terms of emergency management and emergency response.

Expansive soil can directly impact infrastructure and as a result indirectly create impacts on residents. The following are a summary of impacts frequently associated with expansive soils:

- Expansive soils are influenced by the seasonal precipitation-drought cycle.
- Impacts to lightweight buildings and other infrastructure are most likely to occur. Impacts include: uneven settling and shifting in structures, cracks in foundations, walls, streets, driveways, and sidewalks; ruptured pipes; and windows and doors that do not open and close properly.
- 27 percent of homes in the Travis County planning area were built before 1980 leading them to more susceptible to damages from expansive soils. Similarly, historic buildings, many of which pre-date modern building codes, are vulnerable to impacts of expansive soil. One site in the Travis County planning area, the City of Pflugerville East Main Street Historic District, is listed on the National Register of Historic Places.
- Highways (I-35, U.S. Hwy 183, 290 and State Hwy 1, 45, 71) and roadways can be affected by expansive soils.
- Economic impacts are limited to uninsured damages.
- Impacts on people are indirect, with impacts related to disruption in city services such as water and sewer.
- As population grows and development increases in the County the potential risk to expansive soils will also increase.
- Limited impact anticipated to the natural environment other than changes in soil characteristics.

The impact of expansive soils experienced in the Travis County planning area, including participating jurisdictions and ESD #6, has resulted in no injuries and fatalities, supporting a “Limited” severity of impact meaning injuries and/or illnesses are treatable with first aid, shutdown

## SECTION 15: EXPANSIVE SOILS

Item 8.

of facilities and services for 24 hours or less, and less than 10 percent of property is destroyed or with major damage.

### CLIMATE CHANGE CONSIDERATIONS

Expansive soils are directly connected to drought and flood conditions as they literally swell and shrink with changing moisture conditions. Impacts of climate change on drought and flood events indicate similar changes to expansive soil frequency and impacts. Refer to Probability of Future Events section in and Section 7 (Drought) and Section 9 (Flood) for more information on those hazards.





# SECTION 16 MITIGATION STRATEGY



Mitigation Goals .....	1
Goal 1.....	1
Goal 2.....	1
Goal 3.....	2
Goal 4.....	2
Goal 5.....	2
Goal 6.....	2

## MITIGATION GOALS

Based on the results of the risk and capability assessments, the Planning Team developed and prioritized the mitigation strategy. This involved utilizing the results of both assessments and reviewing the goals and objectives that were included in the previous 2017 Plan. At the Mitigation Workshop in April 2023, Planning Team members reviewed the mitigation strategy from the previous 2017 Plan. The consensus among all members present was that the strategy developed for the 2017 Plan did not require changes, as it identified overall improvements to be sought in the Plan Update. However, the order and priority of the goals and objectives were reorganized.

### GOAL 1

Protect public health and safety.

#### OBJECTIVE 1.1

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

#### OBJECTIVE 1.2

Maximize utilization of the latest technology to provide adequate warning, communication, and mitigation of hazard events.

#### OBJECTIVE 1.3

Reduce the danger to, and enhance protection of, high risk areas during hazard events.

#### OBJECTIVE 1.4

Protect critical facilities and services.

### GOAL 2

Build and support local capacity and commitment to continuously become less vulnerable to hazards.

#### OBJECTIVE 2.1

Build and support local partnerships to continuously become less vulnerable to hazards.

#### OBJECTIVE 2.2

Build a cadre of committed volunteers to safeguard the community before, during, and after a disaster.

## SECTION 16: MITIGATION STRATEGY

### OBJECTIVE 2.3

Build hazard mitigation concerns into county, city, village and special district planning and budgeting processes.

### GOAL 3

Increase public understanding, support, and demand for hazard mitigation.

#### OBJECTIVE 3.1

Heighten public awareness regarding the full range of natural and man-made hazards the public may face.

#### OBJECTIVE 3.2

Educate the public on actions they can take to prevent or reduce the loss of life or property from all hazards and increase individual efforts to respond to potential hazards.

#### OBJECTIVE 3.3

Publicize and encourage the adoption of appropriate hazard mitigation measures.

### GOAL 4

Protect new and existing properties.

#### OBJECTIVE 4.1

Reduce repetitive losses to the National Flood Insurance Program (NFIP).

#### OBJECTIVE 4.2

Use the most cost-effective approach to protect existing buildings and public infrastructure from hazards.

#### OBJECTIVE 4.3

Enact and enforce regulatory measures to ensure that future development will not put people in harm's way or increase threats to existing properties.

### GOAL 5

Maximize the resources for investment in hazard mitigation.

#### OBJECTIVE 5.1

Maximize the use of outside sources of funding.

#### OBJECTIVE 5.2

Maximize participation of property owners in protecting their properties.

#### OBJECTIVE 5.3

Maximize insurance coverage to provide financial protection against hazard events.

#### OBJECTIVE 5.4

Prioritize mitigation projects, based on cost-effectiveness and sites facing the greatest threat to life, health, and property.

### GOAL 6

Promote growth in a sustainable manner.

#### OBJECTIVE 6.1

Incorporate hazard mitigation activities into long-range planning and development activities.



## SECTION 16: MITIGATION STRATEGY

Item 8.

### *OBJECTIVE 6.2*

Promote beneficial uses of hazardous areas while expanding open space and recreational opportunities.

### *OBJECTIVE 6.3*

Utilize regulatory approaches to prevent creation of future hazards to life and property.



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# SECTION 17 PREVIOUS ACTIONS

## SECTION 17: PREVIOUS ACTIONS

Summary .....	1
2017 Travis County HMP .....	2
Travis County-Wide .....	2
Travis County .....	7
City of Lakeway .....	57
City of Manor .....	63
City of Pflugerville .....	71
City of Sunset Valley .....	90
Village of The Hills .....	109
2017 Travis County Communities Plan .....	123
Village of Briarcliff .....	123
City of Jonestown .....	129
City of Lago Vista .....	139
City of Mustang Ridge .....	146
Village of Point Venture .....	150
Village of San Leanna .....	154
City of West Lake Hills .....	160

### SUMMARY

This section includes analysis from the 2017 Travis County Hazard Mitigation Plan and the 2017 Travis County Communities Hazard Mitigation Plan. Planning Team members were given copies of the previous mitigation actions submitted in the 2017 Travis County Plan and the 2017 Communities Plan at the mitigation workshop. Each participating entity reviewed the previous actions and provided an analysis as to whether the action had been completed, should be deferred as an ongoing activity, or be deleted from the Plan Update. The actions from the 2017 Plans are included in this section as they were written in 2017, with the exception of the “2023 Analysis” section. The following participating jurisdictions did not previously participate in a plan, therefore they have no previous actions: City of Creedmoor, City of Rollingwood, and ESD #6.



## 2017 TRAVIS COUNTY HMP

### TRAVIS COUNTY-WIDE

Travis County (County-Wide) – Action #1	
<b>Proposed Action:</b>	Purchase and install generators and hardwire quick generator connections at critical facilities throughout the planning area.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Critical facilities throughout the planning area.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Provide power for critical facilities during power outages and ensure continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Tornado, Thunderstorm Wind, Extreme Heat, Hail, Lightning, Winter Storm, Dam Failure
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000 per site.
<b>Potential Funding Sources:</b>	Operating budgets, local funding, PDM, HMGP grants
<b>Lead Agency/Department Responsible:</b>	Local and County Administration / Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

2023 ANALYSIS:	
County: Defer to Plan Update.	City of Pflugerville: Defer to Plan Update. The city has applied for the FEMA HMGP grant for a pump station generator that is under review. All wastewater lift stations that aren't equipped with generators have connections.
City of Lakeway: Defer to Plan Update.	City of Sunset Valley: Defer to Plan Update.
City of Manor: Defer to Plan Update.	Village of The Hills: Defer to Plan Update.

Travis County (County-Wide) – Action #2	
<b>Proposed Action:</b>	Adopt and implement land use restrictions and/or building code requirements in high-risk areas to mitigate the risk of land subsidence, dam failure, and flood.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide (all participating jurisdictions).
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce damages to future structures through improved construction techniques and land use restrictions.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Dam Failure, Expansive Soils
<b>Effect on new/existing buildings:</b>	Reduce risk to new structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Operating budgets, local funding
<b>Lead Agency/Department Responsible:</b>	Local and County Administration
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Local Ordinances

2023 ANALYSIS:	
County: Completed. Travis County adopted Atlas 14 May 2019 as the design storm event for all development projects in the unincorporated areas and all ETJ,	City of Pflugerville: Completed.
City of Lakeway: Defer to Plan Update.	City of Sunset Valley: Defer to Plan Update.
City of Manor: Defer to Plan Update.	Village of The Hills: Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County (County-Wide) – Action #3	
<b>Proposed Action:</b>	Install covered parking facilities for critical City/County vehicles
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide (all participating jurisdictions)
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce damages to critical emergency vehicles and equipment and ensure continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Hail, Extreme Heat, Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to new structures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$25,000
<b>Potential Funding Sources:</b>	Operating budgets, local funding, HMGP Grants
<b>Lead Agency/Department Responsible:</b>	Local and County Administration / Public Works
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	N/A

2023 ANALYSIS:	
County: Delete Action. County no longer deems a priority	City of Pflugerville: Defer to Plan Update.
City of Lakeway: Defer to Plan Update.	City of Sunset Valley: Defer to Plan Update.
City of Manor: Defer to Plan Update.	Village of The Hills: Defer to Plan Update.

Travis County (County-Wide) – Action #4	
<b>Proposed Action:</b>	Require drought tolerant landscaping at all new public buildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide (all participating jurisdictions)
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce need for water at public buildings during times of drought.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	Reduce risk to new structures.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	Operating budgets, local funding
<b>Lead Agency/Department Responsible:</b>	Local and County Administration
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Local Ordinances

2023 ANALYSIS:	
County: Defer to Plan Update.	City of Pflugerville: Defer to Plan Update.
City of Lakeway: Defer to Plan Update.	City of Sunset Valley: Defer to Plan Update.
City of Manor: Defer to Plan Update.	Village of The Hills: Defer to Plan Update.

Travis County (County-Wide) – Action #5	
<b>Proposed Action:</b>	Increase public awareness of all hazards and hazardous areas. Distribute public awareness information regarding natural hazards, including SFHAs, along with potential mitigation measures that can reduce the risk of damages and injuries. Utilize resources such as the local newspapers, utility bill inserts, and websites.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide (all participating jurisdictions)
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk through education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm.
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	Operating budgets, local funding
<b>Lead Agency/Department Responsible:</b>	Local and County Administration
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	N/A

2023 ANALYSIS:	
County: Complete and Defer to Plan Update. Ongoing.	City of Pflugerville: Completed.
City of Lakeway: Defer to Plan Update.	City of Sunset Valley: Defer to Plan Update.
City of Manor: Defer to Plan Update.	Village of The Hills: Defer to Plan Update.



## TRAVIS COUNTY

Travis County – Action #1	
<b>Proposed Action:</b>	Update Austin Travis County Community Wildfire Protection Plan.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Identifies risks and prioritizes actions Travis County can take to reduce risk, improve resilience, and adapt landscapes to wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Decreases risk of damage or structure loss.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$30,000
<b>Potential Funding Sources:</b>	Travis County, FEMA Grants, other grants
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

2023 ANALYSIS:
Defer to Plan Update. The city of Austin and Travis County are currently coordinating to update the Community Wildfire Protection Plan. Estimated cost is \$200,000.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #2	
<b>Proposed Action:</b>	Evaluate evacuation routes and shelter-in-place locations for public use during wildfire events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of injury and loss of life during wildfire events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Travis County, Grants
<b>Lead Agency/Department Responsible:</b>	Emergency Services, Austin Travis County Wildfire Coalition, TNR
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

2023 ANALYSIS:
Defer to Plan Update.

Travis County – Action #3	
<b>Proposed Action:</b>	Plan and implement fuel reduction projects at county parks, preserves, open space, and facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risks of harmful wildfire impacts to natural resources, life, and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Decreases risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Travis County, Grants.
<b>Lead Agency/Department Responsible:</b>	TNR, Austin Travis County Wildfire Coalition
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. Ongoing. Fuel reduction projects are on-going on county parks, preserves, open space, and facilities and continue to be a high priority. This also addresses increased fuel loads as a result of downed limbs from ice storms or tree die-off from droughts in addition to wildfire mitigation.

Travis County – Action #4	
<b>Proposed Action:</b>	Utilize Geographic Information System (GIS) to create maps that identify and analyze high risk areas for floods, wildfires, and dam failure. Adopt land use restrictions in high-risk areas identified in the analysis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Provides data necessary for planning mitigation actions.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Dam Failure
<b>Effect on new/existing buildings:</b>	Decreases risk of loss of existing and future structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$25,000
<b>Potential Funding Sources:</b>	Travis County, Grants
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Land, Water and Transportation Plan

2023 ANALYSIS:
Completed.

Travis County – Action #5	
<b>Proposed Action:</b>	Develop a database of flood-related data, including GIS layer identifying building permits, land use, and parcel data.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Will increase general awareness during disasters.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	This would allow the County to examine the potential threat of floods to existing structures in the unincorporated areas of the County.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$25,000
<b>Potential Funding Sources:</b>	Travis County, Grants
<b>Lead Agency/Department Responsible:</b>	TNR, Emergency Services, City of Austin
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Land, Water and Transportation Plan

2023 ANALYSIS:
Completed.



Travis County – Action #6	
<b>Proposed Action:</b>	Implement a GIS System to create a map of Emergency and Evacuation Routes to be used by emergency vehicles in flooding conditions.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Enhancement of Public Safety Response
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Tornado, Wildfire
<b>Effect on new/existing buildings:</b>	Decreases risk of loss of structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Travis County, Grants
<b>Lead Agency/Department Responsible:</b>	TNR, Emergency Services.
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Land, Water and Transportation Plan, the (future) County Transportation Plan

2023 ANALYSIS:
Delete Action. County no longer deems project a priority.

Travis County – Action #7	
<b>Proposed Action:</b>	Update GIS data for the Austin Travis County wildfire risk model.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Provides data necessary for planning wildfire mitigation actions.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk of loss of structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	General Fund, Grants
<b>Lead Agency/Department Responsible:</b>	TNR, Emergency Services, City of Austin, Austin Travis County Wildfire Coalition
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

2023 ANALYSIS:
Defer to Plan Update.

Travis County – Action #8	
<b>Proposed Action:</b>	Identify and prioritize structures for elevation as flood mitigation. Elevate flood prone structures throughout unincorporated Travis County.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of repetitive losses through elevation mitigation of flood prone structures.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Dam Failure
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$3,000,000
<b>Potential Funding Sources:</b>	Travis County, HMG Grants
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan

2023 ANALYSIS:
Defer to Plan Update. Update action description to address development of Atlas 14.

Travis County – Action #9	
<b>Proposed Action:</b>	Identify best practices to reduce the impacts of drought on water supply, water quality, and natural resources. Adopt and implement water restrictions as indicated in the analysis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce loss of habitat and decreased water levels.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	Reduce impact on existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Travis County, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Local Ordinances

2023 ANALYSIS:
Defer to Plan Update. Ongoing. TNR continues to identify best practices to mitigate the effects of drought on natural resources. We propose updating action to include implementation of best practices to the revised HMP. Estimated cost is \$200,000.

Travis County – Action #10	
<b>Proposed Action:</b>	Assess potential impacts of extended drought on County water supplies and natural resources. Incorporate drought tolerant landscaping at all public facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce water consumption at public buildings.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Resources Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	Reduce impact on existing facilities.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000 per site.
<b>Potential Funding Sources:</b>	Travis County, FEMA Grants, other grants
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 24-35 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Local Ordinance

2023 ANALYSIS:
Defer to Plan Update. Update proposed action to reflect incorporating drought tolerant landscaping.



Travis County – Action #11	
<b>Proposed Action:</b>	Utilize local radio stations to provide public service announcements to educate residents on natural hazard risks and mitigation measures in order to protect property and lives.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents and their property by promoting a general awareness of weather hazards, emergency staffing resources, and mitigation measures.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Drought, Tornado, Thunderstorm Wind, Extreme Heat, Expansive Soils, Hail, Lightning, Winter Storm, Dam Failure
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Travis County / TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending funding.
<b>Incorporation into Existing Plans:</b>	N/A

2023 ANALYSIS:
Defer to Plan Update. Update action to include paid advertisement on social media. Update cost \$100,000.

Travis County – Action #12	
<b>Proposed Action:</b>	Assist local communities, neighborhoods, and municipalities with the development of local Community Wildfire Protection Plans.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Educate and engage public in implementing the most effect actions for risk reduction in Central Texas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Decreases risk of existing structure loss.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Travis County, Grants
<b>Lead Agency/Department Responsible:</b>	Emergency Services, Emergency Service Districts, TNR.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

2023 ANALYSIS:
Defer to Plan Update.

Travis County – Action #13	
<b>Proposed Action:</b>	Distribute flyers to addresses in or near the floodplain to educate citizens on risk, flood insurance, and mitigation measures to reduce risk of flood.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County – targeting specific flood-prone areas
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents and their property by encouraging the purchase of flood insurance, encouraging development to code, and promoting a general awareness of weather hazards/emergency planning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Travis County, TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	N/A

2023 ANALYSIS:
Completed.

Travis County – Action #14	
<b>Proposed Action:</b>	Presentations to neighborhood organizations. Targeted to specific risk areas, such as flood-prone neighborhoods or near low water crossings. Educate residents on natural hazard risks and mitigation measures to reduce risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Neighborhood or public meeting spaces. Coordination with scheduled annual meetings or events to ensure attendance.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents and their property by encouraging the purchase of flood insurance, encouraging development to code, and promoting a general awareness of weather hazards/emergency planning resources.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Drought, Tornado, Thunderstorm Wind, Extreme Heat, Expansive Soils, Hail, Lightning, Winter Storm, Dam Failure
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	General Funds
<b>Lead Agency/Department Responsible:</b>	Travis County, TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	N/A

2023 ANALYSIS:
Completed.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #15	
<b>Proposed Action:</b>	Post flyers in neighborhoods, public space, churches, gathering places, online neighborhood portals, etc., to educate residents on natural hazards and mitigation measures to reduce risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County – targeting areas of highest risk
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents and their property by encouraging the purchase of flood insurance, encouraging development to code, and promoting a general awareness of weather hazards/emergency planning resources.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Travis County, TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan

2023 ANALYSIS:
Delete Action. County has identified other actions included in the mitigation action section that address education and awareness projects.



Travis County – Action #16	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Felder Lane, 0.10 miles east of FM 973
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,295,200
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered by CBAC for 2023 bond inclusion or future CO issuances.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #17	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Westlake Drive, 0.13 miles east of Woodcutters Way
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$382,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

Travis County – Action #18	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Ledgestone Terrace, 0.39 miles south of US 290
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,010,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project expected to begin construction Q4 2023.

Travis County – Action #19	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Wild Basin Ledge, 0.05 miles southeast of Petticoat Lane.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$418,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water and Transportation Plan.

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #20	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Caldwell Lane at intersection with River Timber Drive.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$188,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water and Transportation Plan.

2023 ANALYSIS:
Completed. Project was completed in Q2 2021.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #21	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Nameless Road, 0.5 miles north of Honeycomb Lane.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,300,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water and Transportation Plan.

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #22	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Wier Loop, 0.22 miles east of Thomas Springs Road.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$15,000 (2017 material costs).
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water and Transportation Plan.

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #23	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Springdale Road, 0.11 miles northeast of Ferguson Lane.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$8,095,700
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

Travis County – Action #24	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Juniper Trail, 0.06 miles north of Yaupon Trail.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,016,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #25	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Two locations on Wyldwood Road, 0.27 miles and 0.46 miles west of Brodie Lane. Located on Slaughter Creek and adjacent tributary.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$4,092,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project expected to begin construction Q4 2023.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #26	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Great Divide Road, 0.24 miles south of SH 71.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,150,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Delete Action. Project area was annexed by the City of Bee Cave in 2019.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #27	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Fall Creek Road, 0.14 miles south of SH 71.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,168,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #28	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Two adjacent locations on Pedernales Canyon Trail between Canyon Ranch Train and Little Creek Trail.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,324,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project converted to installation of Flood Warning System. Project expected to begin construction Q1 2023.

Travis County – Action #29	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Slaughter Creek Drive, 0.18 miles south of Meadowsouth Lane.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,914,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #30	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Tumbleweed Train, 0.07 miles east of Cuernavaca Drive.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$436,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Completed. Project was completed in Q3 2021.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #31	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Crystal Bend Drive, just east of Crooked Creek Drive.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,516,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project under construction Q4 2022.

Travis County – Action #32	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Cottonwood Drive, 0.07 miles west of Long Hollow Trail.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,516,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #33	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Springdale Road, 0.06 miles south of Vara Drive.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$726,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Delete Action. County no longer deems project a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #34	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Gregg Lane, 0.79 miles west of FM 973.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,410,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Completed. Project was completed in Q4 2022.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #35	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Jesse Bohls Road, 0.63 miles east of Weiss Lane.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,539,300
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #36	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Lime Creek Road, 0.08 miles south of Fisher Hollow Trail.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,394,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #37	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Nameless Road, 0.83 miles north of Shady Mountain Road.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,016,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #38	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	D Morgan Road, 0.54 miles west of Rawhide Trail.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,544,500
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Delete Action. County no longer deems project a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #39	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Bitting School Road, 1.22 miles north of Hog Eye Road.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,221,800
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Completed. Project was completed in Q3 2021.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #40	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Weir Loop Circle, 0.06 miles south of Rimstone Trail at the westernmost crossing of Devil's Pen Creek.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$592,100
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project is being considered for future CO issuances after completion of the 2023 Bond.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #41	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Tom Sassman Road, 0.07 miles north of Evelyn Road.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$4,356,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Project expected to begin construction Q1 2023.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #42	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Bee Creek Road, 0.11 miles south of Ridgeway Lane.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,374,307
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Delete Action. Project has been suspended.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #43	
<b>Proposed Action:</b>	Provide additional means of ingress and egress into single-entry neighborhoods and gated communities for use during emergencies and wildfire events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County, TX
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of loss of life and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500,000 per neighborhood.
<b>Potential Funding Sources:</b>	Travis County, Grants.
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan.

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #44	
<b>Proposed Action:</b>	Implement drainage improvements at Arroyo Doble Subdivision and Twin Creeks Park Subdivision to reduce flood damages to structures and infrastructure.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Area generally located south of FM 1626, west of Onion Creek and east of the Union Pacific Railroad.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents and provide safer access during flood events. Reduce damages to structures and infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,100,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	Engineering
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, and Transportation Plan

2023 ANALYSIS:
Defer to Plan Update. Phases 1 and 2 in design. Project expected to begin construction Q4 2023.

Travis County – Action #45	
<b>Proposed Action:</b>	Due to the data deficiency identified as part of the Dam Failure Risk Assessment, work with LCRA, TCEQ, and private Dam owners (where possible) to encourage the development of inundation maps for all high hazard Dams within the planning area. When and if available, this data will be used for the next plan update to complete a more thorough risk assessment, to include extent and impact of potential dam failures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County, TX
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk through improved risk assessment and informed decision making.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure
<b>Effect on new/existing buildings:</b>	Reduce risk to existing and future structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	Staff time only, as the development of inundation maps is the responsibility of the LCRA, TCEQ, and/or private Dam owners.
<b>Lead Agency/Department Responsible:</b>	Floodplain Administrator.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	EAPs

2023 ANALYSIS:
Defer to Plan Update.



Travis County – Action #46	
<b>Proposed Action:</b>	Development of a Wildland Fire Task Force.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County, TX and neighboring counties.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	Staff Time.
<b>Potential Funding Sources:</b>	Staff Time.
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan.

2023 ANALYSIS:
Delete Action. County no longer deems project a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #47	
<b>Proposed Action:</b>	Complete fuel reduction projects in the Balcones Canyon preserve. This will include cleaning lower limbs, dead wood, ladder fuels, and preserving tight canopy to reduce grass growth. Also included will be outreach to property owners in the interface to highlight the importance of and recommendations for defensible space initiatives.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Balcones Canyon Preserve.
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk of wildfire through fuels reduction.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan.

2023 ANALYSIS:
Delete Action. County requested as action is redundant to Action Item 3.

Travis County – Action #48	
<b>Proposed Action:</b>	Complete fuel reduction projects in other vulnerable, high-risk areas of the County. This will include clearing lower limbs, dead wood, ladder fuels, and preserving tight canopy to reduce grass growth. Also included will be outreach to property owners in the interface to highlight the importance of and recommendations for defensible space initiatives.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County, TX – WUI.
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk of wildfire through fuels reduction.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	General Fund, State funds, FEMA Grants.
<b>Lead Agency/Department Responsible:</b>	TNR
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan.

2023 ANALYSIS:
Delete Action. County requested as action is redundant to Action Item 3.

Travis County – Action #49	
<b>Proposed Action:</b>	Conduct public education program on best practices for creating defensible space and fire-adapted landscapes.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County, TX
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of wildfire, create resilient landscapes, and reduce loss of life and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce wildfire risk to structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	General Funds, Grants.
<b>Lead Agency/Department Responsible:</b>	Emergency Services, TNR, Austin Travis County Wildfire Coalition.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan.

2023 ANALYSIS:
Completed.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Travis County – Action #50	
<b>Proposed Action:</b>	Conduct public education program to advise public about evacuation routes, shelter-in-place locations for use during wildfire events, wildfire risks, and best wildland fire mitigation techniques for Central Texas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County, TX
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of loss of life and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	General Fund, Grants.
<b>Lead Agency/Department Responsible:</b>	Emergency Services, Austin Travis County Wildfire Coalition, TNR.
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan.

2023 ANALYSIS:
Defer to Plan Update.



## CITY OF LAKEWAY

City of Lakeway – Action #1	
<b>Proposed Action:</b>	Review the Lakeway Emergency Operations Plan and continue to establish an Emergency Operations Center.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide; Region-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	The Lakeway Office of Emergency Management has been working with each individual having responsibility in its Emergency Operations plan in order to update the plan to current standards. This is time-consuming due to the number of disciplines involved and details required but will provide the city with an emergency plan acceptable to the DEM and FEMA. The new plan format is easier to use and provides greater clarification of assigned responsibilities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness).

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Drought, Tornado, Thunderstorm Wind, Extreme Heat, Expansive Soils, Hail, Lightning, Winter Storm, Dam Failure.
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	General Revenue.
<b>Lead Agency/Department Responsible:</b>	City of Lakeway / Police Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>2023 ANALYSIS:</b>
Completed and Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lakeway – Action #2	
<b>Proposed Action:</b>	Acquisition and relocation of Police Department. Retrofit/harden new location with wind and fire-resistant materials, sprinkler system, surge protectors, and drought tolerant landscaping. Acquire and install generator with permanent hard wire quick connections to ensure continuity of emergency services.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City of Lakeway
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	The current Police Department is located adjacent to a stream that had been subject to high water on numerous occasions. The Department has been subjected to water infiltration due to inadequate drainage of storm water.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Drought, Tornado, Thunderstorm Wind, Extreme Heat, Expansive Soils, Hail, Lightning, Winter Storm, Dam Failure.
<b>Effect on new/existing buildings:</b>	Reduce risk to new structure.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$23,000,000
<b>Potential Funding Sources:</b>	Bond Election
<b>Lead Agency/Department Responsible:</b>	City of Lakeway.
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Master Plan

2023 ANALYSIS:
Completed. Police Department has been relocated and established at 1941 Lohman's Crossing Rd, Lakeway TX 78734.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lakeway #3	
<b>Proposed Action:</b>	Conduct joint Skywarn training with emergency services (police, fire, EMS) / City staff / LTISD / bus drivers. Skywarn training is conducted as part of our citizens Police Academy and is open to the public. City will expand training to include additional citizens and incorporate mitigation measures to reduce risk of damages and injuries.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Host training within community (open to the public)
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	In order to protect citizens, the city continues to update its emergency plans, including training with Skywarn for emergency services to protect against both natural and manmade hazards.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Tornado, Hail, Winter Storm, Thunderstorm Wind, Dam Failure, Extreme Heat, Lightning.
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$200
<b>Potential Funding Sources:</b>	General Revenue.
<b>Lead Agency/Department Responsible:</b>	Police/EMA.
<b>Implementation Schedule:</b>	Annual
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

2023 ANALYSIS:
Completed. Training on Skywarn was provided to Lakeway PD staff and EMA. Trainer who assisted was Paul Yura, Warning Coordination Meteorologist, National Weather Service Austin-San Antonio TX.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lakeway – Action #4	
<b>Proposed Action:</b>	Develop a mass debris removal plan.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	The City has never had a devastating storm causing damage to city-wide private property, resulting in very large quantities of materials (couches, carpets, appliances, rotting food, building materials such as sheetrock, etc.) ending up curbside. As a result, the City has no plans for managing debris removal in the event of a disaster.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado, Thunderstorm Wind, Flood, Wildfire, Hail, Dam Failure.
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	General Revenue
<b>Lead Agency/Department Responsible:</b>	Lakeway PD&CE and Public Works
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Policy/SOPs for respective City Departments, Emergency Management Plan

2023 ANALYSIS:
Defer to Plan Update. In-progress.

City of Lakeway – Action #5	
<b>Proposed Action:</b>	Implement fuels reduction / brush management program to reduce wildfire risk and assist with wildfire control.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City of Lakeway
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Brush fires are common in Texas especially during the hot and dry summer months. Under-brush and dead vegetation represent a significant fuel source for fires.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	General Revenue, Grants
<b>Lead Agency/Department Responsible:</b>	City of Lakeway/Public Works/Parks Department
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City of Lakeway Development Plan

2023 ANALYSIS:
Completed. Hamilton Green Belt – Wildfire Mitigation.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lakeway – Action #6	
<b>Proposed Action:</b>	Utilize social media to provide educational materials to residents on all natural hazard risks and mitigation measures to protect property and lives.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	An effective advance education program has been proven to aid in the preservation of life and property during emergency events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Drought, Tornado, Thunderstorm Wind, Extreme Heat, Expansive Soils, Hail, Lightning, Winter Storm, Dam Failure
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	General Revenue
<b>Lead Agency/Department Responsible:</b>	City of Lakeway/Police
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Policies and SOPs

2023 ANALYSIS:
Completed.

## CITY OF MANOR

City of Manor– Action #1	
<b>Proposed Action:</b>	Acquire and install All Hazards warning sirens.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Protect public safety during all hazards by providing an early warning system.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm.
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$40,000 - \$60,000
<b>Potential Funding Sources:</b>	General Fund, Grants, USDA
<b>Lead Agency/Department Responsible:</b>	City Manager / Public Works
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Policy

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Manor – Action #2	
<b>Proposed Action:</b>	Purchase, distribute, and promote the use of NOAA's all hazard radios. Incorporate with Citizens Police Academy training give away.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Provides information pre- and post-disaster to prevent the loss of life or property damage.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm.
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000 - \$10,000
<b>Potential Funding Sources:</b>	General Fund, HMA Grants, Donations
<b>Lead Agency/Department Responsible:</b>	Police Department.
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Emergency Plan

2023 ANALYSIS:
Defer to Plan Update.

City of Manor – Action #3	
<b>Proposed Action:</b>	Implement plan to clean up and improve the alley ways located in the downtown Manor area. Implement drainage improvements in the downtown area to improve drainage and reduce damages.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Old town Manor area
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Removal of debris and drainage improvements in the downtown alley ways will allow for greater drainage to prevent flooding and allow greater access for emergency services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	General Fund, HMA Grants, USDA
<b>Lead Agency/Department Responsible:</b>	City Manager/Public Works
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Development, Drainage Plan

2023 ANALYSIS:
Defer to Plan Update.

City of Manor – Action #4	
<b>Proposed Action:</b>	Adopt and implement plan to clean up and remove debris from ditches, drains, and culverts to maintain capacity.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduces the potential for flooding, and property damage from back water flooding.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations, Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce impact to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	General Fund, Grants, USDA
<b>Lead Agency/Department Responsible:</b>	City Manager/Public Works
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Ordinance

2023 ANALYSIS:
Defer to Plan Update.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Manor– Action #5	
<b>Proposed Action:</b>	Develop/Update drought contingency plan. Adopt and implement water restrictions identified in the plan.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Maintain safe water levels and prevent waste.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	General Fund.
<b>Lead Agency/Department Responsible:</b>	City Manager/Planning/Public Works
<b>Implementation Schedule:</b>	Within 24 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	City Ordinances

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Manor – Action #6	
<b>Proposed Action:</b>	Public Awareness and education campaign to educate the public on expansive soil and methods and actions that can be taken to protect existing structures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Protect existing structures from expansive soil damage.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	City Manager
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Emergency Plan

2023 ANALYSIS:
Defer to Plan Update.

City of Manor – Action #7	
<b>Proposed Action:</b>	Develop and implement code requirements for foundations to protect against damage caused by expansive soils.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Protect or minimize the damage done to new construction from expansive soils.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils
<b>Effect on new/existing buildings:</b>	Reduce risk to future structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	City Manager
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Ordinances

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Manor – Action #8	
<b>Proposed Action:</b>	Develop and initiate extreme summer heat public awareness campaign and fan drive/giveaway. Implement fan drive to collect donations and distribute fans to vulnerable population.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Prevent loss of life through education and awareness, and distribution of fans to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000 - \$10,000
<b>Potential Funding Sources:</b>	General Fund, Grants, Donations
<b>Lead Agency/Department Responsible:</b>	City Manager/Police Department
<b>Implementation Schedule:</b>	Within 24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	City Emergency Plan

2023 ANALYSIS:
Defer to Plan Update.

## CITY OF PFLUGERVILLE

City of Pflugerville – Action #1	
<b>Proposed Action:</b>	Construct shelters and safe refuge locations for public evacuation triggered by disasters such as wildfire, dam failure, winter storms, and extreme heat.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Location in City to be determined
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Minimize disruption to vulnerable populations reducing unnecessary need for medical attention or death.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm, Extreme Heat, Wildfires, Dam Failure, Tornado, Flood
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	General Fund, Grants
<b>Lead Agency/Department Responsible:</b>	Emergency Management Coordinator
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

2023 ANALYSIS:
Defer to Plan Update. The city has incorporated warming and cooling centers but no overnight shelters. Recommend revising action to incorporate need for overnight shelters during extreme weather events.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #2	
<b>Proposed Action:</b>	Study, adopt, and implement a drainage utility plan to fund/implement regular maintenance and operations for drainage improvements.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing and future structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	City Engineer
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Master Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #3	
<b>Proposed Action:</b>	Identify locations and construct tornado safe room community shelters. Install tornado safe rooms in new public facilities or designated shelters.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Mitigates specific risks to structures, people, and operations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	City Manager's Office
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Include in Facility Master Plan Scope of Work

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #4	
<b>Proposed Action:</b>	Incorporate specific actions from the Hazard Mitigation Plan that are designed to reduce flooding into the City's Comprehensive Plan. Actions should be related to protecting existing and future development from increased flooding potential and erosion and incorporate into the City of Pflugerville Unified Development Code.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Prevents future losses and reduces risk.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	General Fund.
<b>Lead Agency/Department Responsible:</b>	Development Services Departments
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going. Actions to protect existing and future development from flooding and erosion have been incorporated into the City's Comprehensive Plan updates. This includes avoiding development in existing floodplains.

City of Pflugerville – Action #5	
<b>Proposed Action:</b>	Implement an education and awareness program to further promote the purchase of flood insurance. Advertise the availability of costs, and coverage of flood insurance through the National Flood Insurance Program (NFIP).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce uninsured property losses.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	CRS/Floodplain Administrator
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding (then annually).
<b>Incorporation into Existing Plans:</b>	Community Rating System documents; City Communication Plan

2023 ANALYSIS:
Completed.

City of Pflugerville – Action #6	
<b>Proposed Action:</b>	Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding natural hazards, including SFHAs, along with potential mitigation measures that can reduce risk. Utilize resources such as the local newspaper, utility bill inserts, inserts in the phone book, a city hazard awareness website, and an education program for school age children; provide “how to” classes in retrofitting by local merchants, integrate “Disaster Resistance Education” into the public school curriculum, and/or provide public education on the importance of maintaining ditches.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City wide
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Raise awareness, incite proactive actions by our residents to reduce losses.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$15,000
<b>Potential Funding Sources:</b>	General Fund, Grants
<b>Lead Agency/Department Responsible:</b>	Public Information Office
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding (then annually).
<b>Incorporation into Existing Plans:</b>	Communication Plan

<b>2023 ANALYSIS:</b>
Completed.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #7	
<b>Proposed Action:</b>	NFIP Community Rating System (CRS): Evaluate and implement activities to improve rating with the CRS, such as adopting higher floodplain standards.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide, but generally in proximity to flood prone areas.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of future losses related to flooding.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce the number of existing and future buildings that are susceptible to flooding.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	TBD
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Building Department
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding (then annually).
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan, CRS Materials

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #8	
<b>Proposed Action:</b>	Sponsor a “Multi-Hazard Awareness Week” to educate the public on hazards including hurricanes, tornadoes (sheltering in place, evacuation, emergency preparedness, and structural retrofitting), flooding (evacuation, emergency preparedness, retrofitting, and flood insurance), thunderstorms and lightning, (emergency preparedness) and hailstorms.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk to life and property in the community.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	City Budget, Grants
<b>Lead Agency/Department Responsible:</b>	Public Information Office
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding (then annually).
<b>Incorporation into Existing Plans:</b>	Communications Plan

2023 ANALYSIS:
Completed. The city engages the public with additional emergency preparedness messaging and activities during Emergency Preparedness Month every September.

City of Pflugerville – Action #9	
<b>Proposed Action:</b>	Ensure adequate plans, procedures, and capabilities to prevent and respond to dam failure.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Lake Pflugerville
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Properly maintaining the dam minimizes the potential for losses of life and property should Lake Pflugerville dam fail.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Dam Failure
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	TBD
<b>Potential Funding Sources:</b>	City Utility Fund
<b>Lead Agency/Department Responsible:</b>	City Engineer
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Dam Safety Master Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going. Update to incorporate into existing plans to also reflect Public Works Emergency Action Plan.

City of Pflugerville – Action #10	
<b>Proposed Action:</b>	Planning for and maintaining adequate road and debris clearing capabilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce vehicular accidents, as well as resulting injuries or deaths.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm, Tornado, Thunderstorm Wind
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	%5,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	City of Pflugerville
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding (then annually).
<b>Incorporation into Existing Plans:</b>	Maintenance and Operations Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going. Update to incorporate into existing plans to also reflect Public Works Emergency Action Plan.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #11	
<b>Proposed Action:</b>	Adopt ordinance to restrict water and energy consumption at public facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide public facilities
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Improved resiliency of publicly owned buildings.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat
<b>Effect on new/existing buildings:</b>	Increased efficiency to existing and future buildings.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	City Manager's Office
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Facilities Master Plan

2023 ANALYSIS:
Defer to Plan Update. No ordinance could be located that restricts consumption at public facilities. Update action to incorporated into Emergency Action or COOP plans.



City of Pflugerville – Action #12	
<b>Proposed Action:</b>	Develop and implement a plan for installing network of lightning detection equipment systems and lightning rods at existing and future city park facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide Park facilities
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of injury or death.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations, Structure and Infrastructure Project.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Lightning
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Parks and Recreation
<b>Implementation Schedule:</b>	Withing 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Incorporate into Parks Master Plan Update

2023 ANALYSIS:
Defer to Plan Update. Only one park was installed. Update action to incorporate into the Parks Master Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #13	
<b>Proposed Action:</b>	Study, adopt, and implement a Drainage Master Plan and FIRM study of Wilbarger Creek watershed.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide – Wilbarger Creek watershed
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	Reduce risk to existing and future structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	General Fund.
<b>Lead Agency/Department Responsible:</b>	City Engineer
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. A Flood Protection Plan Study was published in April 2021. Still collecting data on implementation of any drainage plans.

City of Pflugerville – Action #14	
<b>Proposed Action:</b>	Evaluate, adopt, and implement National Fire Protection Association (NFPA) codes and standards as well as Austin / Travis County Community Wildfire Protection Plan to minimize and manage the wildfire threat as appropriate.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide – Pflugerville ETJ
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to residents and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Travis County ESD No. 2
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

2023 ANALYSIS:
Completed. We have implemented NFPA 1300 (standard on Community Risk Reduction) in 2018 and are completing an update to that assessment and corresponding plan this year. The district, and the City of Pflugerville, adopted the 2021 version of the International Fire Code. The district, including the City of Pflugerville, was designated as an ISO Class 1 Public Protection Classification (largely based on meeting NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments).

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #15	
<b>Proposed Action:</b>	Acquire, implement, and maintain equipment, apparatus and personnel trained in support of Stillwater and swift water capabilities. This would address life and property.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide – Pflugerville ETJ
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce loss of lives during water rescue incidents.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations - Response

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Floods
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$43,090 annually
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Travis County ESD No. 2
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

2023 ANALYSIS:
Completed. All District firefighters are trained and equipped to the operations level in both swift water and surface water (stillwater), with many poses technician level training. District staff complete refresher training annually.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #16	
<b>Proposed Action:</b>	Acquire, implement, and maintain equipment, apparatus and personnel trained in support of wildland firefighting capabilities. This would address life and property.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide – Pflugerville ETJ
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce the severity and amount of property loss due to wild land fires.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations - Response

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfires
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$53,200 annually
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Travis County ESD No. 2
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

2023 ANALYSIS:
Completed. The district has maintained minimum wildland training requirements and capabilities since the late 90s. We have recently added two more brush trucks to the fleet, one being a type 5 and the other being a type 7 (a total of 5). All District firefighters are trained to a minimum of the National Wildfire Coordinating Group (NWCG) Wildland Type 1 Firefighter, and then additional training and qualifications are required and held for higher ranks. District firefighters must also complete the NWCG arduous pack test annually. Lastly, District staff regularly provide manpower and equipment for prescribed burning throughout Travis County through an ILA with Travis County Parks.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #17	
<b>Proposed Action:</b>	Complete a detailed structural/engineering survey of City facilities to ensure their soundness with respect to resisting the effects of Thunderstorm wind, Tornado, and Hail. With information from the survey, implement mitigation activities to harden facilities, reduce damages, and ensure continuity of services. Mitigation actions can include items such as hail resistant construction materials, storm shutters, shatter proof glass, and/or roof straps.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Mitigates specific risks to structures, people, and operations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado, Thunderstorm, Wind, Hail
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	City Manager's Office
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Include in Facility Master Plan Scope of Work

2023 ANALYSIS:
Defer to Plan Update. Update action to incorporate implementing inspections on a regular cycle.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Pflugerville – Action #18	
<b>Proposed Action:</b>	Utilize news outlets and social media for distributing updated information about winter storms, including mitigation measures to reduce damages and health and safety tips.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce damages to life and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	General Fund.
<b>Lead Agency/Department Responsible:</b>	Public Information Office
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption, pending available funding (then annually).
<b>Incorporation into Existing Plans:</b>	Communications Plan

2023 ANALYSIS:
Completed. The city's communications office regularly uses social media and news to distribute updated information in accordance with the Emergency Communications Plan.

City of Pflugerville – Action #19	
<b>Proposed Action:</b>	Coordinate with the State to monitor and conserve existing water supplies in the County. Adopt and implement mandatory water conservation measures during extreme droughts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce water waste and maintain sufficient water pressure and flow.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Utility Funds.
<b>Lead Agency/Department Responsible:</b>	Public Works, Utilities Department
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan, Drought Conservation Plan

2023 ANALYSIS:
Completed. The city coordinates with the County and State to conserve water supplies through our conservation programs.

## CITY OF SUNSET VALLEY

City of Sunset Valley – Action #1	
<b>Proposed Action:</b>	Pursue funding and implement land and easement acquisition for the purpose of reducing flood risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Designated Special Flood Hazard Area (100-year Floodplain)
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Loss of property in flood prone area
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce Risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$300,000
<b>Potential Funding Sources:</b>	City General Fund
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	With 12 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. Ongoing. The City has purchased property in the floodplain as they become available.

City of Sunset Valley – Action #2	
<b>Proposed Action:</b>	Implement a natural waterway maintenance program. This program includes debris removal from the waterways, non-native plant removal, and the removal of fallen trees that are in excess of a 45-degree angle within the creek. Under the direction of the City Environmental Manager some trimming and or removal of native vegetation may also be performed.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Williamson Creek Cougar Creek (Sunset Valley Tributary) Kicheon Branch
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	improved natural creek function and flow to reduce flood risk
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project, Natural System Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing and future structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$30,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Flood Management Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. Ongoing. This is an ongoing operation and continues to be done annually.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #3	
<b>Proposed Action:</b>	Lot to lot drainage. City will provide technical support to identify solutions to drainage problems affecting two or more properties, and perform minor grading work in easements, as needed to reduce flood risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	As identified – City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce loss of property to existing structures and infrastructure.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$20,000
<b>Potential Funding Sources:</b>	Local Budgets, HMA Grants
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Plan

2023 ANALYSIS:
Delete Action. This program is no longer in effect.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #4	
<b>Proposed Action:</b>	Implement education program to promote the purchase of flood insurance. Advertise the availability of costs, and coverage of flood insurance through the National Flood Insurance Program (NFIP). Encourage the 70 households located within the low water crossing inundation area identified to purchase flood insurance.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Households within the identified inundation area
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Public education of knowing risks of flood and understanding of flood loss coverage.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Within 12 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	N/A

2023 ANALYSIS:
Completed and Defer to Plan Update. Annually. This is done annually at the Public Works Open House event in March. The information is also displayed in the lobby of the Public Works Building.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #5	
<b>Proposed Action:</b>	Implement education program to increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding natural hazards, including SFHAs, and potential mitigation measures to reduce risk. Distribute information through local newspaper, utility bill inserts, inserts in the phone book, a City hazard awareness website, and an education program for school age children.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide, including Sunset Valley Elementary
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk of loss of life, property or limb having public understanding their risk and information to prepare for disasters.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	With 12 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. Annually. This is done annually at the Public Works Open House event in March. The information is also displayed in the lobby of the Public Works Building.

City of Sunset Valley – Action #6	
<b>Proposed Action:</b>	Adopt and implement program to insulate outdoor pipes at public buildings annually and prior to winter storm events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City Facilities
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk of loss of critical facilities infrastructure.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000 (Staff Time).
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	SOP

2023 ANALYSIS:
Completed and Defer to Plan Update. Ongoing. This is done each year as winter approaches. The pipes are insulated and wrapped, and hot boxes have been installed over all the larger above ground backflow devices.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #7	
<b>Proposed Action:</b>	Identify properties for possible participation in voluntary acquisition and demolition. Pursue funding and implement acquisition and demolition of flood prone structures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Designated SFHA and/or repetitive loss properties
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Loss of property in flood prone area
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Land Use Management Plan

2023 ANALYSIS:
Completed and Defer to Plan Update.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #8	
<b>Proposed Action:</b>	Implement routine maintenance of ditch lines, storm water inlets, storm water lift stations, as well as make standard preparations for storms and subsequent clean up.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Preparedness
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$20,000
<b>Potential Funding Sources:</b>	Local Budgets, Grants
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. Ditches are cleaned bi-annually.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #9	
<b>Proposed Action:</b>	Upgrade culvert on Westgate Bridge at Sunset Valley tributary to increase capacity and reduce damages. Project requires joint participation with the City of Austin.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Westgate Bridge at Sunset Valley Tributary
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce loss of property due to backflow of storm waters at this point.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000,000
<b>Potential Funding Sources:</b>	Local Budgets, Grants
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Plan

2023 ANALYSIS:
Delete Action. This project is no longer under consideration.

City of Sunset Valley – Action #10	
<b>Proposed Action:</b>	Implement channel realignment between Lone Oak Trail and Reese Road. Realign the tributary beginning east of Lone Oak Trail and reconnect to the existing channel west of Reese Road. The channel would be approximately 820 feet long. The proposed culvert crossing at Pillow Road would consist of three 10-foot by 3-foot box culverts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Sunset Valley Tributary
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce loss of property/structural damages on flood prone properties.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce flood risk on existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$686,750
<b>Potential Funding Sources:</b>	Local Budgets, Grants
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Plan

2023 ANALYSIS:
Delete Action. This project is no longer under consideration.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #11	
<b>Proposed Action:</b>	Implement culvert improvements, storm sewer system, and roadside ditch improvements along Sunset Trail, Lone Oak Drive, Yellow Tail Cove, and Pillow Road.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Along Sunset Trail, Lone Oak Drive, Yellow Tail Cove, and Pillow Road
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to existing structures and infrastructure through flood reduction and increased capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$750,000
<b>Potential Funding Sources:</b>	Local Budgets, HMA Grants
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drainage Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. Annually. The stormwater system will be evaluated annually for possible improvements.

City of Sunset Valley – Action #12	
<b>Proposed Action:</b>	Pursue grant funding from FEMA's Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) program to implement acquisition and elevation program for flood prone properties within the City.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Designated SFHA
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce loss of property and risk from flooding in flood prone area. Continuity of home ownership in City.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000,000
<b>Potential Funding Sources:</b>	HMGP, FMA
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

2023 ANALYSIS:
Defer to Plan Update.



City of Sunset Valley – Action #13	
<b>Proposed Action:</b>	Develop and implement a Flood Event Warning System to monitor rainfall in key areas upstream of the City and alert citizens to potential flooding.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of loss of life and property
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	HMGP, FMA, Local budgets
<b>Lead Agency/Department Responsible:</b>	Department of Public Works, Police Department
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

2023 ANALYSIS:
Defer to Plan Update. The city will install flood warning signs near several low water crossings, but no system has been developed.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #14	
<b>Proposed Action:</b>	Continue to monitor drought conditions through contact with State agencies.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk through enhanced risk assessment.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drought and Water Conservation Plan

2023 ANALYSIS:
Completed and Defer to Plan Update. The city continues to monitor drought conditions.

City of Sunset Valley – Action #15	
<b>Proposed Action:</b>	Implement public information/education campaigns on water conservation during times of drought. Adopt water use restrictions to ensure sufficient water pressure for firefighting and provision of drinking water during droughts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce impact of drought through water restrictions and education.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations, Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Drought and Conservation Plan

2023 ANALYSIS:
Completed. Water conservation education is part of Public Works Open House and is provided in newsletter articles.

City of Sunset Valley – Action #16	
<b>Proposed Action:</b>	Implement activities to improve Community Rating System (CRS) rating such as adopting higher floodplain standards.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk of loss of property through higher development standards for new and significant loss construction.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Low
<b>Priority (High, Moderate, Low):</b>	Reduce risk to existing structures.
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Within 48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	CRS Program

2023 ANALYSIS:
Completed. The city has made improvements and updated their CRS rating.

City of Sunset Valley – Action #17	
<b>Proposed Action:</b>	Complete a detailed structural/engineering survey of City facilities to ensure through soundness with respect to resisting the effects of high winds and hail. Initiate/ implement upgrades to at-risk City structures and/or infrastructure (harden facilities). Mitigate specific risks to structures, people, and operations to reduce risk of damages and ensure continuity of services.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide critical facilities
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk to facilities and citizens through building protection and ensuring continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado, Thunderstorm Wind, Hail, Lightning
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Budgets, HMGP, FEMA
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

2023 ANALYSIS:
Defer to Plan Update. This has not been completed at this time.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #18	
<b>Proposed Action:</b>	Develop and implement a public information campaign to inform citizens about the potential for wildland-urban interface fires and mitigation measures to reduce risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of loss of life and property during wildfire event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Budgets, Grants
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Within 48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

2023 ANALYSIS:
Completed. Wildfire awareness is part of the annual Public Works Open House Event in March.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Sunset Valley – Action #19	
<b>Proposed Action:</b>	Provide tree pruning education classes to reduce damages and power outages caused by falling limbs and debris.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Course to be offered in the City – Available to all residents.
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of loss to property and potential power outages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Wildfire, Winter Storm, Tornado, Hail, Lightning, Flood, Dam Failure.
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	General Fund
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 48 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

2023 ANALYSIS:
Completed. Classes are offered every other year to teach residents proper pruning techniques.

## VILLAGE OF THE HILLS

Village of the Hills – Action #1	
<b>Proposed Action:</b>	Expand and implement drainage maintenance program to include regular mowing/brush clearing within drainage easements and removal of debris and sediment from roadside culverts and roadside ditches.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village easements, common area and park land
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of flooding by maintaining drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing and future structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	Annual Budget
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Standard Operating Procedures

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of the Hills – Action #2	
<b>Proposed Action:</b>	Identify residential and non-residential structures at risk from wildfire. Expand wildfire vegetation maintenance program to trim back and remove vegetation near high-risk structures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce wildfire risk to existing structures.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural System Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time, FEMA Grants
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 12 month of plan adoption
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

2023 ANALYSIS:
Defer to Plan Update.

Village of the Hills – Action #3	
<b>Proposed Action:</b>	Coordinate with the State to monitor and conserve existing water supplies in the County. Adopt and implement mandatory water conservation measures to ensure sufficient water pressure for firefighting and provision of drinking water during droughts
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce impacts of drought through conservation regulations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Local Budget, Staff Time
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Local Ordinances

2023 ANALYSIS:
Defer to Plan Update.



Village of the Hills – Action #4	
<b>Proposed Action:</b>	Pursue funding and implement acquisition and elevation program for flood prone properties within the Village. Prioritize repetitive loss properties. Pursue grant funding from FEMA's Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) program to receive assistance for mitigating (acquisition, elevation, etc.) flood prone properties within the City.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide flood prone properties
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce or eliminate repetitive flood damages to high-risk properties.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	HMGP, FMA
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending funding.
<b>Incorporation into Existing Plans:</b>	Land Use Plan

2023 ANALYSIS:
Defer to Plan Update.

Village of the Hills – Action #5	
<b>Proposed Action:</b>	Sponsor a “Multi-Hazard Awareness Week” to educate the public on all natural hazards (sheltering in place, evacuation, emergency preparedness, health and safety tips and structural retrofitting, flood insurance, etc.). This activity may be carried out in collaboration with the County or other surrounding jurisdictions.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of injury and damages through education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	General Funds, HMA Grants
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Annual Budget

2023 ANALYSIS:
Defer to Plan Update.

Village of the Hills – Action #6	
<b>Proposed Action:</b>	Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding natural hazards, including SFHAs, along with potential mitigation measures that can reduce risk. Educate residents on tools associated with Smart Meters, encourage monitoring of water use through technology, and notify residents of suspected water leaks. Utilize resources such as the local newspaper, utility bill inserts, and a Village hazard awareness website.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit (Current Cost/Losses Avoided):</b>	Reduce risk of injury and damages through education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	General Funds, HMA Grants
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Annual Budget

<b>2023 ANALYSIS:</b>
Defer to Plan Update.

Village of the Hills – Action #7	
<b>Proposed Action:</b>	Develop alternative evacuation routes/plans and designate emergency thoroughfares, particularly in areas with limited capacity. Educate citizens on evacuation routes and procedures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to citizens through improved evacuation and education.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (Preparedness)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Flood, Wildfire
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Evacuation Plan

2023 ANALYSIS:
Defer to Plan Update.

Village of the Hills – Action #8	
<b>Proposed Action:</b>	Work with local news outlets to disseminate information about natural hazards, including health and safety tips and mitigation measures to reduce risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of injury and damages through education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	Local Budgets, Staff Time
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Annual Budget

2023 ANALYSIS:
Defer to Plan Update.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of the Hills – Action #9	
<b>Proposed Action:</b>	Develop and implement a public information campaign to inform citizens about the potential for wildland-urban interface fires and mitigation measures that reduce risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk to citizens and property through education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Budgets, Grants
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 24 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

2023 ANALYSIS:
Defer to Plan Update.

Village of the Hills – Action #10	
<b>Proposed Action:</b>	Implement education and awareness program to promote the purchase of flood insurance. Advertise the coverage, availability, and costs of flood insurance through the National Flood Insurance Program (NFIP) on the village website.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk through increased insurance coverage and risk awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	Staff Time
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption, pending funding.
<b>Incorporation into Existing Plans:</b>	N/A

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of the Hills – Action #11	
<b>Proposed Action:</b>	Increase tree planting around buildings to shade parking lots and along public rights-of-way.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village facilities
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce effect of extreme heat on citizens and infrastructure.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat
<b>Effect on new/existing buildings:</b>	Reduce effect on structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Budget
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Local Ordinance

2023 ANALYSIS:
Defer to Plan Update.

Village of the Hills – Action #12	
<b>Proposed Action:</b>	Implement irrigation policies for public facilities; maintain a watering schedule to minimize the effects of expansive soils.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village public facilities
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce effects of expansive soils on public facilities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils
<b>Effect on new/existing buildings:</b>	Reduce risk to existing and future structures.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	Annual Budget
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Local Ordinances

2023 ANALYSIS:
Defer to Plan Update.

Village of the Hills – Action #13	
<b>Proposed Action:</b>	Establish standard requirements for all utilities regarding tree pruning around lines.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village-wide
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce damages to power lines and damages caused by power outages by reducing risk of downed power lines.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Tornado, Winter Storm, Hail, Lightning
<b>Effect on new/existing buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Local Budget
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption.
<b>Incorporation into Existing Plans:</b>	Local Ordinances

2023 ANALYSIS:
Defer to Plan Update.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of the Hills – Action #14	
<b>Proposed Action:</b>	Install and maintain surge protection on critical electronic equipment.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Village Facilities
<b>Risk Reduction Benefit</b> (Current Cost/Losses Avoided):	Reduce risk of damages to critical equipment and ensure continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Lightning
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	Local Budget
<b>Lead Agency/Department Responsible:</b>	Village of the Hills Administration
<b>Implementation Schedule:</b>	Within 36-48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Annual Budget

2023 ANALYSIS:
Defer to Plan Update.

## 2017 TRAVIS COUNTY COMMUNITIES PLAN

### VILLAGE OF BRIARCLIFF

Village of Briarcliff – Action #1	
<b>Proposed Action:</b>	Achieve Firewise Certification: Work with homeowners to create defensible space around homes and prevent fires from advancing and endangering homes and lives. Acquire Firewise status by reducing wildfire risk around the village. Wildfires interface with the village and the risk is higher during drought periods.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, NSP
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	FEMA Hazard Mitigation Grant
<b>Lead Agency/Department Responsible:</b>	Fire Department
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Completed.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of Briarcliff– Action #2	
<b>Proposed Action:</b>	Incorporate xeriscape practices into landscape ordinances: Incorporate xeriscape practices into landscape ordinances to reduce water usage during drought and extreme heat periods and reduce the effects of expansive soils

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Water Department
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update.

Village of Briarcliff – Action #3	
<b>Proposed Action:</b>	Purchase a stand- by generator for the wastewater treatment plant: Secure funding for the purchase and installation of a back-up generator at wastewater treatment plant to provide back-up power from hazard events of dam/levee failure, earthquakes, extreme heat, flood, hail, hurricane/tropical storms, lightning, tornado, wildfire, wind, and winter weather.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lighting, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	FEMA Hazard Mitigation Grant
<b>Lead Agency/Department Responsible:</b>	Utilities Department
<b>Implementation Schedule:</b>	34 months

2023 ANALYSIS:
Defer to Plan Update. Project on hold for lack of funding.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of Briarcliff – Action #4	
<b>Proposed Action:</b>	Reduce fuels for wildfire: Reduction of fuel cedar trees, dry grass, and dead trees for wildfires will reduce the potential for widespread fires.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	FEMA Hazard Mitigation Grant
<b>Lead Agency/Department Responsible:</b>	Fire Department
<b>Implementation Schedule:</b>	24 months
<b>Incorporation into Existing Plans:</b>	Not identified in HMP

2023 ANALYSIS:
Defer to plan update. Project is ongoing.

Village of Briarcliff – Action #5	
<b>Proposed Action:</b>	Public information and education: Educate and update all citizens of the hazards we face, how to protect yourself and mitigate damages to your property and increase over-all situation of all potential impacts and self-help measures. Provide information on the city website about hazard events and its impact on homeowners.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought Earthquake, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lighting, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	FEMA Hazard Mitigation Grant
<b>Lead Agency/Department Responsible:</b>	Utilities Department
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of Briarcliff – Action #6	
<b>Proposed Action:</b>	Promote water conservation: Provide conservation information such as installing low-flow showerheads and toilets, adjusting sprinklers on lawns, checking for leaks in plumbing, and encouraging water reuse on the city website and mail outs.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Drought
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Utilities Department
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Defer to Plan Update.

Village of Briarcliff – Action #7	
<b>Proposed Action:</b>	Remove brush and tree growth: Remove brush and trees growing in the earthen dam.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	NSP
<b>Hazard(s) Addressed:</b>	Dam Failure
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Grounds Department
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update. Project is ongoing.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of Briarcliff – Action #8	
<b>Proposed Action:</b>	Hail-resistant roof coverings: Provide material selections for roofing materials that will have a minimal impact from hail events.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Hail
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	FEMA Hazard Mitigation Grant
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Defer to Plan Update.

Village of Briarcliff – Action #9	
<b>Proposed Action:</b>	Urban green space: Public education to provide positive enhancements to environment, such as the creation and development of urban green spaces.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Extreme Heat
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	FEMA Hazard Mitigation Grant
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of Briarcliff – Action #10	
<b>Proposed Action:</b>	Earthquake Emergency Response Service: Establish emergency services protocols that adequately address response scenarios in the event of an earthquake.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP, LPR
<b>Hazard(s) Addressed:</b>	Earthquake
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	FEMA Hazard Mitigation Grant
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Defer to Plan Update.

## CITY OF JONESTOWN

City of Jonestown– Action #1	
<b>Proposed Action:</b>	Water utility inter- connect with Leander: Secure an agreement for wholesale purchase of water with Leander, select route for pipeline to connect to current water supply lines, obtain easements for the route, construct, and connect the systems.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Drought
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	Grant, Developers, City Funds, CIP Zone
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	60 Months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

City of Jonestown– Action #2	
<b>Proposed Action:</b>	Water utility inter- connect with Lago Vista: Secure an agreement for wholesale purchase of water with Lago Vista, select route for pipeline to connect to current water lines, obtain easements for the route, construct, and connect the systems.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Drought
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	Grants, Developers, City Funds, CIP Zone
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Jonestown– Action #3	
<b>Proposed Action:</b>	Potable water supply contingency plan with Jonestown Water Supply Corporation: Work with water supply corporation in establishing emergency partnership to supply potable water before the next drought.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Drought, Wind
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Grants, Developers, City Funds, CIP Zone
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

City of Jonestown– Action #4	
<b>Proposed Action:</b>	Emergency power supply for Jonestown Police Department Offices. Police officers were wired for emergency power during construction. Underground construction is needed to connect generator to the facility to protect the Police Dept. from hazard events of dam/levee failure, earthquakes, extreme heat, flood, hail hurricane/tropical storms, lightning, tornado, wildfire, wind, and winter weather.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Grants, Developers, City Funds, CIP Zone
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Jonestown– Action #5	
<b>Proposed Action:</b>	Completion of road construction at Alvarado Pass: To have an alternative means of egress for the South Jonestown Hills residents.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Dam Failure, Wildfire, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	Grants, CapMetro Funds
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

City of Jonestown– Action #6	
<b>Proposed Action:</b>	Community Evacuation Plan: Complete assessment of all subdivisions, arteries and streets that connect to collector streets to identify and map potential routes for evacuation, provide mapping of routes, identify deficiencies, recommend projects to correct deficiencies, and identify and map homes of persons with special needs.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Hurricane/Tropical Storm, Wildfire
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Grants, CapMetro Funds
<b>Lead Agency/Department Responsible:</b>	Planning and Development
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.



City of Jonestown– Action #7	
<b>Proposed Action:</b>	Community Safe Room: Identify property as site for structure. Purchase land if not owned. Design and build to FEMA standards.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Hurricane/Tropical Storm, Tornado, Wind
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	Grants, In-kind, Donations, Budget
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

City of Jonestown– Action #8	
<b>Proposed Action:</b>	Acquisition of property located in the floodway on Sandy Creek, Pecan Park area: Property owners are 35 to 75 percent within the floodway. One property has a SFR. Creek has been in flood status more than 5 times in the last 0 years with swift and rapid water with little to no warning to those who live in the area.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Flood, Hurricane/Tropical Storm
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	HMA Grants
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Jonestown– Action #9	
<b>Proposed Action:</b>	Engineer study of stormwater run-off for the City: Prevent future loss and damage to existing properties as the city develops incorporated limits.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Flood, Hurricane/Tropical Storm
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	HMA Grants
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update.

City of Jonestown– Action #10	
<b>Proposed Action:</b>	Install automatic warning signs/gates at low-water crossings:

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP/EAP
<b>Hazard(s) Addressed:</b>	Flood, Hurricane/Tropical Storm
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Jonestown– Action #11	
<b>Proposed Action:</b>	Acquisition of property located in the floodplain of Lake Travis and Cross Street area: Area is located 2 to 35 feet below the BFE of Lake Travis and has flooded numerous times. Current regulations prohibit the property owners from building or developing the properties.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	HMA Grants
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Defer to Plan Update.

City of Jonestown– Action #12	
<b>Proposed Action:</b>	Educate the public on extreme heat/drought safety and health issues: It has been shown that major loss of life can be caused by individuals exposed to extreme heat and the associated problems caused to the human body.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Jonestown– Action #13	
<b>Proposed Action:</b>	Implement a floodplain early warning system and local response plan: Property affected by the LCRA floodplain within the City of Jonestown.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Flood, Hurricane/Tropical Storm
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Grants
<b>Lead Agency/Department Responsible:</b>	Police Department
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

City of Jonestown– Action #14	
<b>Proposed Action:</b>	Implement and promote a multi-hazard public awareness program: Educate and update all citizens and business owners of the hazards we face, how to protect yourself and mitigate damages to your property and increase over-all situation awareness of all potential impacts and self-help measures.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Earthquake, Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City funds
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Jonestown– Action #15	
<b>Proposed Action:</b>	Enhance code enforcement and inspection services: The city has an effective code enforcement program but is limited by the amount of time one person can devote to inspections. Hire an additional person.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Flood, Lightning, Tornado, Wildfire, Wind
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	City Council
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

City of Jonestown– Action #16	
<b>Proposed Action:</b>	Advertise and promote the availability of flood insurance: Many homeowners assume they cannot obtain, nor do they need, flood insurance, unless their property is located in the floodplain. They can be affected by water damage, even if they are not located in the floodplain area.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Floodplain Management
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Jonestown– Action #17	
<b>Proposed Action:</b>	Identify and buyout repetitive loss properties: There are many properties that will always be affected by flood waters from Lake Travis. They have been repeatedly flooded and represent potential loss of life and property destruction.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	HMA Grants
<b>Lead Agency/Department Responsible:</b>	Building Development
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

City of Jonestown– Action #18	
<b>Proposed Action:</b>	Develop a land use study for acquiring, reusing, and preserving open spaces within floodplain/floodway areas: This should be an on-going strategy to acquire floodplain properties and adjacent property to minimize the potential for loss of life or continued property damage by floods.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, NSP
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	Grants
<b>Lead Agency/Department Responsible:</b>	Building Department
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Jonestown– Action #19	
<b>Proposed Action:</b>	Purchase NOAA All Hazard Radios: Purchase radios and distribute to residents.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Earthquake, Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

City of Jonestown– Action #20	
<b>Proposed Action:</b>	Educate residents on and implement measures: Educate residents and builders of potential hazards and high-risk areas by providing GIS maps of high hazard areas and implement soil stabilizers or moisture control/irrigation in identified areas.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soil, Extreme Heat, Flood, Hail, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

## CITY OF LAGO VISTA

City of Lago Visa – Action #1	
<b>Proposed Action:</b>	Conduct public outreach to educate citizens on the full range of hazards: educational information will be presented through newsletters, and on the city website, to increase awareness of ways the public may protect themselves and mitigate homes and businesses from hazard events.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	NSP, EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Police Department
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Defer to Plan Update. In progress.

City of Lago Visa – Action #2	
<b>Proposed Action:</b>	Install back-up generators at critical facilities: Install emergency generators at critical facilities to provide back-up power from hazard events of dam/levee failure, earthquakes, extreme heat, flood, hail, hurricane/tropical storms, lightning, tornado, wildfire, wind, and winter weather.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Dam Failure, Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Capital Improvement Program, HMP
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Defer to Plan Update. A generator was recently installed Water Plant #3. Generators still needed at the following site locations: City Hall, WP #1 and WP#3 intakes, Public Works Facility which includes Water Plant #1, and at 3 booster stations. Update cost to \$3.5-4 million. Update agency to Public Works.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lago Visa – Action #3	
<b>Proposed Action:</b>	Conduct a drainage study and disseminate study results: The city is not completely built out. As new homes and businesses locate in Lago Vista, it is apparent that drainage will be an increasing problem. Area topography does not lend itself to an easy solution and the layout of lots and streets exacerbates the problem.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Flood, Hurricane/Tropical Storm
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Bonds
<b>Lead Agency/Department Responsible:</b>	Building Services
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update. Update lead agency to reflect Public Works and Development Services.

City of Lago Visa – Action #4	
<b>Proposed Action:</b>	Develop a mass debris removal plan: Provide staging areas in less populated areas of the city.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LRP
<b>Hazard(s) Addressed:</b>	Dam Failure, Earthquake, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	FEMA Reserves
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update. In-progress.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lago Visa – Action #5	
<b>Proposed Action:</b>	Build safe rooms to FEMA Standards: The city has no storm shelters.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Hurricane/Tropical Storm, Tornado, Wind
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	HMP Grants
<b>Lead Agency/Department Responsible:</b>	Building Services
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Defer to Plan Update.

City of Lago Visa – Action #6	
<b>Proposed Action:</b>	Purchase NOAA All Hazard Radios: Purchase radios and distribute to residents.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lago Visa – Action #7	
<b>Proposed Action:</b>	Amend regulations to allow trees in the ROW and landscape requirements for more trees on commercial property: Develop a landscape ordinance that encourages xeriscape. The city experiences mild to severe drought during the summer months.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Completed and Defer to Plan Update. Action is a constant maintenance item. Proposing addition action in plan Update that encourages xeriscape is ideal as it will help conserve water.

City of Lago Visa – Action #8	
<b>Proposed Action:</b>	Replace fire hydrants: Some older hydrants are harder to open during fires. Faster more efficient water delivery during fire to mitigate against damage.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Capital Improvement Program
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Completed and Defer to Plan Update. Ongoing. Public Works has initiated a Fire Hydrant Maintenance and Replacement program.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lago Visa – Action #9	
<b>Proposed Action:</b>	Allow for Building Official to become a CFM: Recent floods require the expertise of a CFM to assist citizens.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Completed.

City of Lago Visa – Action #10	
<b>Proposed Action:</b>	Update subdivision requirements for higher level of ingress and egress: Floodwaters at low-water crossings prevent ingress and egress throughout the city during flood and thunderstorm events.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Dam Failure, Flood, Hurricane/Tropical Storm, Wildfire
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Completed.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lago Visa – Action #11	
<b>Proposed Action:</b>	Community Evacuation Plan: Identify and map potential routes for evacuation, provide mapping of routes, identify deficiencies, recommend projects to correct deficiencies, and identify and map homes of persons with functional and access needs.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Dam Failure, Flood, Hurricane/Tropical Storm, Wildfire
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Lago Visa – Action #12	
<b>Proposed Action:</b>	Educate residents and builders of potential hazards and high-risk areas by providing GIS maps of high hazard areas and implement soil stabilizers or moisture control/irrigation in identified areas.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soil, Extreme Heat, Flood, Hail, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Defer to Plan Update. Update action to include working with GIS Analyst on publishing easily accessible maps of hazardous areas.

### CITY OF MUSTANG RIDGE



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Mustang Ridge – Action #1	
<b>Proposed Action:</b>	Educate residents of natural hazards: Post information on bulletin boards for homeowners on how to mitigate damages to their homes.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going.

City of Mustang Ridge – Action #2	
<b>Proposed Action:</b>	Review Floodplain Management Ordinance: Review floodplain management ordinance and obtain a rating under the TCRFC s Ordinance Floodplain Management Assessment Program.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP, LPR
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development
<b>Implementation Schedule:</b>	12 months

2023 ANALYSIS:
Completed and Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Mustang Ridge – Action #3	
<b>Proposed Action:</b>	Partner with Travis County to develop an interlocal agreement to institute a tree trimming program: Work with Travis County to address problem areas by creating an interlocal agreement on services.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP, LPR
<b>Hazard(s) Addressed:</b>	Flood, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development
<b>Implementation Schedule:</b>	12 months

2023 ANALYSIS:
Defer to Plan Update.

City of Mustang Ridge – Action #4	
<b>Proposed Action:</b>	Xeriscape planting: Encourage xeriscape planting for drought/extreme heat-resistant landscaping and to reduce the effects of expansive soils.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soil, Extreme Heat
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development
<b>Implementation Schedule:</b>	24 Months

2023 ANALYSIS:
Defer to Plan Update.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of Mustang Ridge – Action #5	
<b>Proposed Action:</b>	Hail-resistant roof coverings: Public education regarding material selections for roofing materials that will have a minimal impact on the environment.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Hail
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Development
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going.

City of Mustang Ridge – Action #6	
<b>Proposed Action:</b>	Purchase NOAA All Hazard Radios: Purchase radios for residents so they are aware of weather events.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	NSP
<b>Hazard(s) Addressed:</b>	Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

## VILLAGE OF POINT VENTURE

Village of Point Venture – Action #1	
<b>Proposed Action:</b>	Educate community about the Firewise Program: Flyers, on doors, sending letters, sending emails to residence about the benefits of the Firewise Program and how wildfires can be worse during drought and extreme heat events. Informing them of the Lot Maintenance Program.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, EAP
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Code Enforcement
<b>Implementation Schedule:</b>	24 Months

2023 ANALYSIS:
Completed and Defer to Plan Update. Annually. Approximately 138 noncompliant lots have been notified. Continue notification annually at firewise education event.

Village of Point Venture – Action #2	
<b>Proposed Action:</b>	Flood prevention: Review Flood Ordinance at council meetings with land development and building construction contractors present.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Flood Administrator
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of Point Venture – Action #3	
<b>Proposed Action:</b>	Implement Re-Group as an Emergency Broadcast System: This can be implemented to keep residents aware of implement hazard events of: tornado, winter storm, extreme heat, flooding, wildfire, hail, high winds, lightning, and dam failure.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Completed.

Village of Point Venture – Action #4	
<b>Proposed Action:</b>	Debris removal and Contract Chipper: Have a trash dumpster available, contract with a local chipper and/or purchase a chipper in advance of next weather event. Have committed volunteers to help clear roads and property.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, SIP
<b>Hazard(s) Addressed:</b>	Dam Failure, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going. The village does provide 40 yd brush/limb recycle dumpster for residents.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of Point Venture – Action #5	
<b>Proposed Action:</b>	Purchase NOAA All Hazard Radios: Purchase radios for residents so they are aware of weather events.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	NSP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Delete Action. The city no longer deems action a priority.

Village of Point Venture – Action #6	
<b>Proposed Action:</b>	Educate homeowners on hazards: Educate homeowners of how-to mitigate their homes from these hazards at public forums and newsletters.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going. Annual firewire/neighborhood watch information is distributed, website has informational articles.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of Point Venture – Action #7	
<b>Proposed Action:</b>	Create Emergency Evacuation Plan: Create Emergency Evacuation Plan that addresses people, pets, and traffic flow to get residents out of harm s way of impending hazard events.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP, LPR
<b>Hazard(s) Addressed:</b>	Dam Failure, Flood, Hurricane/Tropical Storm, Wind
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<410,000
<b>Potential Funding Sources:</b>	Village Funds, Red Cross
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Completed. Point Venture is partnered with county ESD and local communities for emergency evacuation plan.

Village of Point Venture – Action #8	
<b>Proposed Action:</b>	Educate residents on and implement measures: Educate residents and builders of potential hazards and high-risk areas by providing GIS maps of high hazard areas and implement soil stabilizers or moisture control/irrigation in identified areas.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP, LPR
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soil, Extreme Heat, Flood, Hail, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	Village Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Completed and Defer to Plan Update. On-going.

## VILLAGE OF SAN LEANNA

Village of San Leanna – Action #1	
<b>Proposed Action:</b>	Implement Reverse 9 in the community: educational information will be presented at National Night Out, through newsletters, and on the city website, to inform the public how to sign up for the new Reverse 9 Emergency Notification System.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Budget
<b>Lead Agency/Department Responsible:</b>	Public Safety
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Defer to Plan Update. In-progress.

Village of San Leanna – Action #2	
<b>Proposed Action:</b>	Purchase NOAA All Hazard Radios: Purchase radios for residents so they are aware of weather events.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	NSP
<b>Hazard(s) Addressed:</b>	Drought, Earthquake, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Budget
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Defer to Plan Update.

Village of San Leanna – Action #3	
<b>Proposed Action:</b>	Conduct public outreach to educate citizens on the full range of hazards: educational information will be presented at National Night Out, through newsletters, and on the city website, to increase awareness of ways the public may protect themselves, and mitigate homes and businesses from hazard events

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	City Budget
<b>Lead Agency/Department Responsible:</b>	Public Safety
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Completed and Defer to Plan Update. Ongoing. The village plans to continue and increase efforts, particularly regarding wildfires and drought.

Village of San Leanna – Action #4	
<b>Proposed Action:</b>	Review San Leanna's Not identified in HMP. Floodplain Management Ordinance: TCRFC's Floodplain Management Assessment Program undertakes a periodic review to assess the effectiveness of floodplain management in the region. Each coalition member-community receives a rating of excellent, superior, or outstanding, depending on the community's implementation of floodplain management criteria that exceed NFIP minimum standards.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Budget
<b>Lead Agency/Department Responsible:</b>	Floodplain Management
<b>Implementation Schedule:</b>	12 months

2023 ANALYSIS:
Defer to Plan Update.

Village of San Leanna – Action #5	
<b>Proposed Action:</b>	Educate residents regarding xeriscape planning. Educational information will be presented at National Night Out through newsletters, and on the city website, to increase awareness of ways the public may reduce water usage by xeriscaping on their property.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Budget
<b>Lead Agency/Department Responsible:</b>	Environmental
<b>Implementation Schedule:</b>	24 months

2023 ANALYSIS:
Defer to Plan Update



## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of San Leanna – Action #6	
<b>Proposed Action:</b>	Complete engineering studies and determine project designs for stormwater flood prevention: Complete engineering studies and determine project designs for stormwater.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, SIP, NSP
<b>Hazard(s) Addressed:</b>	Flood, Hurricane/Tropical Storm
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	City Budget, Grant
<b>Lead Agency/Department Responsible:</b>	Environmental
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update.

Village of San Leanna – Action #7	
<b>Proposed Action:</b>	Complete stormwater management projects: This project can include installing larger culverts and creating detention basins for stormwater. This action will prevent damage to existing homes during flood events, and also help establish areas to develop new structures at the least risk for damage from flooding.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Flood, Hurricane/Tropical Storms
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	City Revenue, Grants
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Completed and Defer to Plan Update. Some projects have been completed through use of city budget/revenue. The Village intends to continue with new and identified projects.

Village of San Leanna – Action #8	
<b>Proposed Action:</b>	Conduct wildfire fuel removal program: Conduct wildfire fuel removal program on city properties.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, NSP
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Budget
<b>Lead Agency/Department Responsible:</b>	Environmental
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Defer to Plan Update.

Village of San Leanna – Action #9	
<b>Proposed Action:</b>	Provide alternative water source: Provide alternative water source for severe water use restrictions. Work with the city of Austin to purchase water wholesale.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Drought
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	City Budget
<b>Lead Agency/Department Responsible:</b>	Water
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Completed. Interconnection with City of Austin is complete and provides back up water supply. The Village of San Leanna purchases wholesale water monthly from the City of Austin.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

Village of San Leanna – Action #10	
<b>Proposed Action:</b>	Update building codes: Village has been designated as being in an extreme wildfire risk area thus Firewise is needed to help educate citizens and mitigate wildfire encroachment. Wildfires are extremely dangerous during drought and extreme heat periods.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, EAP
<b>Hazard(s) Addressed:</b>	Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Budget
<b>Lead Agency/Department Responsible:</b>	Environmental
<b>Implementation Schedule:</b>	12 months

2023 ANALYSIS:
Defer to Plan Update.

## CITY OF WEST LAKE HILLS

City of West Lake Hills – Action #1	
<b>Proposed Action:</b>	Educate residents on and implement measures: Educate residents and builders of potential hazards and high-risk areas by providing GIS maps of high hazard areas and implement soil stabilizers or moisture control/irrigation in identified areas.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR, EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Expansive Soil, Flood, Wildfire
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Completed. Residents have been educated through site visits and maps on the city's website. Builders are educated at pre-development meetings and pre-construction meetings. The City has contracted to have gabions installed to protect drainage and makes sure they are maintained regularly.

City of West Lake Hills – Action #2	
<b>Proposed Action:</b>	FireWatch System: Promote the warning system tied in with City of Austin and Travis County to alert residents of a wildfire.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	48 months

2023 ANALYSIS:
Completed. This has been completed in coordination with Travis County ESD #9. This has been discussed with the city council and available on city website.

## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of West Lake Hills – Action #3	
<b>Proposed Action:</b>	Homeowner education of hazards: Educate homeowners of how-to mitigation their homes from these hazards on city website and public forums.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Completed. In coordination with Travis County ESD#9, homeowners are educated about hazards during all site visits, and are referred to the city and ESD#9's websites.

City of West Lake Hills – Action #4	
<b>Proposed Action:</b>	Conduct a review of the city's Floodplain Management Ordinance: Update ordinances to require builders/residents to protect their homes.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	EAP, LPR
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	12 months

2023 ANALYSIS:
Completed. Ordinance was amended and approved by City Council September 11, 2019.



## SECTION 17: PREVIOUS ACTIONS

Item 8.

City of West Lake Hills – Action #5	
<b>Proposed Action:</b>	Purchase NOAA All Hazard Radios: Purchase radios for residents so they are aware of weather events

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	NSP
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Earthquake Expansive Soil, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Tornado, Wildfire, Wind, Winter Weather
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	<\$10,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	60 months

2023 ANALYSIS:
Defer to Plan Update.

City of West Lake Hills – Action #6	
<b>Proposed Action:</b>	Install automatic warning system and procedures for VL Rich Water Treatment Plant: West Lake Emergency Service District #9, West Lake Hills Dispatch, and the City of Austin are working on a warning system to protect this water treatment plant from hazards.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	LPR
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	City Funds
<b>Lead Agency/Department Responsible:</b>	Fire Department
<b>Implementation Schedule:</b>	12 months

2023 ANALYSIS:
Delete Action. City no longer wishes to pursue project.

City of West Lake Hills – Action #7	
<b>Proposed Action:</b>	Complete Eanes Creek Drainage Improvement Project: Engineering design, construction plans, bid, and construction.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	City Funds, State/Federal Grants
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update. Project designed and scheduled for Bid in 2023. Update funding source to include November 2021 Bond Election.

City of West Lake Hills – Action #8	
<b>Proposed Action:</b>	Complete Little Bee Creek Drainage Improvement Project: Engineering design, construction plans, bid, and construction.

MITIGATION ACTION DETAILS	
<b>Type of Action:</b>	SIP
<b>Hazard(s) Addressed:</b>	Flood
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	>\$100,000
<b>Potential Funding Sources:</b>	City Funds, State/Federal Grants
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	36 months

2023 ANALYSIS:
Defer to Plan Update. Project designed and scheduled for Bid in 2023. Update funding source to include November 2021 Bond Election.



# SECTION 18 MITIGATION ACTIONS

## SECTION 18: MITIGATION ACTIONS

Summary .....	1
Travis County-Wide Actions .....	3
Travis County.....	9
Village of Briarcliff .....	82
City of Creedmoor .....	91
City of Jonestown.....	92
City of Lago Vista.....	98
City of Lakeway.....	108
City of Manor .....	150
City of Mustang Ridge.....	163
City of Pflugerville .....	177
Village of Point Venture.....	194
City of Rollingwood .....	205
Village of San Leanna.....	214
City of Sunset Valley .....	224
Village of The Hills .....	239
City of West Lake Hills .....	285
Emergency Services District (ESD) #6.....	304

### SUMMARY

As discussed in Section 2, at the mitigation workshop the planning team and stakeholders met to develop mitigation actions for each of the natural hazards included in the Plan Update. Each of the actions in this section were prioritized based on FEMA's Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) criteria necessary for the implementation of each action.

As part of the economic evaluation of the STAPLEE analysis, jurisdictions analyzed each action in terms of the overall costs, measuring whether the potential benefit to be gained from the action outweighed costs associated with it. As a result of this exercise, priority was assigned to each mitigation action by marking them as High (H), Moderate (M), or Low (L). An action that is ranked as "High" indicates that the action will be implemented as soon as funding is received. A "Moderate" action is one that may not be implemented right away depending on the cost and number of citizens served by the action. Actions ranked as "Low" indicate that they will not be implemented without first seeking grant funding and after "High" and "Moderate" actions have been completed.

Within each mitigation action worksheet, the Planning Team considered all potential funding sources that could be utilized to implement the proposed project. To ensure all potential funding resources are considered and are not limited to those sources identified within the action worksheet, please see appendix G for a list of all available State and Federal grant programs as

## SECTION 18: MITIGATION ACTIONS

of 2023. The Planning Team will continue to seek out other available funding sources during the 5-year cycle as notices of funding opportunity (NOFO) are released.

All mitigation actions created by Planning Team members are presented in this section in the form of Mitigation Action Worksheets. More than one hazard is sometimes listed for an action, if appropriate. Actions presented in this section represent a comprehensive range of mitigation actions per current State and FEMA Guidelines, including two actions, per hazard, and of two different types for each participating jurisdiction. The term county-wide action refers to Travis County and Village of Briarcliff, City of Creedmoor, City of Jonestown, City of Lago Vista, City of Lakeway, City of Manor, City of Mustang Ridge, City of Pflugerville, Village of Point Venture, City of Rollingwood, Village of San Leanna, City of Sunset Valley, Village of The Hills, and City of West Lake Hills. County-wide does not include special districts.



## SECTION 18: MITIGATION ACTIONS

Item 8.

**Table 18-1. Travis County Mitigation Action Matrix**

TYPE OF ACTION	
Action #1 – Plans/Regulations (Blue)	Action #4 – Structural (Orange)
Action #2 – Education/Awareness (Red)	Action #5 – Preparedness/Response (Black)
Action #3 – Natural Systems Protections (Green)	

Jurisdiction	Dam Failure	Drought	Expansive Soils	Extreme Heat	Flood	Hail	Lightning	Thunderstorm Wind	Tornado	Wildfire	Winter Storm
Travis County											
Village of Briarcliff	N/A										
City of Creedmoor	N/A										
City of Jonestown	N/A										
City of Lago Vista	N/A										
City of Lakeway	N/A										
City of Manor	N/A										
City of Mustang Ridge	N/A										
City of Pflugerville											
City of Point Venture	N/A										
City of Rollingwood	N/A										
Village of San Leanna	N/A										
City of Sunset Valley	N/A										
Village of The Hills	N/A										
City of West Lake Hills	N/A										
Emergency Service District (ESD) #6	N/A										

## TRAVIS COUNTY-WIDE ACTIONS

Travis County-wide – Action #1	
<b>Proposed Action:</b>	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide including all participating jurisdictions
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure (where applicable), Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	County and Local Emergency Managers / Administration
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County-wide – Action #2	
<b>Proposed Action:</b>	Upgrade critical facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities including all participating jurisdictions
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on ground water. Reduce rainfall runoff volume and risk of flooding. Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000 per structure
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	County TNR Department/City Engineer/City Administrator
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County-wide – Action #3	
<b>Proposed Action:</b>	Acquire and install generators with hard wired quick connections at all critical facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide and community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure (where applicable), Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	County TNR Department/City Engineer/City Administrator
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County-wide – Action #4	
<b>Proposed Action:</b>	Harden/retrofit critical facilities to hazard-resistant levels.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide and community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure (where applicable), Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	County TNR Department/City Engineer/City Administrator
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Capital Improvement Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County-wide – Action #5	
<b>Proposed Action:</b>	Develop a Community Wildfire Protection Plan (CWPP).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Participating jurisdictions that do not have an active CWPP: Briarcliff, Creedmoor, Jonestown, Lago Vista, Manor, Mustang Ridge, Pflugerville, and San Leanna
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires. Reduce risk of damages, and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	County and Local Emergency Managers / Administration, County/Local Fire Department/VFD
<b>Implementation Schedule:</b>	Within 12 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## TRAVIS COUNTY

Travis County – Action #1	
<b>Proposed Action:</b>	Implement mitigation alternatives determined through the Atlas 14 mapping project for western Travis County included but not limited to flood mitigation projects, elevation, buyout, and reconstruction.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide structures that are in high-risk flood prone areas with priority areas in the Onion Creek, Plum Creek, and Maha Creek watersheds
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages or injuries in high-risk areas; Reduce the need for emergency response; Reduce repetitive flood losses/claims.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Dam Failure
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$3,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #2	
<b>Proposed Action:</b>	Completed necessary assessments to implement and upgrade to purple pipe installation throughout the county as recommended to recycle water for irrigation and commercial use.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure availability of potable water during extreme weather conditions. Ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Food/Water/Shelter
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000,000 per mile
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division (Road & Bridge Section)
<b>Implementation Schedule:</b>	Within 36 - 60 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Road & Bridge Maintenance yearly Work Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #3	
<b>Proposed Action:</b>	Resilience Hubs: Work with individual communities to retrofit and/or construct facilities to serve as resilience hubs during extreme weather events and/or emergencies.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damage at critical facilities; reduce damage at central community service facilities, reduce burden on emergency services during and after an event, ensure continuity of critical services during and after event; provide power for critical facilities during power outages, reduce risk of injury to residents and vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Education and Awareness Preparedness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel), Communication, Food, Health/Medical
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue, Federal: FEMA HMA, State and Federal Grants, CDBG
<b>Lead Agency/Department Responsible:</b>	Travis County OEM and TNR Department
<b>Implementation Schedule:</b>	Within 12 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>CRS REQUIREMENT &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety. Protects infrastructure, reduces cost of reparation, and prevents injuries and fatalities.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #4	
<b>Proposed Action:</b>	Assess and implement necessary improvements on county-wide structures and infrastructure to ensure critical services such as water, electricity, wastewater, etc. can continue services during extreme weather events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide structures and infrastructures
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduces risk to the traveling public and liability for the Travis County. Reduce damage caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division (Road & Bridge Section)
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan; Emergency Management Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protect infrastructure, prevents injury to public, and reduces liability.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #5	
<b>Proposed Action:</b>	Wildland Fire Home Hardening Program: The program would be responsible for the design and implementation of a program to provide rebates to qualified residents for home hardening to improve structural. The primary upgrades would be for roofs, siding, vents, decks, fences, and outbuildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide high-risk areas The program would target 15% of the homes in the county each year
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through improved construction practices. Reduce risk of injury, fatalities, or damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$37,800,000/per year for a minimum of 5 years \$200,000 capital
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TCFMO
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:
Research shows that the wildland urban interface problem is largely a structural ignitability problem. Additional mitigation improvements are often expensive and/or require skilled trades people to implement, which greatly reduces the likelihood of them being implemented.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #6	
<b>Proposed Action:</b>	Wildland Fire Mitigation Coordination Center: Would allow for the co-location of multiple Travis County and Interagency Wildland Partners to improve coordination and production. The staff would provide oversight and coordination for interagency wildland fire programs and would manage the training and qualifications programs for wildland fire mitigation staff.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide– site location to be determined
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$800,000/per year for a minimum of 5 years \$20,000,000 for property and facility \$500,000 capital
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TCFMO
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP; Emergency Response Plan

COMMENTS:
Wildfire mitigation programs are not formally recognized, operate out of sub-standard facilities, are generally collateral duty, and have no administrative support for coordination, training, and qualifications tracking. The administrative responsibilities are unique to wildland fire and are currently being supported by individuals in operational positions.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #7	
<b>Proposed Action:</b>	Public Lands Wildland Fire Management Program: Planning and implementation of land management treatments on public lands to include mechanical and prescribed fire treatments to mitigate the risk from wildland fires. The program would collaborate with existing land management agencies to sustain and enhance existing programs which include approximately 1,000 acres of prescribed fire and 50 acres of mechanical treatments each year.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide high-risk critical infrastructure and landscape scale projects
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through targeted fuels reduction programs.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,300,000/per year for a minimum of 5 years \$1,000,000 capital
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TCFMO
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:
Existing programs are generally collateral duty, and the work is done almost exclusively on public parks and preserves. The program would target an additional 2,000 acres annually.

Travis County – Action #8	
<b>Proposed Action:</b>	Wildland Fire Outreach, Education, and Training Program: The program would be responsible for the development and implementation of routine, targeted outreach, education, and training events focused on individual readiness, and the management of contracted marketing initiatives for a broader audience.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$950,000/per year for a minimum of 5 years \$500,000 capital
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TCFMO
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:
Public outreach and education are likely to be the most cost-effective wildland fire mitigation strategy but there is limited staffing, and much of the available staffing does not have the skills necessary to implement effective educational campaigns.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #9	
<b>Proposed Action:</b>	Routine drainage maintenance program removes debris from bridges, ditches, and culverts, and maintains all drainageways in rights-of-way on an as-needed basis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	On all rights-of-way that have been accepted for maintenance by the Travis County Commissioners Court
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduces risk to the traveling public and liability for the Travis County. Reduce damage caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$50,000 (annually)
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division (Road & Bridge Section)
<b>Implementation Schedule:</b>	Within 12 months of plan adoption, then annually
<b>Incorporation into Existing Plans:</b>	Road & Bridge Maintenance yearly Work Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protect infrastructure, prevents injury to public, and reduces liability.



Travis County – Action #10	
<b>Proposed Action:</b>	Installation of warning signs at bridges that typically have icy surfaces during winter storm events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	On all bridges that in rights-of-way that have been accepted for maintenance by the Travis County Commissioners Court
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduces risk to the traveling public and liability for the Travis County. Education and awareness of the dangers of driving over bridges that may have an icy surface during winter storm events. Reduce demand on emergency response during winter storms.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication, Transportation
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100 per sign plus staff time for installation
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time
<b>Lead Agency/Department Responsible:</b>	TNR Department – Public Works Division (Road & Bridge Section)
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Road & Bridge Maintenance yearly Work Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #11	
<b>Proposed Action:</b>	Installation of “Turn Around, Don’t Drown” warning signs at low water crossings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	On all low water crossings in rights-of-way that have been accepted for maintenance by the Travis County Commissioners Court
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduces risk to the traveling public and liability for the Travis County. Education and awareness of the dangers of driving through low water crossings during rainstorm events. Reduce risk of injuries, fatalities and damages through education and awareness. Reduce demand on emergency response during flood events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication, Transportation
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100 per sign plus staff time for installation
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time
<b>Lead Agency/Department Responsible:</b>	TNR Department – Public Works Division (Road & Bridge Section)
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Road & Bridge Maintenance yearly Work Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #12	
<b>Proposed Action:</b>	Routine tree trimming program trims tree limbs hanging in right-of-way; Remove dead trees from right-of way and drainage systems on an as-needed basis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	On all rights-of-way that have been accepted for maintenance by the Travis County Commissioners Court
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduces risk to the traveling public and liability for the Travis County. Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000 (annually)
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division (Road & Bridge Section)
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Road & Bridge Maintenance yearly Work Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #13	
<b>Proposed Action:</b>	Conduct assessment to identify locations in Travis County where burying utility lines would have the greatest risk reduction potential and is most feasible. Bury identified priority above-ground utility lines.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide utility lines
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to residents and critical infrastructure of power outages and wildfire. Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy, Safety/Security, Communication
<b>Effect on New/Existing Buildings:</b>	Reduce the risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$4,000,000,000
<b>Potential Funding Sources:</b>	Travis County, FEMA grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
The County would need to partner and form agreements with the local utility providers who own the utility lines.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #14	
<b>Proposed Action:</b>	Purchase land at strategic locations around the county to collect debris after storms before it is chipped or otherwise disposed of. Build necessary infrastructure such as roads and parking lots to facilitate this use.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Expedite the collection, staging, processing, and disposal of storm debris. Reduces safety issues associated with downed trees and limbs obstructing roads and other critical infrastructure. Reduce damage caused by flooding by maintaining or restoring drainage capacity. Reduce wildfire risk.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Provide a place to dispose of downed vegetation and other materials in a timely manner to minimize disruption to building functions.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$3,000,000
<b>Potential Funding Sources:</b>	Travis County, FEMA grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #15	
<b>Proposed Action:</b>	Assess climate change's potential impact on drinking water supplies in Travis County. Identify potential water supply protections and/or alternate supplies in the case of future water shortages.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to residents of low or exhausted water supplies. Reduces risk to vulnerable populations during drought conditions.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Health/Medical, Food/Water/Shelter
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Travis County, FEMA grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #16	
<b>Proposed Action:</b>	Phase 1: Prioritize and design floodplain restoration projects to mitigate flood risk, reduce the urban heat island effect, and improve habitat for native species. Phase 2: Construct/implement floodplain restoration projects identified and designed in phase 1.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Gilleland, Wilbarger and Onion Creek in Eastern Travis County
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Identifies and implements projects to reduce risk to public safety and natural systems. Improves the capacity of floodplains to slow, retain, and clean stormwater. Improving floodplain function improvements will increase public safety by reducing flood risk and increasing the resiliency of the natural system; Reduce impacts of drought through green infrastructure that works to replenish groundwater reserves.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Drought, Extreme Heat, Wildfire, Winter Storm, Thunderstorm Wind
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,850,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #17	
<b>Proposed Action:</b>	Plan and implement post-disaster soil stabilization, hazard debris removal, flood diversion, and forest regeneration projects on County preserves, parks, and open spaces affected by wildfire, natural disaster, or severe drought.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide preserves, parks and open spaces
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Identifies risks and prioritizes actions Travis County can take to adapt landscapes and restore natural ecosystems protections. Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Flood, Extreme Heat, Winter Storm, Wildfire, Thunderstorm Wind
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$300,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Balcones Canyonlands Conservation Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure and public safety through increased resiliency and restoration of natural ecosystems protections.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #18	
<b>Proposed Action:</b>	Plan and implement vegetation planting/seeding, invasive species removal, and selective vegetation management projects on the County preserves and parks to increase biodiversity and vegetative cover.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide preserves and parks
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Identifies risks and prioritizes actions Travis County can take to reduce risk. Improve resilience, adapt landscapes; Improves wildlife corridors; Improve biodiversity, and restore natural ecosystems protections.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Flood, Extreme Heat, Winter Storm, Wildfire, Thunderstorm Wind
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$300,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Balcones Canyonlands Conservation Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure and public safety through increased resiliency and restoration of natural ecosystems protections.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #19	
<b>Proposed Action:</b>	Prioritize and design rain gardens and rainwater harvesting systems to slow and retain stormwater in parks, provide water storage for fire suppression, and provide green infrastructure demonstration sites for the public.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide parks
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Identifies and prioritizes sites and develops engineering plans to construct rain gardens and water harvesting systems to keep storm water on site. Reduces the spread of wildfires by providing alternative sources of water. Promotes hazard awareness through educating park visitors about why and how to build green infrastructure to clean and slow stormwater.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Drought, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,250,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Nature based solutions in parks can hold stormwater on site, provide water storage for fire suppression, and provide education to the public about how to design, install and maintain these systems. Retaining more stormwater on public land will increase public safety by reducing flood risk and increasing the resiliency of the natural system.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #20	
<b>Proposed Action:</b>	Harden/retrofit critical park facilities to hazard-resistant levels.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide critical park facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduces the risk of damages and loss of critical assets at critical park locations. Assists in ensuring critical facilities are functional during and after a disaster event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,850,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Capital Improvement Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #21	
<b>Proposed Action:</b>	Phase 1: Identify and prioritize flood-prone parcels for acquisition or conservation through conservation easements along minor and major waterways in Travis County to mitigate flood risk, improve water quality, reduce erosion, reduce the urban heat island effect, and improve habitat for native species. Phase 2: Purchase land or acquire conservation easements to restore floodplain function and minimize risk to public safety.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide conservation easements along waterways
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Identifies, prioritizes, and conserves land to reduce risk to public safety and natural systems; Improve natural system resilience, and restore natural systems functions; Reduce risk of wildfires and the spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Extreme Heat
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Increased resiliency; reduced flood and heat risk
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,950,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Conserving land in flood prone areas will increase the resilience of floodplains, enhance their function, improve public safety, and provide co-benefits including heat mitigation and increased habitat for native species.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #22	
<b>Proposed Action:</b>	Phase 1: Assess and identify the natural ecosystem protections provided by Travis County preserves, parks, and open spaces to the surrounding communities and habitats. Phase 2: Assess and identify hazards and threats to local natural ecosystems due to climate change and natural disasters.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide preserves, parks and open spaces
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Identifies risks and prioritizes actions Travis County can take to reduce risk, improve resilience, adapt landscapes, and restore natural ecosystems protections.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Wildfire, Flood, Extreme Heat, Winter Storm, Thunderstorm Wind
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication
<b>Effect on New/Existing Buildings:</b>	Reduces risk to existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Balcones Canyonlands Conservation Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure and public safety through increased resiliency and restoration of natural ecosystems protections.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #23	
<b>Proposed Action:</b>	Plan and implement soil and water conservation projects within County preserves, and open spaces including vegetative swales, natural berms, rainwater harvesting, and green infrastructure projects to slow and retain rainwater on the landscape and rebuild resilient soil layers in historically degraded areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide preserves and open spaces
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Identifies risks and prioritizes actions Travis County can take to reduce risk; Improve resilience, adapt landscapes; Improve biodiversity and restore natural ecosystems protections. Reduce risk to structures and infrastructure due to expansive soils by maintaining adequate soil moisture; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Flood, Extreme Heat, Winter Storm, Wildfire, Thunderstorm Wind
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Balcones Canyonlands Conservation Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure and public safety through increased resiliency and restoration of natural ecosystems protections.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #24	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	The Herman Center: 6600 E Ben White Blvd, Austin, TX 78741
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$10,859 per day.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

COMMENTS:
The facility provides short-term mental health crisis care in a safe overnight facility for people who are in crisis. Integral Care would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #25	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Next Step Crisis Respite: 6222 North Lamar, Austin TX 78752
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$7,278 per day.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$350,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

COMMENTS:
The facility provides services that help adults who are recovering from a mental health crisis who may also need housing. Integral Care would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #26	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Safe Haven: 5307 E Riverside Dr, Austin, TX 78741
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$2,603 per day.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

COMMENTS:
The facility provides temporary housing in a 24/7 residential setting for homeless veterans living with mental illness. Integral Care would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #27	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Alameda House: 4019 Menchaca Rd, Austin, TX 78704
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$3,117 per day.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

COMMENTS:
The facility helps adults who live with a mental illness and use drugs such as opioids and alcohol. Integral Care would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #28	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Austin/Travis County Integral Care Residential Services: 403 E 15th St, Austin, TX 78701
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$8,493 per day.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$400,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

<b>COMMENTS:</b>
The facility is a hospital and jail diversion program which provides short-term mental health crisis support. Integral Care would need to form an agreement with the County to implement this action.
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #29	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	E. 2nd Narcotics Treatment Program: 1631 E 2nd St, Austin, TX 78702; Building A & Building C
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$5,038 per day plus Rx meds spoilage in Clinic.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$300,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

COMMENTS:
Integral Care would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #30	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Terrace at Oak Springs: 3000 Oak Springs Dr., Austin, TX 78702
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$5,334 per day plus Rx meds spoilage in Clinic.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$750,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

COMMENTS:
Terrace at Oak Springs is a permanent Supportive Housing apartment complex. Integral Care would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #31	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	North Lamar Professional Building: 5225 N. Lamar Blvd., Austin, TX 78751
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provides staging center or shelter for clients or other vulnerable persons in the event of extreme weather situations and helps reduce adverse events (such as hypothermia, heatstroke, etc.).
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$600,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

COMMENTS:
The Center provides Intellectual and Developmental Disability service and would offer shelter and services to clients and/or other vulnerable persons. Integral Care would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #32	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Richard E. Hopkins Behavioral Health Building 1165 Airport Blvd, Austin, TX 78702
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$5,853 per day.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$600,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Integral Care Facilities Department in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Integral Care Disaster Response Plan

COMMENTS:
The facility offers Psychiatric Emergency Services (PES) is an extended hours urgent care facility for individuals experiencing psychiatric crisis. Integral Care would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #33	
<b>Proposed Action:</b>	Engineer & install back-up power capabilities through generators, quick-connections, portable generators, and/or solar panels with batteries to ensure power during an extreme weather incident.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County Exposition Center: 7311 Decker Lane, Austin, TX 78724
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Closure due to natural disaster incurs a loss of approximately \$5,853 per day.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$600,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Land, Water, & Transportation Plan (LWTP)

COMMENTS:
The facility is planned to be a reception center and/or a sheltering center in the event of an evacuation. Backup electricity is needed to provide cooling and heating in the event of a power outage.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #34	
<b>Proposed Action:</b>	Implement a county-wide education and awareness programs utilizing neighborhood advisory councils in high SVI areas, social media, bulletins, flyers, etc. to educate area residents of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages within the district.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County and Central Health District-wide due to agency serving 147,000+ Travis County residents
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promotes hazard awareness and protects citizens, especially vulnerable and underserved residents, from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness
<b>MITIGATION ACTION DETAILS</b>	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$20,000 - \$50,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Central Health District in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A
<b>COMMENTS:</b>	
Central Health would need to form an agreement with the County to implement this action.	
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>	
Promotes public safety.	



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #35	
<b>Proposed Action:</b>	Implement a text campaign for MAP and MAP BASIC members regarding disaster-related resources.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County and Central Health District-wide as 100,000 patients are enrolled annually in MAP and MAP Basic.
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promotes hazard awareness and protects citizens, especially vulnerable and underserved residents, from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$30,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Central Health District in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:
The Medical Access Program (MAP) provides access to eligible residents who are at or below 100 percent or uninsured residents who are at or below 200 percent of the FPL. Central Health would need to form an agreement with the County to implement this action.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #36	
<b>Proposed Action:</b>	Work in coordination with Travis County OEM to promote the Emergency Alerts webpage to ensure disaster related messages are available to all residents and translated into multiple languages.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County and Central Health district-wide public information platforms
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promotes hazard awareness and protects citizens, especially vulnerable and underserved residents, from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$20,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Facilities Budget, Staff time, Bonds; State Grants: GLO, TAMFS, TDA, TDEM; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, HUD, NFIP, NOAA, SBA
<b>Lead Agency/Department Responsible:</b>	Central Health District in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
Central Health would need to form an agreement with the County to implement this action.
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #37	
<b>Proposed Action:</b>	Utilize existing agreements with providers and organizations to enhance temporary, emergency response to low-income persons or socially vulnerable communities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	District-wide: 204 provider locations including community health centers, hospitals, specialists, dentists, and urgent care locations; 1500 enterprise employees in Central Health and its clinical and health plan affiliates
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promotes services and response for vulnerable and underserved residents during extreme weather events. Reduces risk of injury and fatalities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Central Health District in coordination with Travis County OEM
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
Central Health would need to form an agreement with the County to implement this action.
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #38	
<b>Proposed Action:</b>	Purchase and install alternative power source such as generators with hardwire quick connection, solar panels and batteries, portable generators, etc. connections at critical facilities throughout the planning area.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide critical facilities and infrastructure such as schools, churches/shelters, water, and wastewater systems etc.
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000 - \$500,000 per site location
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Travis County OEM, TNR Department-Public Works
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #39	
<b>Proposed Action:</b>	Purchase and install alternative power source such as generators with hardwire quick connection, solar panels and batteries, portable generators, etc. connections at critical facilities throughout the planning area.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Juvenile Probation Center
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000 - \$500,000 per site location
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Travis County OEM and TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #40	
<b>Proposed Action:</b>	Require drought tolerant landscaping at all new public buildings.  Incorporate drought tolerant landscaping into county-wide facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide public facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000 to implement code / ordinance \$50 per square foot to implement landscaping
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	County Administration and Code Enforcement
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #41	
<b>Proposed Action:</b>	Increase public awareness of all hazards and hazardous areas. Distribute public awareness information regarding natural hazards, including SFHAs, along with potential mitigation measures that can reduce the risk of damage and injuries. Utilize resources such as the local newspapers, utility bill inserts, and websites.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide (all participating jurisdictions)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk through education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness.

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm.
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$20,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Travis County OEM and County POI
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #42	
<b>Proposed Action:</b>	Continue to assess and make necessary updates needed to the Austin Travis County Community Wildfire Protection Plan.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide focus on high-risk areas within the WUI
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Identifies risks and prioritizes actions Travis County can take to reduce risk, improve resilience, and adapt landscapes to wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$200,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Austin Travis County Wildfire Coalition in coordination with Travis County OEM, TNR Department, and Fire Marshal's Office
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #43	
<b>Proposed Action:</b>	Evaluate evacuation routes and shelter-in-place locations for public use during wildfire events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide evacuation routes
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of injury and loss of life during wildfire events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Transportation, Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Austin Travis County Wildfire Coalition in coordination with Travis County OEM, TNR Department, and Fire Marshal's Office
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #44	
<b>Proposed Action:</b>	Plan and implement fuel reduction projects at county parks, preserves, open space, and facilities. Project will address increased fuel loads as a result of downed limbs from ice storms or tree die-off from droughts in addition to wildfire mitigation
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide parks, preserves, open space, and facilities located within or surrounding the WUI
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risks of harmful wildfire impacts to natural resources, life, and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduces risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$3,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Austin Travis County Wildfire Coalition in coordination with Travis County OEM, TNR Department, and Fire Marshal's Office
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
Travis County Parks continues to target 12 prescribed burns on 500-1000 acres annually. Obstacles include increasing development and habitat fragmentation, fuel accumulation through flood, drought and ice storm events, and limited financial resources. Mechanical and chemical fuel reduction treatments are necessary to fully meet management needs, but insufficient staff and funds are available to implement those programs.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #45	
<b>Proposed Action:</b>	Continue to assess and make necessary upgrades to GIS database for the Austin Travis County wildfire risk model.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduces risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Austin Travis County Wildfire Coalition in coordination with Travis County OEM, TNR Department, and Fire Marshal's Office
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #46	
<b>Proposed Action:</b>	Develop Atlas 14 mapping for western Travis County, perform data collection related to 164 low water crossings, perform mitigation alternatives for the top 10 crossing, and perform mitigation alternative assessments related to flood prone areas in the Onion Creek, Plum Creek and Maha Creek watersheds.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide structures that are in high-risk flood prone areas
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages or injuries through flood mitigation at high-risk structures; Reduce the need for emergency response in high-risk areas; Reduce repetitive flood losses/claims; Reduce community recovery efforts and costs.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Dam Failure
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000,000
<b>Potential Funding Sources:</b>	State Flood Infrastructure Fund Grant and Local Match
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	In-progress
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #47	
<b>Proposed Action:</b>	Completed analysis and implement feasible and recommended mitigate measures to reduce the effects of drought on natural resources, water supply, and water quality. Adopt and implement water restrictions as needed.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce loss of habitat and decrease water levels.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Food/Water/Shelter
<b>Effect on New/Existing Buildings:</b>	Reduces risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$600,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TNR Department
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #48	
<b>Proposed Action:</b>	Utilize available communication platforms and host public meetings to discuss the benefits of personal preparedness, emergency preparedness kits, and evacuation / shelter routes.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide with priority on high-risk areas and vulnerable populations
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promotes hazard awareness. Reduces risk of injury and property damage.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Expansive Soils, Extreme Heat, Drought, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Travis County OEM
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #49	
<b>Proposed Action:</b>	Assist local communities, neighborhoods, and municipalities with the development of local Community Wildfire Protection Plans.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide communities, neighborhoods, and municipalities that do not have an active CWPP.
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Educate and engage public in implementing the most effect actions for risk reduction in Central Texas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduces risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Travis County OEM, Fire Marshal's Office, and Local ESDs / Fire Departments
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Austin-Travis Community Wildfire Protection Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #50	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Felder Lane, 0.10 miles east of FM 973
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,295,200
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #51	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Westlake Drive, 0.13 miles east of Woodcutters Way
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$382,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #52	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Ledgestone Terrace, 0.39 miles south of US 290
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,010,000
<b>Potential Funding Sources:</b>	2017 Bond
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Estimated completion in Q4 2024
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #53	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Wild Basin Ledge, 0.05 miles southeast of Petticoat Lane
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$418,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #54	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Nameless Road, 0.5 miles north of Honeycomb Lane
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,300,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #55	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Wier Loop, 0.22 miles east of Thomas Springs Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$18,500 (2022 inflation material costs).
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances.
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #56	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Springdale Road, 0.11 miles northeast of Ferguson Lane
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$8,095,700
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #57	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Juniper Trail, 0.06 miles north of Yaupon Trail
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,016,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #58	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Two locations on Wyldwood Road, 0.27 miles and 0.46 miles west of Brodie Lane. Located on Slaughter Creek and adjacent tributary
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$4,092,000
<b>Potential Funding Sources:</b>	2017 Bond
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Estimated completion in Q4 2024
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #59	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Fall Creek Road, 0.14 miles south of SH 71.
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,168,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #60	
<b>Proposed Action:</b>	Installation of Flood Warning System.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Two adjacent locations on Pedernales Canyon Trail between Canyon Ranch Train and Little Creek Trail
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damage to infrastructure and reduce emergency response. Promotes hazard awareness. Reduces potential injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,324,000
<b>Potential Funding Sources:</b>	2017 Bond
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Estimated completion in Q2 2024
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #61	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Slaughter Creek Drive, 0.18 miles south of Meadowsouth Lane
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,914,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #62	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Crystal Bend Drive, just east of Crooked Creek Drive
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,516,000
<b>Potential Funding Sources:</b>	CDBG funds approved in 2021
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Estimated completion in Q4 2023
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #63	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Cottonwood Drive, 0.07 miles west of Long Hollow Trail
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,516,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #64	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Jesse Bohls Road, 0.63 miles east of Weiss Lane
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,516,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #65	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Lime Creek Road, 0.08 miles south of Fisher Hollow Trail
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,394,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #66	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Nameless Road, 0.83 miles north of Shady Mountain Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,016,000
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #67	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Weir Loop Circle, 0.06 miles south of Rimstone Trail at the westernmost crossing of Devil's Pen Creek
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$592,100
<b>Potential Funding Sources:</b>	Future bond inclusion or future CO issuances
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #68	
<b>Proposed Action:</b>	Identify and implement a feasible, cost-effective mitigation action for the low water crossing (identified below), as determined through engineering study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Tom Sassman Road, 0.07 miles north of Evelyn Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Safer access during flood events. Reduce damages to infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$4,356,000
<b>Potential Funding Sources:</b>	2017 Bond
<b>Lead Agency/Department Responsible:</b>	TNR Department - Public Works Division
<b>Implementation Schedule:</b>	Estimated completion in Q2 2024
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #69	
<b>Proposed Action:</b>	Provide additional means of ingress and egress into single-entry neighborhoods and gated communities for use during emergencies and wildfire events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to residents through improved evacuation alternatives; improve firefighting capabilities through improved access alternatives.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Transportation
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$4,000,000 - \$8,000,000 per neighborhood
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TNR Department – Development Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #70	
<b>Proposed Action:</b>	Implement drainage improvements at Arroyo Doble Subdivision and Twin Creeks Park Subdivision to reduce flood damages to structures and infrastructure.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Area generally located south of FM 1626, west of Onion Creek and east of the Union Pacific Railroad
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to residents and provide safer access during flood events. Reduce damages to structures and infrastructure and reduce emergency response.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TNR Department – Engineering Division
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Basin Study 2009; Land, Water, & Transportation Plan (LWTP)

<b>COMMENTS:</b>
Phases 1 and 2 in design.
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #71	
<b>Proposed Action:</b>	Dam Failure Risk Assessment and Implementation: Assess identified dams to obtain risk assessment analysis on inundation risk and necessary improvements needed. Develop an EAP for each identified dam. Within each individualized EAP begin implement necessary mitigation measure to risk the risk of a potential breach or dam failure.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide dams
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk through improved risk assessment and informed decision making.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Travis County, LCRA, TCEQ and private dam owners (when applicable)
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

COMMENTS:
Travis County has an agreement with LCRA for them to share dam operation and inundation information related to their dams and the highland lakes chain

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #72	
<b>Proposed Action:</b>	Conduct public education program to advise public about evacuation routes, shelter-in-place locations for use during wildfire events, wildfire risks, and best wildland fire mitigation techniques for Central Texas
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of loss of life and property. Reduce emergency response demand through hazard awareness and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Emergency Services, Austin Travis County Wildfire Coalition, TNR Department
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan; Land, Water, & Transportation Plan (LWTP)

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Travis County – Action #73	
<b>Proposed Action:</b>	Coordinating with Dell Medical School to obtain and distribute HEPA filters to homes with vulnerable and at-risk populations.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	County-wide for residents who are at further risk due to chronic breathing conditions.
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the risk of loss of life and injuries by improving indoor air quality.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50 per air filter
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	TNR Department in coordination with Dell Medical School
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Land, Water, & Transportation Plan (LWTP)

COMMENTS:
<a href="https://www.medrxiv.org/content/10.1101/2023.04.17.23288697v1.full">https://www.medrxiv.org/content/10.1101/2023.04.17.23288697v1.full</a>

## VILLAGE OF BRIARCLIFF

Village of Briarcliff – Action #1	
<b>Proposed Action:</b>	Install 12" water transmission line to supply fire department and local area with water supply.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Adjacent to FM 2322 and Bee Creek Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Continue essential utility services during severe weather event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lighting, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,800,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Water/Wastewater Department
<b>Implementation Schedule:</b>	Within 18 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Disaster Response Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical services during an unforeseen weather event.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Briarcliff – Action #2	
<b>Proposed Action:</b>	Purchase a stand- by generator for the water treatment plant: Secure funding for the purchase and installation of a back-up generator at water treatment plant to provide back-up power during extreme weather events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	402 Sleat Dr.
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lighting, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$175,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Water/Wastewater Department
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Disaster Response Plan

COMMENTS:
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Briarcliff – Action #3	
<b>Proposed Action:</b>	Incorporate xeriscape practices into landscape ordinances: Incorporate xeriscape practices into landscape ordinances to reduce water usage and reduce the effects of natural hazards.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Water Department
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Ordinances

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Briarcliff – Action #4	
<b>Proposed Action:</b>	Reduce fuels for wildfire: Reduction of fuel cedar trees, dry grass, and dead trees for wildfires will reduce the potential for widespread fires.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide with focus on areas with the WUI
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through targeted firebreaks.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Fire Department
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Briarcliff – Action #5	
<b>Proposed Action:</b>	Public information and education: Educate and update all citizens of the hazards affecting the area, how to protect themselves from injury and mitigate property damages Provide information on the city website about hazard events and its impact on homeowners.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lighting, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Utilities Department
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Briarcliff – Action #6	
<b>Proposed Action:</b>	Promote water conservation: Provide conservation information such as installing low-flow showerheads and toilets, adjusting sprinklers on lawns, checking for leaks in plumbing, and encouraging water reuse on the city website and mail outs.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness. Reduce risk to vulnerable populations during extreme weather conditions.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Utilities Department
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Codes

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Briarcliff – Action #7	
<b>Proposed Action:</b>	Remove brush and tree growth: Remove brush and trees growing in the earthen dam.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide dams
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the risk of flood damage due to erosion during a potential breach.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Grounds Department
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Briarcliff – Action #8	
<b>Proposed Action:</b>	Hail-resistant roof coverings: Provide material selections for roofing materials that will have a minimal impact from hail events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damage and risk of injury.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Hail
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Briarcliff – Action #9	
<b>Proposed Action:</b>	Urban green space: Public education to provide positive enhancements to the environment, such as the creation and development of urban green spaces.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impacts of flood through expanded greenspace and restoration of floodplains and wetlands; Reduce impacts by replenishing groundwater reserves; Reduce impacts of Urban Island Heat effect in densely populated areas through tree planting.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 60 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## CITY OF CREEDMOOR

City of Creedmoor – Action #1	
<b>Proposed Action:</b>	Harden and/or upgrade community center into a warming/cooling center during extreme weather events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community Center
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of injury to at-risk and vulnerable populations during extreme weather events. Ensure continuity of services during and after a severe weather event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Food/Water/Shelter
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration and Public Works
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

COMMENTS:

## CITY OF JONESTOWN

City of Jonestown – Action #1	
<b>Proposed Action:</b>	Implement education and awareness programs utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damage.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical, Energy, Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$30,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Jonestown – Action #2	
<b>Proposed Action:</b>	Acquire and install generators with hard wired quick connections at critical facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Police Station, Northshore Wastewater Plant
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy, Safety/Security, Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000 per generator
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Jonestown – Action #3	
<b>Proposed Action:</b>	Adopt and implement landscape ordinance (selection and planting guidelines).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Health/Medical
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Building and Development
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Building Codes / Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Jonestown – Action #4	
<b>Proposed Action:</b>	Acquisition of property located in the floodway on Sandy Creek, Pecan Park area: Property owners are 35 to 75 percent within the floodway. One property has an SFR. Creek has been in flood status more than 5 times in the last 0 years with swift and rapid water with little to no warning to those who live in the area.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Sandy Creek and Pecan Park area
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain; Reduce risk of injuries to citizens and emergency services during and after a flood event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000 - \$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Jonestown – Action #5	
<b>Proposed Action:</b>	Engineer study of stormwater run-off for the City: Prevent future loss and damage to existing properties as the city develops incorporated limits.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000 - \$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Stormwater Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Jonestown – Action #6	
<b>Proposed Action:</b>	Acquisition of property located in the floodplain of Lake Travis and Cross Street area: Area is located 2 to 35 feet below the BFE of Lake Travis and has flooded numerous times. Current regulations prohibit the property owners from building or developing the properties.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Lake Travis and Cross Street area
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000 - \$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## CITY OF LAGO VISTA

City of Lago Vista – Action #1	
<b>Proposed Action:</b>	Build safe rooms to FEMA Standards: The city has no storm shelters.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	New Municipal Building
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Building Services
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

COMMENTS:
Project will be a part of the scope and design for the new Municipal Building.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #2	
<b>Proposed Action:</b>	Acquire and distribute NOAA weather radios.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	Within 60 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #3	
<b>Proposed Action:</b>	Conduct public outreach to educate citizens on the full range of hazards: educational information will be presented through digital signage on major thoroughfare, newsletters, and on the city website, to increase awareness of ways the public may protect themselves and mitigate homes and businesses from hazard events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide Major thoroughfares
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soil, Extreme Heat, Flood, Hail, Lightning, Tornado, Wildfire, Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Police Department
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
The cost is associated with constructing the digital LED signage that will be located on a major thoroughfare. The sign will be designed to be seen by traffic coming from both directions.
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #4	
<b>Proposed Action:</b>	Install back-up generators at critical facilities: Install emergency generators at critical facilities to provide back-up power from hazard events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	City Hall, WP #1 and WP#3 intakes, Public Works Facility which includes Water Plant #1, and at 3 booster stations
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Flood, Hail, Lightning, Tornado, Wildfire, Thunderstorm Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$3, 500,000 - \$4,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #5	
<b>Proposed Action:</b>	Conduct a drainage study and disseminate study results, and implement findings as identified within study.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduces risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000 - \$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Building Services
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Plan

COMMENTS:
As new homes and businesses locate in Lago Vista, it is apparent that drainage will be an increasing problem. Area topography does not lend itself to an easy solution and the layout of lots and streets exacerbates the problem.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #6	
<b>Proposed Action:</b>	Develop a mass debris removal plan: Provide staging areas in less populated areas of the city.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Tornado, Thunderstorm Wind, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduces risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
Funds have been allocated this FY for Engineering Site Design at City owned property. This site will include a debris collection facility.
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #7	
<b>Proposed Action:</b>	Amend regulations to allow trees in the ROW and landscape requirements for more trees on commercial property: Develop a landscape ordinance that encourages xeriscape. The city experiences mild to severe drought during the summer more trees on months.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	On-going maintenance Within 36 months of plan adoption to implement xeriscape ordinance
<b>Incorporation into Existing Plans:</b>	

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #8	
<b>Proposed Action:</b>	Replace fire hydrants: Assess and make necessary upgrades to community-wide fire hydrants to ensure more efficient water delivery during fire to mitigate against damage.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provides a more efficient water delivery during fire to mitigate damage.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan; Fire Hydrant Maintenance and Replacement program

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #9	
<b>Proposed Action:</b>	Community Evacuation Plan: Identify and map potential routes for evacuation, provide mapping of routes, identify deficiencies, recommend projects to correct deficiencies, and identify and map homes of persons with functional and access needs.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to residents through improved evacuation alternatives; improve firefighting capabilities through improved access alternatives
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Development Services
<b>Implementation Schedule:</b>	Within 48 months of plan adoption; Currently in-progress
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lago Vista – Action #10	
<b>Proposed Action:</b>	Educate residents on and implement measures: Educate residents and builders of potential hazards and high-risk areas by providing GIS maps of high hazard areas and implement soil stabilizers or moisture control/irrigation in identified areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soil, Extreme Heat, Flood, Hail, Lightning, Tornado, Wildfire, Thunderstorm Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## CITY OF LAKEWAY

City of Lakeway – Action #1	
<b>Proposed Action:</b>	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #2	
<b>Proposed Action:</b>	Acquire and distribute NOAA weather radios.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Local Police and Fire Department
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #3	
<b>Proposed Action:</b>	Acquire and install generators with hard wired quick connections at all critical facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and Public Works
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

COMMENTS:
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #4	
<b>Proposed Action:</b>	Harden/retrofit critical facilities to hazard-resistant levels.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and Public Works
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #5	
<b>Proposed Action:</b>	Adopt an ordinance that will assess and if necessary, restrict future development in high-risk areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damage to new structures and infrastructure through building restrictions in high-risk areas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants
<b>Lead Agency/Department Responsible:</b>	Administration and BDS
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #6	
<b>Proposed Action:</b>	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration, Public Works & Parks/Recreation
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Maintenance Plan; CWPP ; Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #7	
<b>Proposed Action:</b>	Incorporate higher standards for hazard resistance in local application of the building code.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damage to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and BDS
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #8	
<b>Proposed Action:</b>	Prohibit animal shelters in known hazard areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to structures and animals by requiring development outside of hazardous areas; reduce burden on emergency response during hazardous events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and BDS
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injuries and fatalities.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #9	
<b>Proposed Action:</b>	Implement and enhance an area-wide telephone Emergency Notification System ("Reverse 911").
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communication and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Winter Storm, Tornado, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Communication
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #10	
<b>Proposed Action:</b>	Develop alternative evacuation routes/plans and designate emergency thoroughfares, particularly in areas with limited capacity. Educate citizens on evacuation routes and procedures
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk residents through improved evacuation alternatives and awareness efforts.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration, OEM, BDS and Public Works
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #11	
<b>Proposed Action:</b>	Provide/construct additional means of access into single-entry neighborhoods; Update subdivision codes for a higher level of ingress and egress.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to residents through improved evacuation alternatives; improve firefighting capabilities through improved access alternatives.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration, OEM, BDS and Public Works
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances; Capital Improvement Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #12	
<b>Proposed Action:</b>	Adopt smart growth initiatives. Incorporate a formal hazard mitigation plan in long-term community development planning activities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk in high hazard areas by promoting and incentivizing development in low-risk areas; Build resiliency within the community; Reduce risk of damages through improved planning and construction practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and Public Works
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #13	
<b>Proposed Action:</b>	Amend landscape ordinance (selection and planting guidelines) to continue drought resistance plans.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and BDS
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #14	
<b>Proposed Action:</b>	Equip sewer manholes with watertight covers and inflow guards.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Lakeway MUD
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Wastewater Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #15	
<b>Proposed Action:</b>	Raise electrical components of sewage lift stations above the Base Flood Elevation (BFE).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Lakeway MUD
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Wastewater Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #16	
<b>Proposed Action:</b>	Adopt an ordinance that will limit aerial extensions to water, sewer, gas, and electrical lines.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations; Reduce risk of sewer infiltration and flood water contamination.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and BDS
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #17	
<b>Proposed Action:</b>	Require "safe rooms" to be added when constructing new schools, daycares, rest homes and critical care facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in new critical facilities during extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado, Thunderstorm Wind
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and BDS
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #18	
<b>Proposed Action:</b>	Build safe room shelters at manufactured home parks so that all park residents can reach shelter in less than five minutes.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide manufactured home parks
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado, Thunderstorm Wind
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Public Works
<b>Implementation Schedule:</b>	Within 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Capital Improvement Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #19	
<b>Proposed Action:</b>	Implement measures to secure traffic lights and traffic controls from high wind damage.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and Public Works; TXDOT
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #20	
<b>Proposed Action:</b>	Require standards for burial of electrical, telephone, cable lines and other utilities in new developments.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Tornado, Thunderstorm Wind, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration, BDS and Public Works in conjunction with local utility provider
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #21	
<b>Proposed Action:</b>	Bury existing utility lines.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and BDS in conjunction with local utility provider
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #22	
<b>Proposed Action:</b>	Evaluate access and road conditions for response vehicles. Develop and implement options to improve access and/or add redundant access routes in high-risk areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through maintained and redundant access routes in high-risk areas; Improve response time for emergency services; Reduce risk of injury or damages; Provide additional ingress/egress routes through high-risk areas to prevent loss of life and avoid rescue efforts.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire, Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new or existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration, OEM and Public Works
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP; Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

City of Lakeway – Action #23	
<b>Proposed Action:</b>	Require standard tie-downs of propane tanks.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of hazardous material release and potential fires; Reduce risk of injuries or fatalities; Reduce risk of flood water contamination.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and BDS
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during extreme weather events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #24	
<b>Proposed Action:</b>	Undertake a comprehensive study of flood risk and reduction alternatives, with the assistance of the US Army Corps of Engineers. Implement feasible alternatives for flood reduction.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide flood hazard areas
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations (for unmapped areas)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Floodplain Administrator and OEM
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #25	
<b>Proposed Action:</b>	Join the Community Rating System program.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood insurance premiums for local residents; Reduce flood risk and build resiliency.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Floodplain Administrator and OEM
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #26	
<b>Proposed Action:</b>	Increase freeboard requirements for permitting structures in the SFHA; Adopt a “no-rise” in BFE in the 100-year floodplain; Update local flood ordinance to prohibit granting of variance in SFHA; Include “cumulative damage” provisions in local floodplain management ordinances.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood damages through development restrictions and improved construction requirements in flood-prone areas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Floodplain Administrator, OEM and BDS/Permitting
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Flood Damage Prevention Ordinance

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #27	
<b>Proposed Action:</b>	Join the National Flood Insurance Program (NFIP).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide access to flood insurance for local residents; Reduce flood risk and build resiliency.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Floodplain Administrator
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan; Flood Damage Prevention Ordinance

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #28	
<b>Proposed Action:</b>	Provide how-to information to residents for installing backflow valves to prevent reverse-flow floods.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damage impact on residents after a flood event; Reduce risk of sewage back-up in structures; Reduce risk of injury or illness to residents.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Floodplain Administrator, OEM and Communication and Water Utility
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #29	
<b>Proposed Action:</b>	Conduct public education program on fire risks and wildland fire mitigation, with the assistance of the Texas Forest Service.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #30	
<b>Proposed Action:</b>	Adopt and implement routine fire hydrant maintenance plan.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through routine maintenance of fire hydrants; Reduce risk of injury or damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new or existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration, OEM, Local Fire Department, and water utility providers
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #31	
<b>Proposed Action:</b>	Adopt construction regulations for fire-resistant roofing materials, smoke alarm systems, sprinkler systems, cisterns, escape roads, fuels management requirements, and boxing of eaves, overhangs, and decks; Require fire extinguishers for all homes and businesses; Require large side yards between adjacent buildings in residential and commercial areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through improved construction practices and building requirements.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDEM; Federal Grants: FEMA HMA Grants, CDBG, HUD, NRCS, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration, BDS, and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP; Local Building Codes

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #32	
<b>Proposed Action:</b>	Install fire danger rating/burn ban signs.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Works and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #33	
<b>Proposed Action:</b>	Implement a community education program regarding fire dangers for identified risk areas; Distribute pamphlets through neighborhood associations or insert flyers in water bills to make residents aware of wildfire hazard areas and fire protection measures for homes and yards.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #34	
<b>Proposed Action:</b>	Install warning signs at hazardous bridges and roadways subject to ice.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages and injuries on roadways and bridges during winter storm events through education and awareness programs; Reduce demand on emergency response during winter storms.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Public Works
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #35	
<b>Proposed Action:</b>	Educate citizens on mitigation measures to prevent frozen pipes; Educate homeowners on carbon monoxide monitors/alarms
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages and injuries through mitigation education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	OEM
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #36	
<b>Proposed Action:</b>	Adopt and implement program to insulate outdoor pipes at critical and public buildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical and public facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages at public buildings resulting from freezing temperatures; Ensure continuity of public services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration, OEM, Public Works and Facilities
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #37	
<b>Proposed Action:</b>	Build safe room shelters throughout the jurisdiction so that residents can reach shelter in less than five minutes.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	OEM and Public Works
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Capital Improvement Plan

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #38	
<b>Proposed Action:</b>	Continue to review the Lakeway Emergency Operations Plan and continue to establish an Emergency Operations Center: Update the plan to current standards and provides greater clarification of assigned responsibilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promotes hazard awareness and protects the public from injuries and fatalities. Ensures continuity of critical services during and after a severe weather event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Drought, Tornado, Thunderstorm Wind, Extreme Heat, Expansive Soils, Hail, Lightning, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and Police Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption, pending available funding.
<b>Incorporation into Existing Plans:</b>	Emergency Operations Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #39	
<b>Proposed Action:</b>	Develop a mass debris removal plan.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Ensure continuity of critical services and emergency response during and after a severe weather event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado, Thunderstorm Wind, Flood, Wildfire, Hail
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	D&CE and Public Works
<b>Implementation Schedule:</b>	In-progress
<b>Incorporation into Existing Plans:</b>	City Policy/SOPs for respective City Departments, Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects the community from risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #40	
<b>Proposed Action:</b>	Upgrade critical facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities including all participating jurisdictions
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on ground water. Reduce rainfall runoff volume and risk of flooding. Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	County Public Works, and City Engineer and Administrator
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #41	
<b>Proposed Action:</b>	Require drought tolerant landscaping at all new public buildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce need for water at public buildings during times of drought.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and BDS
<b>Implementation Schedule:</b>	Within 36 - 48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Lakeway – Action #42	
<b>Proposed Action:</b>	Install covered parking facilities for critical vehicles.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical and emergency response vehicles
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to critical emergency vehicles and equipment and ensure continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Hail, Lightning, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	Reduce risk to new and existing infrastructures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration, Public Works, and Local Police and Fire Departments
<b>Implementation Schedule:</b>	Within 36 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

COMMENTS:

## CITY OF MANOR

City of Manor – Action #1	
<b>Proposed Action:</b>	Install covered parking areas for police and emergency vehicles.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	402 W Parsons Street, Manor, TX
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the cost of damage to emergency vehicles and equipment. Ensure emergency response during and after an extreme weather event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Hail, Lightning, Thunderstorm Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Transportation
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Police Department
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #2	
<b>Proposed Action:</b>	Acquire and install generators at all critical facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	105 E Eggleston St, Manor, TX 402 W Parsons Street, Manor, TX
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$275,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Police Department
<b>Implementation Schedule:</b>	Within 12 - 26 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #3	
<b>Proposed Action:</b>	Develop/provide additional means of access into existing single-entry neighborhoods; Update subdivision codes for a higher level of ingress and egress.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to residents through improved evacuation alternatives; improve firefighting capabilities through improved access alternatives.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000 to implement subdivision code \$250,000 to implement additional access routes
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Planning and Zoning
<b>Implementation Schedule:</b>	Within 36 - 60 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #4	
<b>Proposed Action:</b>	Acquire and install all hazards warning sirens.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$40,000 - \$60,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and Public Works
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Code and Policy

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #5	
<b>Proposed Action:</b>	Purchase, distribute, and promote the use of NOAA's all hazard radios. Incorporate with Citizens Police Academy training give away.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000 - \$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Police Department.
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #6	
<b>Proposed Action:</b>	Implement a plan to clean up and improve the alleyways. Implement drainage improvements in the downtown area to improve drainage and reduce damages.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Downtown Manor area
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Removal of debris will reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and Public Works
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	City Development, Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #7	
<b>Proposed Action:</b>	Adopt and implement plan to clean up and remove debris from ditches, drains, and culverts to maintain capacity.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduces the potential for flooding. Reduce damages caused by backwater flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000 to implement plan \$250,000 to implement maintenance
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and Public Works
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protect communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #8	
<b>Proposed Action:</b>	Develop/Update drought contingency plan. Adopt and implement water restrictions identified in the plan.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Maintain safe water levels and prevent waste. Reduce risk to structures and infrastructure due to expansive soils by maintaining adequate soil moisture; Reduce risk and spread of wildfire. Ensure vulnerable populations adequate water supply.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Food/Water/Shelter, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Manager, Planning and Public Works
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Ordinance

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #9	
<b>Proposed Action:</b>	Public awareness and education campaign to educate the public on expansive soil and methods and actions that can be taken to protect existing structures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #10	
<b>Proposed Action:</b>	Develop and implement code requirements for foundations to protect against damage caused by expansive soils.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	New construction
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to structures and infrastructure due to expansive soils.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to future structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #11	
<b>Proposed Action:</b>	Develop and initiate extreme summer heat public awareness campaign and fan drive/giveaway. Implement fan drive to collect donations and distribute fans to vulnerable population.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect at-risk and vulnerable populations from potential injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000 - \$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and Police Department
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #12	
<b>Proposed Action:</b>	Upgrade critical facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on ground water. Reduce rainfall runoff volume and risk of flooding. Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Manor – Action #13	
<b>Proposed Action:</b>	Require drought tolerant landscaping at all new public buildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce need for water at public buildings during times of drought.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 36 - 48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:



## CITY OF MUSTANG RIDGE

City of Mustang Ridge – Action #1	
<b>Proposed Action:</b>	Implement education and awareness programs utilizing bulletin and city website to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #2	
<b>Proposed Action:</b>	Adopt smart growth initiatives. Incorporate a formal hazard mitigation plan in long-term community development planning activities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk in high hazard areas by promoting and incentivizing development in low-risk areas; Build resiliency within the community; Reduce risk of damages through improved planning and construction practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #3	
<b>Proposed Action:</b>	Adopt a landscape ordinance (selection and planting guidelines).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	City Engineers
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #4	
<b>Proposed Action:</b>	Adopt ordinance requiring tie-downs for mobile homes; Require manufactured housing be securely anchored to permanent foundations.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	City Inspector
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #5	
<b>Proposed Action:</b>	Evaluate access and road conditions for response vehicles. Develop and implement options to improve access and/or add redundant access routes in high-risk areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through maintained and redundant access routes in high-risk areas; Improve response time for emergency services; Reduce risk of injury or damages; Provide additional ingress/egress routes through high-risk areas to prevent loss of life and avoid rescue efforts.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire, Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new or existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Police Department
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP; Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #6	
<b>Proposed Action:</b>	Adopt regulations to limit amount of impervious cover in conjunction with new development.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood damage and risk of injuries or fatalities through regulated development; Reduce the amount of stormwater runoff in densely developed areas during flood events; Reduce the risk of downstream flooding.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	City Engineer
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Flood Damage Prevention Ordinance

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #7	
<b>Proposed Action:</b>	Install fire danger rating/burn ban signs.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration and ESD #11
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #8	
<b>Proposed Action:</b>	Implement a community education program regarding fire dangers for identified risk areas; Distribute pamphlets through neighborhood associations or insert flyers in water bills to make residents aware of wildfire hazard areas and fire protection measures for homes and yards.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration and ESD #11
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #9	
<b>Proposed Action:</b>	Install warning signs at hazardous bridges and roadways subject to ice.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages and injuries on roadways and bridges during winter storm events through education and awareness programs; Reduce demand on emergency response during winter storms.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Police Department
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #10	
<b>Proposed Action:</b>	Educate citizens on mitigation measures to prevent frozen pipes and carbon monoxide monitors/alarms through making information available on the city's website.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages and injuries through mitigation education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Within 24 - 36 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #11	
<b>Proposed Action:</b>	Review Floodplain Management Ordinance: Continue to review floodplain management ordinance and maintain a rating under the TCRFC Ordinance Floodplain Management Assessment Program.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduces risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Development
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinance

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #12	
<b>Proposed Action:</b>	Partner with Travis County to develop an interlocal agreement to institute a tree trimming program: Work with Travis County to address problem areas by creating an interlocal agreement on services.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Lightning, Tornado, Wildfire, Thunderstorm Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Development and Travis County
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #13	
<b>Proposed Action:</b>	Xeriscape planting: Encourage and implement xeriscape planting for drought/extreme heat-resistant landscaping and to reduce the effects of expansive soils.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soil, Extreme Heat
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Development
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Mustang Ridge – Action #14	
<b>Proposed Action:</b>	Hail-resistant roof coverings: Continue to educate the public on material selections for roofing materials that will have a minimal impact on the environment through city bulletin board and website.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide commercial and residential properties
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages; Reduce risk of injury to residents, emergency, and critical personnel.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Hail
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Development
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## CITY OF PFLUGERVILLE

City of Pflugerville – Action #1	
<b>Proposed Action:</b>	Install irrigation systems and implement watering schedule at public buildings and critical facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities and public buildings
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce maintenance costs, conserve resources, and reduce risk during severe weather. Reduce risk to structures and infrastructure due to expansive soils by maintaining adequate soil moisture; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures through reducing fire risk and improve soil/water conservation
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000.00
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Works, Parks & Recreation
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Facilities Plans

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #2	
<b>Proposed Action:</b>	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Emergency Management, Communications
<b>Implementation Schedule:</b>	2023
<b>Incorporation into Existing Plans:</b>	Communications Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #3	
<b>Proposed Action:</b>	Purchase and install generators and hardwire quick generator connections at critical facilities throughout the planning area.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	All wastewater lift stations
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Emergency Management, Public Works
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #4	
<b>Proposed Action:</b>	Install covered parking facilities for critical vehicles.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical and emergency response vehicles
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the cost of damage to emergency vehicles and equipment. Ensure emergency response during and after an extreme weather event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Hail, Lighting, Thunderstorm Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Transportation
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #5	
<b>Proposed Action:</b>	Construct overnight shelters and safe refuge locations for public evacuation triggered by disasters and extreme weather events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Locations to be determined
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Minimize disruption to vulnerable populations reducing injuries and/or fatalities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Food/Water/Shelter
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #6	
<b>Proposed Action:</b>	Conduct necessary studies to continue to adopt and implement drainage projects and policies.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide drainage system
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing and future structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Engineer
<b>Implementation Schedule:</b>	On-going, as funding becomes available
<b>Incorporation into Existing Plans:</b>	Drainage Master Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #7	
<b>Proposed Action:</b>	Identify locations and construct tornado safe room community shelters. Install tornado safe rooms in new public facilities or designated shelters.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Site locations to be determined
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Mitigates specific risks to structures, people, and operations. Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Food/Water/Shelter
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Facility Master Plan Scope of Work

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #8	
<b>Proposed Action:</b>	Continue to assess and incorporate actions designed to reduce flooding. Actions should be related to protecting existing and future development from increased flooding potential and erosion as well as actions related to restricting development in existing floodplains.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide with focus on high-risk flood areas
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood damages through development restrictions and improved construction requirements in flood-prone areas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Development Services Department
<b>Implementation Schedule:</b>	On-going, as funding becomes available
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan; City of Pflugerville Unified Development Code

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #9	
<b>Proposed Action:</b>	NFIP Community Rating System (CRS): Continue to evaluate and implement activities to improve rating with the CRS, such as adopting higher floodplain standards.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood insurance premiums for residents; Reduce flood risk and build resiliency.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce the number of existing and future buildings that are susceptible to flooding.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Building Department
<b>Implementation Schedule:</b>	Within 24 -3 6 months, pending plan adoption and available funding (then annually)
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan, CRS Materials

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #10	
<b>Proposed Action:</b>	Assess and implement necessary plans, procedures, and capabilities to prevent and respond to dam failure.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Lake Pflugerville
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Properly maintaining the dam minimizes the potential for losses of life and property should Lake Pflugerville dam fail.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures and infrastructure.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Engineer
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Dam Safety Master Plan; Public Works Emergency Action Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #11	
<b>Proposed Action:</b>	Assess and make necessary improvements to roadways and ensure debris clearing capabilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damage to infrastructure; Ensure continuity of services during and after event; Ensure appropriate emergency response and evacuation efforts. Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Tornado, Thunderstorm Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Transportation
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding (then annually)
<b>Incorporation into Existing Plans:</b>	Maintenance and Operations Plan; Public Works Emergency Action Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #12	
<b>Proposed Action:</b>	Adopt ordinance to restrict water and energy consumption at public facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide public facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduces risk to vulnerable populations. Ensure adequate water availability during extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Food/Water/Shelter
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Manager's Office
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Action; COOP plans

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #13	
<b>Proposed Action:</b>	Develop and implement a plan for installing network of lightning detection equipment systems and lightning rods at existing and future city park facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide park facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages; Reduce risk of injury to residents and city personnel.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Lightning
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Parks and Recreation
<b>Implementation Schedule:</b>	Withing 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Incorporate into Parks Master Plan Update

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #14	
<b>Proposed Action:</b>	Continue to collect data for the Food Protection Plan Study which was published in April 2021. Implement findings and recommendations into city's Drainage Master Plan and FIRM study of Wilbarger Creek watershed.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide – Wilbarger Creek watershed
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulation Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Food/Water/Shelter
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing and future structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Engineer
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #15	
<b>Proposed Action:</b>	Complete a detailed structural/engineering survey of facilities. With information from the survey, implement mitigation activities to harden facilities, reduce damages, and ensure continuity of services. Mitigation actions can include items related hazard resistant construction materials.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Dam Failure, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 36 - 48 months, pending plan adoption and available funding then continue a regular cycle
<b>Incorporation into Existing Plans:</b>	Facility Master Plan Scope of Work

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #16	
<b>Proposed Action:</b>	Implement an elevation program for flood prone properties within the City.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Designated SFHA
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce loss of property and risk from flooding in flood prone areas. Continuity of home ownership in City.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Pflugerville – Action #17	
<b>Proposed Action:</b>	Require drought tolerant landscaping at all new public buildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce need for water at public buildings during times of drought.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 36 - 48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:

## VILLAGE OF POINT VENTURE

Village of Point Venture – Action #1	
<b>Proposed Action:</b>	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Maintenance Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #2	
<b>Proposed Action:</b>	Adopt and implement a program for clearing debris from bridges, drains, and culverts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000 (annually)
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #3	
<b>Proposed Action:</b>	Upgrade undersized stormwater drains and culverts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide drainage system
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan; Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #4	
<b>Proposed Action:</b>	Increase drainage capacity; add stormwater detention and/or retention basins as deemed necessary to reduce flood risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #5	
<b>Proposed Action:</b>	Adopt regulations to limit amount of impervious cover in conjunction with new development.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood damage and risk of injuries or fatalities through regulated development; Reduce the amount of stormwater runoff in densely developed areas during flood events; Reduce the risk of downstream flooding.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Flood Damage Prevention Ordinance

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #6	
<b>Proposed Action:</b>	Allow no vegetation in easements or require fire-resistant landscaping.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through improved development practices and building requirements/restrictions.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration and Code Enforcement
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Codes and Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #7	
<b>Proposed Action:</b>	Educate community about the Firewise Program: Annual Firewise event including providing flyers, on doors, sending letters, sending emails to residence about the benefits of the Firewise Program and how wildfires can be worse during drought and extreme heat events. Informing them of the Lot Maintenance Program.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	138 noncompliant lots have been notified
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through hazard education.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Code Enforcement
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	Local Codes and Ordinances; Lot Maintenance Program

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #8	
<b>Proposed Action:</b>	Flood prevention: Review Flood Ordinance at council meetings with land development and building construction contractors present.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide flood-prone areas
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood damages through development restrictions and improved construction requirements in flood-prone areas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Flood Administrator
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Flood Ordinance

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #9	
<b>Proposed Action:</b>	Debris removal and Contract Chipper: Continue to provide 40 yd brush/limb recycle dumpster for residents and contract with a local chipper and/or purchase a chipper to assist in debris removal. Look to encourage volunteers to help clear roads and property.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the risk of damage and injury. Reduce spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structure and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 - \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during extreme weather events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #10	
<b>Proposed Action:</b>	Educate homeowners on hazards: Educate homeowners of how-to mitigate their homes from these hazards at public forums and newsletters, including annual Firewise/neighborhood watch information distribution and have a website with informational articles.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	Within 12 - 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of Point Venture – Action #11	
<b>Proposed Action:</b>	Educate residents on and implement measures: Educate residents and builders of potential hazards and high-risk areas by providing GIS maps of high hazard areas and implement soil stabilizers or moisture control/irrigation in identified areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.



## CITY OF ROLLINGWOOD

City of Rollingwood – Action # 1	
<b>Proposed Action:</b>	Implement education and awareness programs utilizing town hall meetings, social media, and flyers to educate residents of hazards that can threaten the area.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damage. Reduce risk to residents, reduce on-going repair costs, reduce disaster response time.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$20,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Rollingwood – Action # 2	
<b>Proposed Action:</b>	Acquire and install generators with hard wired quick connections at critical facilities. Acquire portable generators to have on hand for vulnerable populations.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Reduce risk to residents by ensuring access to electricity and heat during extreme weather events. Reduces emergency response need.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 - 60 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Rollingwood – Action #3	
<b>Proposed Action:</b>	Adopt and implement a program for clearing debris from bridges, drains and culverts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structure and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000.00
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Stormwater Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Rollingwood – Action #4	
<b>Proposed Action:</b>	Upgrade undersized stormwater drains and culverts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide drainage system
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk on new and existing structure and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Rollingwood – Action #5	
<b>Proposed Action:</b>	Install fire danger rating/burn ban signs.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide Focus on 4010 Bee Cave Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Rollingwood – Action #6	
<b>Proposed Action:</b>	Implement a community education program regarding fire dangers for identified risk areas; Distribute community newsletter to make residents aware of wildfire hazard areas and fire protection measures for homes and yards. Replicate via web and social media.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 3 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Rollingwood – Action #7	
<b>Proposed Action:</b>	Adopt and implement a routine tree trimming program that clears tree limbs hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 3 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Stormwater Management Plan, CWPP

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Rollingwood – Action #8	
<b>Proposed Action:</b>	Incorporate hazard mitigation action plan into city's comprehensive plan
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damage to structures by incorporation into existing plans; Ensure continuity of critical services; Reduce risk of injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Rollingwood – Action #9	
<b>Proposed Action:</b>	Complete Eanes Creek Drainage Improvement Project: Engineering design, construction plans, bid, and construction.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Eanes Creek
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	November 2021 Bond
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Stormwater Drainage Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## VILLAGE OF SAN LEANNA

Village of San Leanna – Action #1	
<b>Proposed Action:</b>	Installation of auxiliary generator at water distribution site as back-up power supply
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	11400 Sunset Dr, Austin, TX 78748 North well, processing distribution facility
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services. Continue essential water utility services during severe weather.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$154,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #2	
<b>Proposed Action:</b>	Implement Reverse 9 in the community: Educational information will be presented at National Night Out, through newsletters, and on the city website, to inform the public how to sign up for the new Reverse 9 Emergency Notification System.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Safety
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #3	
<b>Proposed Action:</b>	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soil, Extreme Heat, Flood, Hail, Lightning, Tornado, Wildfire, Thunderstorm Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000 – \$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Safety
<b>Implementation Schedule:</b>	On-going
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #4	
<b>Proposed Action:</b>	Purchase NOAA All Hazard Radios: Purchase radios for residents so they are aware of weather events.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Emergency Management
<b>Implementation Schedule:</b>	Within 60 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #5	
<b>Proposed Action:</b>	Floodplain Management Ordinance: TCRFC's Floodplain Management Assessment Program undertakes a periodic review to assess the effectiveness of floodplain management in the region.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood damages through development restrictions and improved construction requirements in flood-prone areas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Medium
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Floodplain Management
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #6	
<b>Proposed Action:</b>	Educate residents regarding xeriscape planning. Educational information will be presented at National Night Out through newsletters, and on the city website, to increase awareness of ways the public may reduce water usage by xeriscaping on their property.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Environmental
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #7	
<b>Proposed Action:</b>	Complete engineering studies and determine project designs for stormwater flood prevention: Complete engineering studies and determine project designs for stormwater. Implement necessary improvements as identified within studies.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Environmental
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #8	
<b>Proposed Action:</b>	Complete stormwater management projects: This project can include installing larger culverts and creating detention basins for stormwater. This action will prevent damage to existing homes during flood events, and help establish areas to develop new structures at the least risk for damage from flooding.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Public Works
<b>Implementation Schedule:</b>	On-going as funding becomes available
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #9	
<b>Proposed Action:</b>	Conduct wildfire fuel removal program: Conduct wildfire fuel removal program on city properties.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide with focus in high-risk areas in and surrounding the WUI
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through targeted fuels reduction programs.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Environmental
<b>Implementation Schedule:</b>	Within 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of San Leanna – Action #10	
<b>Proposed Action:</b>	Update building codes: Village has been designated as being in an extreme wildfire risk area thus Firewise is needed to help educate citizens and mitigate wildfire encroachment. Wildfires are extremely dangerous during drought and extreme heat periods.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Environmental
<b>Implementation Schedule:</b>	Within 12 months of plan adoption, currently in-progress
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## CITY OF SUNSET VALLEY

City of Sunset Valley – Action #1	
<b>Proposed Action:</b>	Pursue funding and implement land and easement acquisition for the purpose of reducing flood risk.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Designated Special Flood Hazard Area (100-year Floodplain)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$300,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	On-going pending available funding and notification of property availability
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #2	
<b>Proposed Action:</b>	Implement a natural waterway maintenance program. This program includes debris removal from the waterways, non-native plant removal, and the removal of fallen trees that are in excess of a 45-degree angle within the creek. Under the direction of the City Environmental Manager some trimming and or removal of native vegetation may also be performed.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Williamson Creek Cougar Creek (Sunset Valley Tributary) Kicheon Branch
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improved natural creek function and flow to reduce flood risk.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural System Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing and future structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$30,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Annually
<b>Incorporation into Existing Plans:</b>	Flood Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #3	
<b>Proposed Action:</b>	Implement education program to promote the purchase of flood insurance. Advertise the availability of costs, and coverage of flood insurance through the National Flood Insurance Program (NFIP). Encourage the 70 households located within the low water crossing inundation area identified to purchase flood insurance.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Households within the identified inundation area
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood risk through education and awareness; Increase flood insurance coverage.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration / Public Works
<b>Implementation Schedule:</b>	Annually in March
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #4	
<b>Proposed Action:</b>	Implement education programs to increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding natural hazards and potential mitigation measures to reduce risk. Distribute information through local newspaper, utility bill inserts, inserts in the phone book, a city hazard awareness website, and an education program for school age children.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide, including Sunset Valley Elementary
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damage. Ensure the public can prepare for disasters.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Annually in March
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #5	
<b>Proposed Action:</b>	Continue annual maintenance program to insulate outdoor pipes at public buildings annually and hot boxes have been installed over all of the larger above ground backflow devices.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages at public buildings resulting from freezing temperatures; Ensure continuity of public services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Annual prior to winter season
<b>Incorporation into Existing Plans:</b>	SOP

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #6	
<b>Proposed Action:</b>	Identify properties for possible participation in voluntary acquisition and demolition. Pursue funding and implement acquisition and demolition of flood prone structures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Designated SFHA and/or repetitive loss properties
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high-risk structures and prevent future losses in high-risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	On-going as funding becomes available
<b>Incorporation into Existing Plans:</b>	Land Use Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #7	
<b>Proposed Action:</b>	Bi-Annual routine maintenance of ditch lines, storm water inlets, storm water lift stations, as well as make standard preparations for storms and subsequent clean up.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and flooding through routine maintenance; Reduce risk of injury or damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$20,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Bi-Annual
<b>Incorporation into Existing Plans:</b>	Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #8	
<b>Proposed Action:</b>	Annual evaluation of stormwater system: Implement identified improvements to culvert, storm sewer system, and roadside ditches along Sunset Trail, Lone Oak Drive, Yellow Tail Cove, and Pillow Road.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Along Sunset Trail, Lone Oak Drive, Yellow Tail Cove, and Pillow Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to existing structures and infrastructure through flood reduction and increased capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$750,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Annual
<b>Incorporation into Existing Plans:</b>	Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #9	
<b>Proposed Action:</b>	Pursue grant funding from FEMA's Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) program to implement acquisition and elevation program for flood prone properties within the City.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Designated SFHA
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce loss of property and risk from flooding in flood prone areas. Continuity of home ownership in City.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$2,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City Administration
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding .
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #10	
<b>Proposed Action:</b>	Develop and implement a Flood Event Warning Systems near several low water crossings to monitor rainfall in key areas upstream of the city and alert citizens to potential flooding.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide low water crossing areas
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of loss of life and property.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures.
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Department of Public Works, Police Department
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #11	
<b>Proposed Action:</b>	Continue to monitor drought conditions through contact with State agencies.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk through enhanced risk assessment.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drought and Water Conservation Plan

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #12	
<b>Proposed Action:</b>	Complete a detailed structural/engineering survey of City facilities to ensure thorough soundness with respect to resisting the effects of high winds and hail. Initiate/ implement upgrades to at-risk City structures and/or infrastructure (harden facilities). Mitigate specific risks to structures, people, and operations to reduce risk of damage and ensure continuity of services.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to facilities and citizens through building protection and ensuring continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado, Thunderstorm Wind, Hail, Lightning
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Department of Public Works
<b>Implementation Schedule:</b>	Within 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #13	
<b>Proposed Action:</b>	Upgrade critical facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities including all participating jurisdictions
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on ground water. Reduce rainfall runoff volume and risk of flooding. Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #14	
<b>Proposed Action:</b>	Require drought tolerant landscaping at all new public buildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce need for water at public buildings during times of drought.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	Administration
<b>Implementation Schedule:</b>	Within 36 - 48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of Sunset Valley – Action #15	
<b>Proposed Action:</b>	Install covered parking facilities for critical vehicles.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical and emergency response vehicles
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to critical emergency vehicles and equipment and ensure continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Hail, Lightning, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	Reduce risk to new and existing infrastructures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Administration and Local Police and Fire Department
<b>Implementation Schedule:</b>	Within 36 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

COMMENTS:

## VILLAGE OF THE HILLS

Village of The Hills – Action #1	
<b>Proposed Action:</b>	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #2	
<b>Proposed Action:</b>	Acquire and distribute NOAA weather radios.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC, Administration, and Local Police and Fire Department
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #3	
<b>Proposed Action:</b>	Acquire and install generators with hard wired quick connections at all critical facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #4	
<b>Proposed Action:</b>	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Maintenance Plan; CWPP; Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #5	
<b>Proposed Action:</b>	Incorporate higher standards for hazard resistance in local architectural designs and requirements for homeowners association.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC, Administration and Council
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #6	
<b>Proposed Action:</b>	Implement and enhance an area-wide telephone Emergency Notification System ("Reverse 911").
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communication and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Winter Storm, Tornado, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #7	
<b>Proposed Action:</b>	Develop alternative evacuation routes/plans and designate emergency thoroughfares, particularly in areas with limited capacity. Educate citizens on evacuation routes and procedures
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk residents through improved evacuation alternatives and awareness efforts.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway; LTFR
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #8	
<b>Proposed Action:</b>	Provide/construct additional means of access into single-entry neighborhoods; Update subdivision codes for a higher level of ingress and egress.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to residents through improved evacuation alternatives; improve firefighting capabilities through improved access alternatives.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway; LTFR
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances; Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #9	
<b>Proposed Action:</b>	Adopt smart growth initiatives. Incorporate a formal hazard mitigation plan in long-term community development planning activities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk in high hazard areas by promoting and incentivizing development in low-risk areas; Build resiliency within the community; Reduce risk of damages through improved planning and construction practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration; LTFR
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #10	
<b>Proposed Action:</b>	Adopt a landscape ordinance (selection and planting guidelines).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC, Administration and Council
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #11	
<b>Proposed Action:</b>	Raise electrical components of sewage lift stations above the Base Flood Elevation (BFE).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration; Water Utility
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Wastewater Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #12	
<b>Proposed Action:</b>	Adopt an ordinance that will limit aerial extensions to water, sewer, gas, and electrical lines.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations; Reduce risk of sewer infiltration and flood water contamination.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #13	
<b>Proposed Action:</b>	Build safe room shelters at manufactured home parks so that all park residents can reach shelter in less than five minutes.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide manufactured home parks
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Tornado, Thunderstorm Wind
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Capital Improvement Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #14	
<b>Proposed Action:</b>	Adopt ordinance requiring tie-downs for mobile homes; Require manufactured housing be securely anchored to permanent foundations.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #15	
<b>Proposed Action:</b>	Implement measures to secure traffic lights and traffic controls from high wind damage.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway; TXDOT
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #16	
<b>Proposed Action:</b>	Require standards for burial of electrical, telephone, cable lines and other utilities in new developments.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Tornado, Thunderstorm Wind, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway and local utility provider
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #17	
<b>Proposed Action:</b>	Bury existing utility lines.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway and local utility provider
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #18	
<b>Proposed Action:</b>	Evaluate access and road conditions for response vehicles. Develop and implement options to improve access and/or add redundant access routes in high-risk areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through maintained and redundant access routes in high-risk areas; Improve response time for emergency services; Reduce risk of injury or damages; Provide additional ingress/egress routes through high-risk areas to prevent loss of life and avoid rescue efforts.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire, Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new or existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP; Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

Village of The Hills – Action #19	
<b>Proposed Action:</b>	Require standard tie-downs of propane tanks.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of hazardous material release and potential fires; Reduce risk of injuries or fatalities; Reduce risk of flood water contamination.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$3,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC, Administration and Council
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during extreme weather events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #20	
<b>Proposed Action:</b>	Undertake a comprehensive study of flood risk and reduction alternatives, with the assistance of the US Army Corps of Engineers. Implement feasible alternatives for flood reduction.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide flood hazard areas
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations (for unmapped areas)

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 24 - 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Drainage Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #21	
<b>Proposed Action:</b>	Join the Community Rating System program.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood insurance premiums for local residents; Reduce flood risk and build resiliency.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #22	
<b>Proposed Action:</b>	Increase freeboard requirements for permitting structures in the SFHA; Adopt a “no-rise” in BFE in the 100-year floodplain; Update local flood ordinance to prohibit granting of variance in SFHA; Include “cumulative damage” provisions in local floodplain management ordinances.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce flood damages through development restrictions and improved construction requirements in flood-prone areas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Flood Damage Prevention Ordinance

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

V Village of The Hills – Action #23	
<b>Proposed Action:</b>	Join the National Flood Insurance Program (NFIP).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide access to flood insurance for local residents; Reduce flood risk and build resiliency.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Floodplain Management Plan; Flood Damage Prevention Ordinance

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #24	
<b>Proposed Action:</b>	Provide how-to information to residents for installing backflow valves to prevent reverse-flow floods.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damage impact on residents after a flood event; Reduce risk of sewage back-up in structures; Reduce risk of injury or illness to residents.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration; Water Utility
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #25	
<b>Proposed Action:</b>	Conduct public education program on fire risks and wildland fire mitigation, with the assistance of the Texas Forest Service.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #26	
<b>Proposed Action:</b>	Adopt and implement routine fire hydrant maintenance plan.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through routine maintenance of fire hydrants; Reduce risk of injury or damages.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new or existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC, Administration, and Local Fire Department; Water Utility
<b>Implementation Schedule:</b>	Within 24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #27	
<b>Proposed Action:</b>	Adopt construction regulations for fire-resistant roofing materials, smoke alarm systems, sprinkler systems, cisterns, escape roads, fuels management requirements, and boxing of eaves, overhangs, and decks; Require fire extinguishers for all homes and businesses; Require large side yards between adjacent buildings in residential and commercial areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through improved construction practices and building requirements.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDEM; Federal Grants: FEMA HMA Grants, CDBG, HUD, NRCS, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC, Administration, and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP; Local Building Codes

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #28	
<b>Proposed Action:</b>	Install fire danger rating/burn ban signs.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #29	
<b>Proposed Action:</b>	Implement a community education program regarding fire dangers for identified risk areas; Distribute pamphlets through neighborhood associations or insert flyers in water bills to make residents aware of wildfire hazard areas and fire protection measures for homes and yards.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

Village of The Hills – Action #30	
<b>Proposed Action:</b>	Install warning signs at hazardous bridges and roadways subject to ice.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages and injuries on roadways and bridges during winter storm events through education and awareness programs; Reduce demand on emergency response during winter storms.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #31	
<b>Proposed Action:</b>	Educate citizens on mitigation measures to prevent frozen pipes; Educate homeowners on carbon monoxide monitors/alarms
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages and injuries through mitigation education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC
<b>Implementation Schedule:</b>	Within 24-36 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #32	
<b>Proposed Action:</b>	Adopt and implement program to insulate outdoor pipes at critical and public buildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical and public facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damage at public buildings resulting from freezing temperatures; Ensure continuity of public services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Building Codes/Ordinances

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #33	
<b>Proposed Action:</b>	Build safe room shelters throughout the jurisdiction so that residents can reach shelter in less than five minutes.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Thunderstorm Wind, Tornado
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Capital Improvement Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #34	
<b>Proposed Action:</b>	Expand and implement drainage maintenance program to include regular mowing/brush clearing within drainage easements and removal of debris and sediment from roadside culverts and roadside ditches.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide easements, common area and park land
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 36 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Standard Operating Procedures

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #35	
<b>Proposed Action:</b>	Identify residential and non-residential structures at risk from wildfire. Expand wildfire vegetation maintenance program to trim back and remove vegetation near high-risk structures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through maintained and redundant access routes in high-risk areas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$250,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC, Administration and Local Fire Department
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #36	
<b>Proposed Action:</b>	Coordinate with the State to monitor and conserve existing water supplies in the County. Adopt and implement mandatory water conservation measures to ensure sufficient water pressure for firefighting and provision of drinking water during droughts
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impacts of drought through conservation regulations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$2,500
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration; Water Utility
<b>Implementation Schedule:</b>	Within 12-24 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #37	
<b>Proposed Action:</b>	Pursue funding and implement acquisition and elevation program for flood prone properties within the Village. Prioritize repetitive loss properties. Pursue grant funding from FEMA's Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) program to receive assistance for mitigating (acquisition, elevation, etc.) flood prone properties.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide flood-prone properties and high-risk areas
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce or eliminate repetitive flood damage to high-risk properties.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduces risk to existing structures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with the City of Lakeway
<b>Implementation Schedule:</b>	Within 24 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Floodplain Ordinance

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #38	
<b>Proposed Action:</b>	Sponsor a “Multi-Hazard Awareness Week” to educate the public on all natural hazards (sheltering in place, evacuation, emergency preparedness, health and safety tips and structural retrofitting, flood insurance, etc.). This activity may be carried out in collaboration with the County or other surrounding jurisdictions.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promotes hazard awareness and reduces risk of injury and damages through education and awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration
<b>Implementation Schedule:</b>	Within 24 - 48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #39	
<b>Proposed Action:</b>	Implement education and awareness programs to promote the purchase of flood insurance. Advertise the coverage, availability, and costs of flood insurance through the National Flood Insurance Program (NFIP) on the village website.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk through increased insurance coverage and risk awareness.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$2,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration
<b>Implementation Schedule:</b>	Within 24 -48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #40	
<b>Proposed Action:</b>	Increase tree planting around buildings to shade parking lots and along public rights-of-way.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical and public facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce effect of extreme heat on citizens and infrastructure.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC, Administration, and Council in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 36 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #41	
<b>Proposed Action:</b>	Implement irrigation policies for public facilities; maintain a watering schedule to minimize the effects of expansive soils.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical and public facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce effects of expansive soils on public facilities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC, Administration, and Council in coordination with City of Lakeway; Water Utility
<b>Implementation Schedule:</b>	Within 36 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #42	
<b>Proposed Action:</b>	Establish standard requirements for all utilities regarding tree pruning around lines.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to power lines and damages caused by power outages by reducing risk of downed power lines.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Hail, Lightning, Thunderstorm Wind, Tornado, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 36 - 48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #43	
<b>Proposed Action:</b>	Install and maintain surge protection on critical electronic equipment.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities and infrastructure
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages to critical equipment and ensure continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Lightning
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 36 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #44	
<b>Proposed Action:</b>	Upgrade critical facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical facilities
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce impact on ground water. Reduce rainfall runoff volume and risk of flooding. Reduce risk and spread of wildfire.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC and Administration in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #45	
<b>Proposed Action:</b>	Require drought tolerant landscaping at all new public buildings.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce need for water at public buildings during times of drought.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue
<b>Lead Agency/Department Responsible:</b>	EMC, Administration, and Council in coordination with City of Lakeway
<b>Implementation Schedule:</b>	Within 36 - 48 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Plans and Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Village of The Hills – Action #46	
<b>Proposed Action:</b>	Install covered parking facilities for critical vehicles.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide critical and emergency response vehicles
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to critical emergency vehicles and equipment and ensure continuity of services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Hail, Lightning, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on new/existing buildings:</b>	Reduce risk to new and existing infrastructures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	EMC, Administration and Local Police and Fire Department
<b>Implementation Schedule:</b>	Within 36 - 48 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

COMMENTS:

## CITY OF WEST LAKE HILLS

City of West Lake Hills – Action #1	
<b>Proposed Action:</b>	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 3 months of plan adoption, and then reoccurring
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #2	
<b>Proposed Action:</b>	Acquire and install generators with hard wired quick connections at all critical facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	4010 Bee Cave Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 6 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #3	
<b>Proposed Action:</b>	Relocate critical facilities out of high hazard areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	From 911 Westlake Drive to 4010 Bee Cave Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages to structures; Ensure continuity of critical services; Reduce risk of injuries to critical service employees.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$17,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 6 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan; Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #4	
<b>Proposed Action:</b>	Upgrade critical facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	4010 Bee Cave Road, New city hall
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damage to critical facilities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$750,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 6 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #5	
<b>Proposed Action:</b>	Adopt and implement a program for clearing debris from bridges, drains and culverts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structure and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000.00
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 1 month, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Stormwater Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #6	
<b>Proposed Action:</b>	Upgrade undersized stormwater drains and culverts.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide drainage system
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk on new and existing structure and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 1 month, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #7	
<b>Proposed Action:</b>	Install fire danger rating/burn ban signs.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide Focus on 4010 Bee Cave Road
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 6 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #8	
<b>Proposed Action:</b>	Implement a community education program regarding fire dangers for identified risk areas; Distribute community newsletter to make residents aware of wildfire hazard areas and fire protection measures for homes and yards. Replicate via web and social media.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 3 months of plan adoption
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #9	
<b>Proposed Action:</b>	Adopt and implement a routine tree trimming program that clears tree limbs hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security, Energy
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 3 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Stormwater Management Plan, CWPP

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents. Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #10	
<b>Proposed Action:</b>	Acquire and sustain a platform for community communications (i.e.: Blackboard).
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 0-3 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Management Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #11	
<b>Proposed Action:</b>	Incorporate hazard mitigation action plan into city's comprehensive plan
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damage to structures by incorporation into existing plans; Ensure continuity of critical services; Reduce risk of injuries.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$150,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Comprehensive Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #12	
<b>Proposed Action:</b>	Evaluate adoption of a Wildland Urban Interface Code.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damage to structures through improved building and fire code techniques. Reduces potential threat to life and property from fire and resulting erosion. Reduce recovery efforts for the community after an event.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduces risk to new structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills, Local Fire Department
<b>Implementation Schedule:</b>	Within 12 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #13	
<b>Proposed Action:</b>	Implement a Fuels Management Program.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of wildfires and the spread of wildfire through targeted firebreaks.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructure
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	Travis County / Wild Basin Preserve
<b>Implementation Schedule:</b>	Within 12 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	CWPP

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #14	
<b>Proposed Action:</b>	Maintain and supplement a local reserve fund for public mitigation measures.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damage. Ensure ability to implement necessary mitigation efforts.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	>\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 6 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Hazard Mitigation Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure and prevents injury to residents.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #15	
<b>Proposed Action:</b>	Implement and maintain lightning protection on public facilities.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages at public facilities; Ensure continuity of critical services during and after event; Reduces risk of injury to citizens.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Lightning
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 6 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Capital Improvement Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #16	
<b>Proposed Action:</b>	Adopt and implement land use restrictions and/or building code requirements in high-risk areas.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk of damages to new structures and infrastructure through building restrictions in high-risk areas.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood, Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$5,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 0-3 months of plan adoption
<b>Incorporation into Existing Plans:</b>	Local Codes / Ordinances

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.



## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #17	
<b>Proposed Action:</b>	Purchase NOAA All Hazard Radios: Purchase radios for residents so they are aware of weather events
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Community-wide
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soil, Extreme Heat, Flood, Hail, Lightning, Tornado, Wildfire, Thunderstorm Wind, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Department Budget, Staff time, Bonds, Tax Revenue; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 60 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #18	
<b>Proposed Action:</b>	Complete Eanes Creek Drainage Improvement Project: Engineering design, construction plans, bid, and construction.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Eanes Creek
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	November 2021 Bond; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Stormwater Drainage Plan

COMMENTS:
Project is designed and scheduled for bid in 2023.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## SECTION 18: MITIGATION ACTIONS

Item 8.

City of West Lake Hills – Action #19	
<b>Proposed Action:</b>	Complete Little Bee Creek Drainage Improvement Project: Engineering design, construction plans, bid, and construction.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Little Bee Creek
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Flood
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$100,000
<b>Potential Funding Sources:</b>	November 2021 Bond; State Grants: GLO, TAMFS, TDA, TDEM, TWDB, TXDOT; Federal Grants: FEMA HMA Grants, CDBG, CDC, DOH, EDA, EPA, HUD, NFIP, NFWF, NOAA, NRCS, SBA, USACE, USDA, USFS, USFWS
<b>Lead Agency/Department Responsible:</b>	City of West Lake Hills
<b>Implementation Schedule:</b>	Within 12 - 24 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Stormwater Drainage Plan

COMMENTS:
Project is designed and scheduled for bid in 2023.
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

## EMERGENCY SERVICES DISTRICT (ESD) #6

Emergency Services District (ESD) #6 – Action #1	
<b>Proposed Action:</b>	Implement education and awareness program utilizing district meetings, social media bulletins, flyers, etc. to educate residents and area residents of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages within the district.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County Emergency Service District #6
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damage. Helps residents understand the risks faced within our district in an effort to promote decisions to prevent further damage, injury or loss of life.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$10,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County Emergency Service District #6
<b>Implementation Schedule:</b>	Within 1 month of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #2	
<b>Proposed Action:</b>	Acquire and distribute NOAA weather radios to all district locations and administrative office locations.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County Emergency Service District #6 15304 Pheasant Ln, Lakeway, TX 78734 (30.3634310868953, -97.9510374263605) 15516 General Williamson Dr, Austin, TX 78734 (30.392631049394886, -97.93466365303313) 1211 Lohmans Crossing Rd, Lakeway, TX 78734 (30.3591289237777, -97.97882717726068) 13333 State Hwy 71, Bee Cave, TX 78738 (30.3072160352416, -97.94700949536704) 6003 Comanche Trail, Austin, TX 78732 (30.396407511515783, -97.8688391317954) 3048 Steiner Ranch Blvd, Austin, TX 78732 (30.370023081866606, -97.89437283465149) 17304 Hamilton Pool Rd, Dripping Springs, TX 78620 (30.29224333445441, -98.03462381710193)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning. NOAA weather radios would allow all locations to stay aware of any threatening events and be able to plan accordingly.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Communication, Safety/Security
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County Emergency Service District #6
<b>Implementation Schedule:</b>	Within 1 month of plan adoption
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan

<b>COMMENTS:</b>
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>
Promotes public safety.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #3	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Belvedere HOA, Travis County, Texas (30.299606358398698, -98.04343215014536)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes within the community. Reduce upfront costs of initial installation of shaded fuel break. Protect Golden-Cheeked Warbler Habitat. Reduce risk of wildfires and the spread of wildfire through targeted firebreaks.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$350,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start date: September 1 <sup>st</sup> , 2023, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Belvedere Wildfire Mitigation Plan

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #4	
<b>Proposed Action:</b>	Upgrade district facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County Emergency Service District #6 15304 Pheasant Ln, Lakeway, TX 78734 (30.3634310868953, -97.9510374263605) 15516 General Williamson Dr, Austin, TX 78734 (30.392631049394886, -97.93466365303313) 1211 Lohmans Crossing Rd, Lakeway, TX 78734 (30.3591289237777, -97.97882717726068) 13333 State Hwy 71, Bee Cave, TX 78738 (30.3072160352416, -97.94700949536704) 6003 Comanche Trail, Austin, TX 78732 (30.396407511515783, -97.8688391317954) 3048 Steiner Ranch Blvd, Austin, TX 78732 (30.370023081866606, -97.89437283465149) 17304 Hamilton Pool Rd, Dripping Springs, TX 78620 (30.29224333445441, -98.03462381710193)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce water use and sustainability of our district offices. Reduces damage at critical facilities.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Drought, Expansive Soils
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$50,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County Emergency Service District #6
<b>Implementation Schedule:</b>	Within 6 month of plan adoption
<b>Incorporation into Existing Plans:</b>	N/A

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #5	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Falconhead West, Travis County, Texas (30.32272276705933, -97.99403312802903)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes within the community. Reduce upfront costs of initial installation of shaded fuel break. Protect Golden-Cheeked Warbler Habitat. Reduce risk of wildfires and the spread of wildfire through targeted firebreaks.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$515,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start date: September 1 <sup>st</sup> , 2023, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #6	
<b>Proposed Action:</b>	Public Park fuel mitigation program: Assess and maintenance to mitigate large amounts of dead and downed vegetation within the park.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Hamilton Greenbelt, Lakeway, Texas (30.365341287401108, -97.96840349694973)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the density of hazardous fuels in the Hamilton Greenbelt. Highly used park in Lakeway with many homes adjacent. Reduce risk of wildfires and the spread of wildfire through improved maintenance and mitigation practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$190,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start date: March 1 <sup>st</sup> , 2024, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Lakeway Wildfire Hazard Plan

COMMENTS:
LTFR completed a massive fuels reduction in the Hamilton Greenbelt in 2022 at the expense of the city. Winter Storm Mara essentially reset all of the work that was completed.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #7	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Hurst Creek Greenbelt, Lakeway, Texas (30.370464481934853, -97.97719955346273)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes adjacent to the park. Reduce upfront costs of initial cutting of shaded fuel break. Reduce risk of wildfires and the spread of wildfire through improved maintenance and mitigation practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$72,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start date: March 1 <sup>st</sup> , 2024, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Lakeway Wildfire Hazard Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #8	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Lakeway City Park, Lakeway, Texas (30.37897937221237, -97.96869366611823)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes adjacent to the park. Reduce upfront costs of initial cutting of shaded fuel break. Reduce risk of wildfires and the spread of wildfire through improved maintenance and mitigation practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$50,400
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start date: March 1 <sup>st</sup> , 2024, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Lakeway Wildfire Hazard Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #9	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Rebel City Park, Lakeway, Texas (30.369241744353108, -97.99660920545021)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes adjacent to the park. Reduce upfront costs of initial cutting of shaded fuel break. Reduce risk of wildfires and the spread of wildfire through improved maintenance and mitigation practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$29,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start Date: March 1 <sup>st</sup> , 2024, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Lakeway Wildfire Hazard Plan

COMMENTS:



## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #10	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Rough Hollow, Lakeway, Texas (30.34157042798355, -98.00872807010718)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes adjacent to the park. Reduce upfront costs of initial cutting of shaded fuel break. Reduce risk of wildfires and the spread of wildfire through improved maintenance and mitigation practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$700,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start Date: September 1 <sup>st</sup> , 2023, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #11	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Smith Greenbelt, Lakeway, Texas (30.361619131413615, -97.97901232956436)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes adjacent to the park. Reduce upfront costs of initial cutting of shaded fuel break. Reduce risk of wildfires and the spread of wildfire through improved maintenance and mitigation practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$15,120
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start Date: March 1 <sup>st</sup> , 202, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Lakeway Wildfire Hazard Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #12	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Sailfish Park, Lakeway, Texas (30.37121653992751, -97.99180303257144)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes adjacent to the park. Reduce upfront costs of initial cutting of shaded fuel break. Reduce risk of wildfires and the spread of wildfire through improved maintenance and mitigation practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$29,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start Date: March 1 <sup>st</sup> , 2024, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Lakeway Wildfire Hazard Plan

COMMENTS:

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #13	
<b>Proposed Action:</b>	Install shaded fuel break into public wooded areas to create defensible space in the ignition zone of structures in the wildland urban interface.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Steiner Ranch, Travis County, Texas Steiner Ranch Masters Association (SRMA) (30.38224068450426, -97.89781031803221)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce the hazardous density of fuels in the ignition zones of homes within the SRMA. Reduce upfront costs of initial installation of shaded fuel break. Protect Golden-Cheeked Warbler Habitat. Reduce risk of wildfires and the spread of wildfire through improved maintenance and mitigation practices.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures
<b>Priority (High, Moderate, Low):</b>	High
<b>Estimated Cost:</b>	\$950,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Start Date: September 1 <sup>st</sup> , 2023, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Steiner Ranch Wildfire Hazard Plan

COMMENTS:
Labor Day Weekend of 2011 the Steiner Ranch community had a wildfire that destroyed 15 homes. Some fuels mitigation has been accomplished in the area, but mostly on the Travis County BCCP owned property. This community is essentially the definition of the Wildland Urban Interface problem. Massive amounts of unmanaged fuels within 30 feet of the homes. SRMA already actively participates in the NFPA Firewise program.

Emergency Services District (ESD) #6 – Action #14	
<b>Proposed Action:</b>	Perform home assessments to gauge mitigation actions that can be taken by residents to reduce their wildfire risk and provide incentives for work completed per said assessment.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	Travis County Emergency Service District #6
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Reduce retrofitting costs, promote community buy-in to home hardening. Reduce damage to residential structures in at-risk areas. Reduce risk of injury to residents, emergency, and critical personnel. Reduces need for emergency response during and after extreme weather events.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
<b>Hazard(s) Addressed:</b>	Wildfire
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Safety/Security
<b>Effect on New/Existing Buildings:</b>	Reduce risk to new and existing structures and infrastructures. Reduce structure ignition potential
<b>Priority (High, Moderate, Low):</b>	Moderate
<b>Estimated Cost:</b>	\$500,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Within 1 month of plan adoption
<b>Incorporation into Existing Plans:</b>	Community Wildfire Protection Plan

COMMENTS:
Residents have been given free home ignition zone assessments, but few have made the changes recommended due to lack of available funding. The funds would be spent on a matched basis if awarded a grant.

## SECTION 18: MITIGATION ACTIONS

Item 8.

Emergency Services District (ESD) #6 – Action #15	
<b>Proposed Action:</b>	Acquire, install and/or upgrade generators with hard wired quick connections at all critical facilities and infrastructure.
<b>BACKGROUND INFORMATION</b>	
<b>Site and Location:</b>	District-wide critical facilities and infrastructure 15304 Pheasant Ln, Lakeway, TX 78734 (30.3634310868953, -97.9510374263605) 15516 General Williamson Dr, Austin, TX 78734 (30.392631049394886, -97.93466365303313) 1211 Lohmans Crossing Rd, Lakeway, TX 78734 (30.3591289237777, -97.97882717726068) 13333 State Hwy 71, Bee Cave, TX 78738 (30.3072160352416, -97.94700949536704) 6003 Comanche Trail, Austin, TX 78732 (30.396407511515783, -97.8688391317954) 3048 Steiner Ranch Blvd, Austin, TX 78732 (30.370023081866606, -97.89437283465149) 17304 Hamilton Pool Rd, Dripping Springs, TX 78620 (30.29224333445441, -98.03462381710193)
<b>Risk Reduction Benefit:</b> (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
<b>Type of Action:</b> (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure
<b>MITIGATION ACTION DETAILS</b>	
<b>Hazard(s) Addressed:</b>	Extreme Heat, Flood, Hail, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
<b>Community Lifeline:</b> (Safety/Security, Food, Water Shelter, Health/Medical, Energy (Power/Fuel), Communication, Transportation, Hazardous Materials)	Energy (Power/Fuel)
<b>Effect on New/Existing Buildings:</b>	N/A
<b>Priority (High, Moderate, Low):</b>	Low
<b>Estimated Cost:</b>	\$1,000,000
<b>Potential Funding Sources:</b>	Local Funds, State and Federal Grants
<b>Lead Agency/Department Responsible:</b>	Travis County ESD#6
<b>Implementation Schedule:</b>	Within 36 - 60 months, pending plan adoption and available funding
<b>Incorporation into Existing Plans:</b>	Emergency Response Plan
<b>COMMENTS:</b>	
<b>NFIP &amp; WHY MITIGATION ACTION IS APPROPRIATE:</b>	
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.	





# SECTION 19 PLAN MAINTENANCE

Plan Maintenance Procedures .....	1
Incorporation .....	1
Process of Incorporation .....	1
Monitoring and Evaluation .....	5
Monitoring .....	6
Evaluation .....	7
Updating .....	7
Plan Revisions .....	7
Five (5) Year Review .....	7
Continued Public Involvement .....	8

## PLAN MAINTENANCE PROCEDURES

The following is an explanation of how the participating jurisdictions within Travis County, and the general public will be involved in implementing, evaluating, and enhancing the Plan over time. When the plan is discussed in all maintenance procedures it includes mitigation actions and hazard assessments. The sustained hazard mitigation planning process consists of four main parts:

- Incorporation
- Monitoring and Evaluation
- Updating
- Continued Public Involvement

## INCORPORATION

Participating jurisdictions within Travis County will be responsible for further development and implementation of mitigation actions. Each action has been assigned to a specific department within the participating jurisdictions. The following describes the process by which participating jurisdictions will incorporate elements of the mitigation plan into other planning mechanisms.

## PROCESS OF INCORPORATION

Once the Plan Update is adopted, participating jurisdictions within Travis County will implement actions based on priority and the availability of funding. The Planning Area currently implements policies and programs to reduce loss to life and property from hazards. The mitigation actions developed for this Plan Update enhance this ongoing effort and will be implemented through other program mechanisms where possible.

The potential funding sources listed for each identified action may be used when the jurisdiction seeks funds to implement actions. An implementation time period or a specific implementation date has been assigned to each action as an incentive for completing each task and gauging whether actions are implemented in a timely manner.

Participating jurisdictions within Travis County will integrate implementation of their mitigation actions with other plans and policies such as construction standards and emergency management plans, and ensure that these actions, or proposed projects, are reflected in other planning efforts.

## SECTION 19: PLAN MAINTENANCE

Coordinating and integrating components of other plans and policies into goals and objectives of the Plan Update will further maximize funding and provide possible cost-sharing of key projects, thereby reducing loss of lives and property and mitigating hazards affecting the area.

Upon formal adoption of the Plan Update, planning team members from each participating jurisdiction will work to integrate the hazard mitigation strategies into other plans and codes as they are developed. Participating team members will conduct periodic reviews of plans and policies, once per year at a minimum, and analyze the need for revisions in light of the approved Plan. The planning team will review all comprehensive land use plans (applicable jurisdictions only), capital improvement plans (applicable jurisdictions only), annual budget reviews, emergency operations or management plans (applicable jurisdictions only), and transportation plans (applicable jurisdictions only) to guide and control development. Participating jurisdictions will ensure that capital improvement planning (applicable jurisdictions only) in the future will also contribute to the goals of this hazard mitigation Plan Update to reduce the long-term risk to life and property from all hazards. Within one year of formal adoption of the hazard mitigation Plan Update, existing planning mechanisms will be reviewed by each jurisdiction.

Travis County is committed to supporting the participating jurisdictions as they implement their mitigation actions. Planning team members will review and revise, as necessary, the long-range goals and objectives in strategic plan and budgets to ensure that they are consistent with this mitigation action plan. Additionally, the Planning Area will work to advance the goals of this hazard mitigation plan through its routine, ongoing, long-range planning, budgeting, and work processes.

Table 19-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts. The team members, listed in Table 19-2 below, will be responsible for the review of these planning mechanisms and their incorporation of the plan, with the exception of the Floodplain Management Plans; the jurisdictions who have a Floodplain Administrator on staff will be responsible for incorporating the plan when floodplain management plans are updated or new plans are developed.

**Table 19-1. Methods of Incorporation of the Plan**

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
Annual Budget Review	Travis County: EMC Village of Briarcliff: City Administrator City of Creedmoor: City Administrator City of Jonestown: City Manager City of Lago Vista: City Manager City of Lakeway: EMC City of Manor: Police Lieutenant City of Mustang Ridge: City Administrator City of Pflugerville: EMC Village of Point Venture: Village Secretary City of Rollingwood: Assistant Police Chief	Various departments and key personnel that participated in the planning process for participating jurisdictions within Travis County will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.

## SECTION 19: PLAN MAINTENANCE

Item 8.

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
	Village of San Leanna: City Administrator City of Sunset Valley: EMC Village of The Hills: City Manager City of West Lake Hills: City Administrator Emergency Services District #6: Assistant Fire Chief	
Capital Improvement Plans	Travis County: EMC City of Jonestown: City Manager City of Lago Vista: City Manager City of Lakeway: EMC City of Manor: Police Lieutenant City of Mustang Ridge: City Administrator City of Pflugerville: EMC Village of Point Venture: Village Secretary City of Rollingwood: Assistant Police Chief City of Sunset Valley: EMC Village of The Hills: City Manager City of West Lake Hills: City Administrator Emergency Services District #6: Assistant Fire Chief	Several participating jurisdictions within Travis County have a Capital Improvement Plan (CIP) in place or under development. Prior to any revisions to the CIP, County, City, Village, and special district departments will review the risk assessment and mitigation strategy sections of the HMAP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Comprehensive Plans	Travis County: EMC City of Creedmoor: City Administrator City of Jonestown: City Manager City of Lago Vista: City Manager City of Lakeway: EMC City of Mustang Ridge: City Administrator City of Pflugerville: EMC Village of Point Venture: Village Secretary City of Rollingwood: Assistant Police Chief Village of San Leanna: City Administrator City of Sunset Valley: EMC Village of The Hills: City Manager City of West Lake Hills: City Administrator	Several participating jurisdictions within Travis County have Long-term Comprehensive Development Plans in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.

## SECTION 19: PLAN MAINTENANCE

Item 8.

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
Floodplain Management Plans	Travis County: Floodplain Administrator Village of Briarcliff: Floodplain Administrator City of Creedmoor: Floodplain Administrator City of Jonestown: Floodplain Administrator City of Lago Vista: Floodplain Administrator City of Lakeway: Floodplain Administrator City of Manor: Floodplain Administrator City of Mustang Ridge: Floodplain Administrator City of Pflugerville: Floodplain Administrator Village of Point Venture: Floodplain Administrator City of Rollingwood: Floodplain Administrator Village of San Leanna: Floodplain Administrator City of Sunset Valley: Floodplain Administrator Village of The Hills: Floodplain Administrator City of West Lake Hills: Floodplain Administrator	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 9 of this Plan Update discussing the people and property at risk to flood will be reviewed and revised when participating jurisdictions within Travis County update their management plans or develops new plans.
Grant Applications	Travis County: EMC Village of Briarcliff: City Administrator City of Creedmoor: City Administrator City of Jonestown: City Manager City of Lago Vista: City Manager City of Lakeway: EMC City of Manor: Police Lieutenant City of Mustang Ridge: City Administrator City of Pflugerville: EMC	The Plan will be evaluated by participating jurisdictions within Travis County when grant funding is sought for mitigation projects. If a project is not in the Plan Update, a Plan Revision may be necessary to include the action in the Plan.



PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
	Village of Point Venture: Village Secretary City of Rollingwood: Assistant Police Chief Village of San Leanna: City Administrator City of Sunset Valley: EMC Village of The Hills: City Manager City of West Lake Hills: City Administrator Emergency Services District #6: Assistant Fire Chief	
Regulatory Plans	Travis County: EMC Village of Briarcliff: City Administrator City of Creedmoor: City Administrator City of Jonestown: City Manager City of Lago Vista: City Manager City of Lakeway: EMC City of Manor: Police Lieutenant City of Mustang Ridge: City Administrator City of Pflugerville: EMC Village of Point Venture: Village Secretary City of Rollingwood: Assistant Police Chief Village of San Leanna: City Administrator City of Sunset Valley: EMC Village of The Hills: City Manager City of West Lake Hills: City Administrator Emergency Services District #6: Assistant Fire Chief	Currently, several participating jurisdictions within Travis County have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County, City, Village, and special district departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.

## MONITORING AND EVALUATION

Periodic revisions of the Plan are required to ensure that goals, objectives, and mitigation actions are kept current. When the plan is discussed in these sections it includes the risk assessment and mitigation actions as a part of the monitoring, evaluating, updating and review process. Revisions may be required to ensure the Plan is in compliance with federal and state statutes and regulations. This section outlines the procedures for completing Plan revisions, updates, and review. Table 19-2 indicates the department and title of the party responsible for Plan monitoring, evaluating, updating, and review of the Plan.



**Table 19-2. Team Members Responsible for Plan Monitoring, Evaluating, Updating, and Review of the Plan**

JURISDICTION	TITLE
Travis County	Emergency Management Coordinator
Village of Briarcliff	City Administrator
City of Creedmoor	City Administrator
City of Jonestown	City Manager
City of Lago Vista	City Manager
City of Lakeway	Emergency Management Coordinator
City of Manor	Police Lieutenant
City of Mustang Ridge	City Administrator
City of Pflugerville	Emergency Management Coordinator
Village of Point Venture	Village Secretary
City of Rollingwood	Assistant Police Chief
Village of San Leanna	City Administrator
City of Sunset Valley	Emergency Management Coordinator
Village of The Hills	City Manager
City of West Lake Hills	City Administrator
Emergency Services District #6	Assistant Fire Chief

## MONITORING

Designated Planning Team members are responsible for monitoring, evaluating, updating, and reviewing the Plan, as shown in Table 19-2. Individuals holding the title listed in Table 19-2 will be responsible for monitoring the Plan on an annual basis. Plan monitoring includes reviewing and incorporating into the Plan other existing planning mechanisms that relate or support goals and objectives of the Plan; monitoring the incorporation of the Plan into future updates of other existing planning mechanisms as appropriate; reviewing mitigation actions submitted and coordinating with various County, City, Village and special district departments to determine if mitigation actions need to be re-evaluated and updated; evaluating and updating the Plan as necessary; and monitoring plan maintenance to ensure that the process described is being followed, on an annual basis, throughout the planning process. The Planning Team will develop a brief report that identifies policies and actions in the plan that have been successfully implemented and any changes in the implementation process needed for continued success. A summary of meeting notes will report the particulars involved in developing an action into a project. In addition to the annual monitoring, the Plan will be similarly reviewed immediately after extreme weather events include but not limited to state and federally declared disasters.

### EVALUATION

As part of the evaluation process, the Planning Team will assess changes in risk; determine whether the implementation of mitigation actions is on schedule; determine whether there are any implementation problems, such as technical, political, legal, or coordination issues; and identify changes in land development or programs that affect mitigation priorities for each respective department or organization.

The Planning Team will meet on an annual basis to evaluate the Plan and identify any needed changes and assess the effectiveness of the plan achieving its stated purpose and goals. The team will evaluate the number of mitigation actions implemented along with the loss-reduction associated with each action. Actions that have not been implemented will be evaluated to determine if any social, political, or financial barriers are impeding implementation and if any changes are necessary to improve the viability of an action. The team will evaluate changes in land development and/or programs that affect mitigation priorities in their respective jurisdictions. The annual evaluation process will help to determine if any changes are necessary. In addition, the Plan will be similarly evaluated immediately after extreme weather events including but not limited to state and federally declared disasters.

### UPDATING

#### PLAN REVISIONS

At any time, minor technical changes may be made to update the Travis County Hazard Mitigation Action Plan Update 2023. The plan may be amended to include additional hazard mitigation actions as they are developed. Material changes to mitigation actions or major changes in the overall direction of the Plan or the policies contained within it, must be subject to formal adoption by the participating jurisdictions.

The participating jurisdictions within Travis County will review proposed revisions and vote to accept, reject, or amend the proposed change. Upon ratification, the Revision will be transmitted to TDEM.

In determining whether to recommend approval or denial of a Plan Revision request, participating jurisdictions will consider the following factors:

- Errors or omissions made in the identification of issues or needs during the preparation of the Plan Update;
- New issues or needs that were not adequately addressed in the Plan Update; and
- Changes in information, data, or assumptions from those on which the Plan Update was based.

#### FIVE (5) YEAR REVIEW

The Plan will be thoroughly reviewed by the Planning Team at the end of three years from the approval date, to determine whether there have been significant changes in the planning area that necessitate changes in the types of mitigation actions proposed. Factors that may affect the content of the Plan include new development in identified hazard areas, increased exposure to hazards, disaster declarations, increase or decrease in capability to address hazards, and changes to federal or state legislation.

## SECTION 19: PLAN MAINTENANCE

The Plan review process provides the participating jurisdictions within Travis County an opportunity to evaluate mitigation actions that have been successful, identify losses avoided due to the implementation of specific mitigation measures, and address mitigation actions that may not have been successfully implemented as assigned.

It is recommended that the full Executive and Advisory Planning Team (Section 2, Tables 2-1 and 2-2) meet to review the Plan at the end of three years because grant funds may be necessary for the development of a five-year update. Reviewing planning grant options in advance of the five-year Plan update deadline is recommended considering the timelines for grant and planning cycles can be in excess of a year.

Following the Plan review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures and Plan Revision process outlined herein. Upon completion of the review, update, and revision process the revised Plan will be submitted to TDEM for final review and approval in coordination with FEMA.

### CONTINUED PUBLIC INVOLVEMENT

Public input was an integral part of the preparation of this Plan and will continue to be essential for Plan updates. The Public will be directly involved in the annual evaluation, monitoring, reviews and cyclical updates. Changes or suggestions to improve or update the Plan will provide opportunities for additional public input.

The public can review the Plan on the participating jurisdictions' websites, where officials and the public are invited to provide ongoing feedback, via email.

The Planning Team may also designate voluntary citizens from the planning area or willing stakeholder members from the private sector businesses that were involved in the Plan's development to provide feedback on an annual basis. It is important that stakeholders and the immediate community maintain a vested interest in preserving the functionality of the planning area as it pertains to the overall goals of the mitigation plan. The Planning Team is responsible for notifying stakeholders and community members on an annual basis and maintaining the Plan.

Media, including local newspaper and radio stations, will be used to notify the public of any maintenance or periodic review activities during the implementation, monitoring, and evaluation phases. Additionally, local news media will be contacted to cover information regarding Plan updates, status of grant applications, and project implementation. Local and social media outlets, such as Facebook and Twitter, will keep the public and stakeholders apprised of potential opportunities to fund and implement mitigation projects identified in the Plan.





# APPENDIX A PLANNING TEAM

Planning Team Members .....	1
Stakeholders .....	3

## PLANNING TEAM MEMBERS

The Travis County Hazard Mitigation Action Plan 2023 was organized using a direct representative model. An Executive Planning Team from the participating jurisdictions, shown in Table A-1, was formed to coordinate planning efforts and request input and participation in the planning process. Table A-2 reflects the Advisory Planning Team, consisting of area organizations and departments that participated throughout the planning process. Table A-3 is comprised of stakeholders who were invited to provide Plan input. Public outreach efforts and meeting documentation is provided in Appendix E.

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

ORGANIZATION / DEPARTMENT	TITLE
Travis County	Emergency Management Coordinator
Travis County	Deputy Emergency Management Coordinator (Mitigation and Resiliency)
Travis County	Deputy Emergency Management Coordinator
Village of Briarcliff	City Administrator
City of Creedmoor	City Administrator
City of Creedmoor	Finance
City of Jonestown	City Manager
City of Lago Vista	City Manager
City of Lakeway	Emergency Management Coordinator
City of Manor	Police Lieutenant
City of Mustang Ridge	City Administrator
City of Pflugerville	Emergency Management Coordinator
Village of Point Venture	Village Secretary
City of Rollingwood	Assistant Police Chief
Village of San Leanna	City Administrator
City of Sunset Valley	Police Chief/Emergency Management Coordinator
Village of The Hills	Interim City Manager
City of West Lake Hills	City Administrator
Emergency Services District #6	Assistant Fire Chief/Fire Marshall

Table A-2. Advisory Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Travis County	Administrative Associate
Travis County	CDBG Planning Manager
Travis County	CDBG Planner
Travis County	Economic Development and Strategies Investments Director
Travis County	Fire Mitigation Officer
Travis County	Floodplain Project Manager
Travis County	HHS Chief Deputy
Travis County	Policy and Planning Manager
Travis County	Transportation and Natural Resource - Assistant Public Works Director
Travis County	Transportation and Natural Resource - Community Resiliency
Travis County	Transportation and Natural Resource - Community Resiliency
Travis County	Transportation and Natural Resource - Division Director of Development Services & Long-Range Planning
Travis County	Transportation and Natural Resource - Environmental Project Manager
Travis County	Transportation and Natural Resource - Environmental Quality Manager
Travis County	Transportation and Natural Resource - Floodplain Administrator / Permits Program Manager
Travis County	Transportation and Natural Resource – GIS Manager
Travis County	Transportation and Natural Resource - Long Range Planning Manager
Travis County	Transportation and Natural Resource - NREQ Division Director
Travis County	Transportation and Natural Resource - Program Manager
Travis County	Transportation and Natural Resource - Public Works Director
Travis County	Transportation and Natural Resource - Senior Planner



ORGANIZATION / DEPARTMENT	TITLE
Village of Briarcliff	Mayor
City of Lago Vista	Firewise Coordinator
City of Lago Vista	Mayor
City of Lakeway	Assistant City Manager
City of Manor	Assistant Chief of Police / Police Captain
City of Manor	Chief of Police
City of Manor	Community Program Officer
City of Mustang Ridge	City Secretary
City of Mustang Ridge	Mayor
City of Pflugerville	Assistant Chief of Police
Village of Point Venture	Mayor Pro-Tem
City of Rollingwood	City Administrator
City of Rollingwood	Police Sergeant
Village of San Leanna	Mayor
City of Sunset Valley	City Manager
Village of the Hills	Mayor Pro-Tem
City of West Lake Hills	Police Chief
Emergency Services District #6	Fire Chief
Emergency Services District #6	Wildfire Mitigation Specialist
Emergency Services District #6 (Lake Travis Fire Rescue)	Chairman of Steiner Ranch
Emergency Services District #6 (Lake Travis Fire Rescue)	Director of Communications

## STAKEHOLDERS

The following groups listed in Table A-3 represent a list of organizations invited to stakeholder meetings, public meetings, and workshops throughout the planning process and include members of community groups, non-profit organizations, private businesses, utility providers, neighboring counties, school and universities, state and federal agencies, and legislators. The public were also invited to participate via e-mail throughout the planning process. Many of the invited

## APPENDIX A: PLANNING TEAM

organizations and stakeholders participated and were integral to providing comments and data for the Plan. For a list of attendees at meetings, please see Appendix E<sup>1</sup>.

**Table A-3. Stakeholders**

AGENCY	TITLE	STAKEHOLDER TYPE
Austin Independent School District	Emergency Management Coordinator	Academia
Bastrop County	Emergency Management Coordinator	Neighboring Community
Burnet County	Emergency Management Coordinator	Neighboring Community
Caldwell County	Chief/Emergency Management Coordinator	Neighboring Community
Capital Area Council of Governments	Burnet County Commissioner	Regional Agency
Capital Area Council of Governments	Executive Director	Regional Agency
Capital Area Trauma Regional Advisory Council	Executive Director	Healthcare Agency
Central Health	Director of Public Health Strategy, Policy, and Disaster Response	Healthcare Agency
City of Austin Water Utility	Representative	Utility Provider
City of Round Rock	Representative	Neighboring Community
County Commissioner Assistants	County Commissioner Assistants (5)	Authority To Regulate Development
County Commissioner	Precinct 2 Commissioner	Authority To Regulate Development
County Commissioner	Precinct 3 Commissioner	Authority To Regulate Development
County Emergency Services	Representative	Public Service Agency
County Emergency Services	Executive Director	Public Service Agency
County Fire Marshal's Office	Fire Marshal	Authority To Regulate Development
County Judge's Office	County Judge	Authority To Regulate Development
Environmental Protection Agency, Region 6	Regional Administrator	Federal Agency
Hays County	Director, Office of Emergency Services	Neighboring Community

<sup>1</sup> Information contained in Appendix E is exempt from public release under the Freedom of Information Act (FOIA).

## APPENDIX A: PLANNING TEAM

Item 8.

AGENCY	TITLE	STAKEHOLDER TYPE
Integral Care	Director of Accountable Care Systems	Healthcare Agency
Llano County	Emergency Management Coordinator	Neighboring Community
Lower Colorado River Authority	Mid-Basin Regional Affairs	Utility Provider
National Weather Service	Warning Coordination Meteorologist	Federal Agency
NOAA	Chief of Policy, Planning & Communications	Federal Agency
Pflugerville ISD	Director, Office of Emergency Management	Academia
Pflugerville ISD	Executive Director of Health, Safety, Crisis, and Emergency Management	Academia
Texas A&M Agrilife Extension, District 10	District Extension Administrator	State Agency
Texas A&M Forest Service	La Grange Office Mitigation & Prevention Coordinator	State Agency
Texas Commission on Environmental Quality	Region 11 Director	State Agency
Texas Department of Health Services	Deputy Chief Press Officer	State Agency
Texas Department of Housing and Community Affairs	Director, Community Affairs Division	State Agency
Texas Department of Transportation	Austin District Engineer	State Agency
Texas Development Water Board	Region K Project Manager	State Agency
Texas Division of Emergency Management	District Coordinator	State Agency
Texas Floodplain Management	Region 5 Director	State Agency
Travis County	ESD #2 Accountability Officer	Public Service Agency
Travis County	ESD #2 Battalion Chief	Public Service Agency
Travis County	ESD #12 Battalion Chief	Public Service Agency
Travis County	ESD #12 Assistant Chief	Public Service Agency
Travis County	ESD #12 Commissioner	Public Service Agency
Travis County	ESD #12 Public Information Officer	Public Service Agency

## APPENDIX A: PLANNING TEAM

Item 8.

AGENCY	TITLE	STAKEHOLDER TYPE
Travis County	FMD Director	Authority To Regulate Development
Travis County	Intergovernmental Relations Officer	Authority To Regulate Development
Travis County	Public Information Officer	Authority To Regulate Development
Travis County Parks	Parks Assistant Division Director	Authority To Regulate Development
Travis County Parks	Park Land Manager	Authority To Regulate Development
Williamson County	Director/Emergency Management Coordinator	Neighboring Community





# APPENDIX B PUBLIC SURVEY RESULTS



Overview..... 1

Public Survey Results ..... 2

## OVERVIEW

Travis County prepared a public survey that requested public opinion on a wide range of questions relating to natural hazards. The survey was made available via the County's websites, along with participating jurisdictions. This survey link was also distributed at public meetings and stakeholder events throughout the planning process.

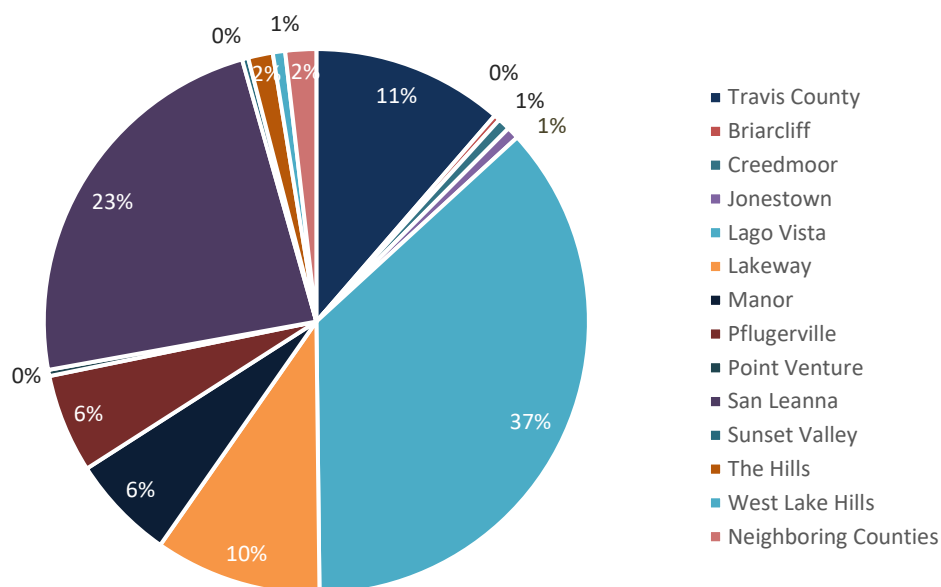
A total of 273 surveys were collected, the results of which are analyzed in Appendix B. The purpose of the survey was twofold: 1) to solicit public input during the planning process, and 2) to help the jurisdictions identify any potential actions or problem areas.

The following survey results depict the percentage of responses for each answer. Similar responses have been summarized for questions that did not provide a multiple-choice answer or that required an explanation.

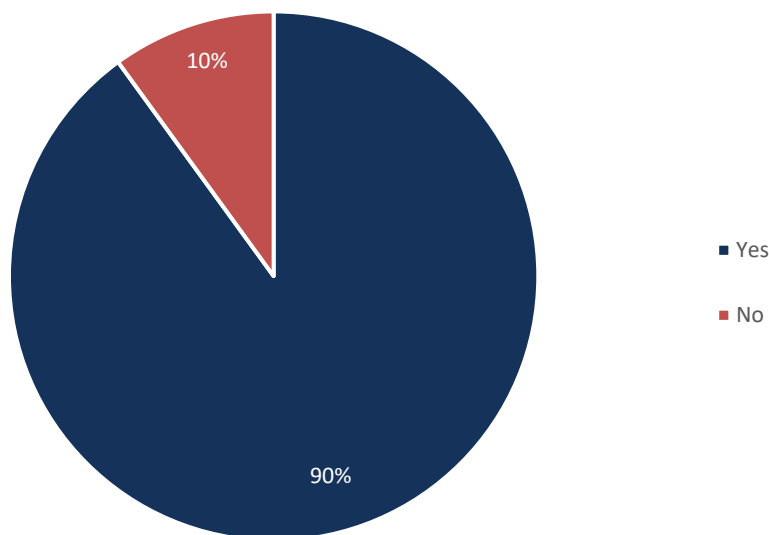


## PUBLIC SURVEY RESULTS

1. Please state the jurisdiction (city or community) where you reside.<sup>1</sup>

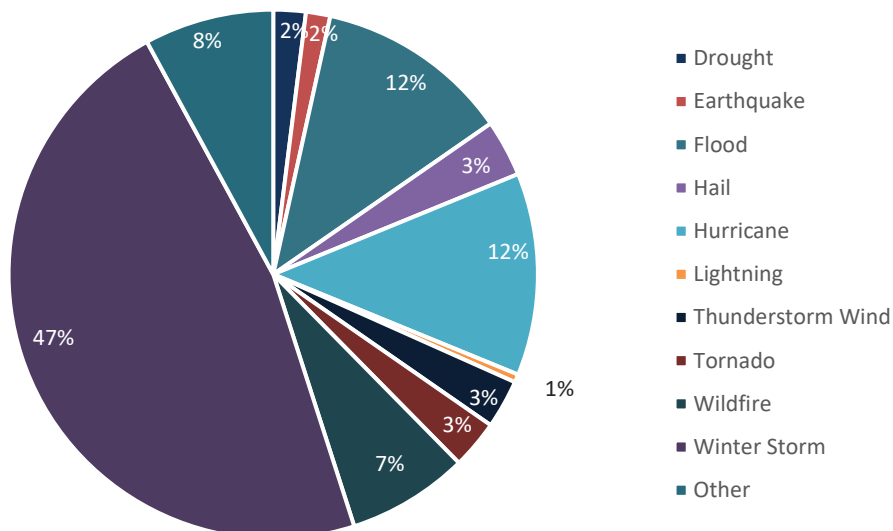


2. Have you ever experienced or been impacted by a disaster?

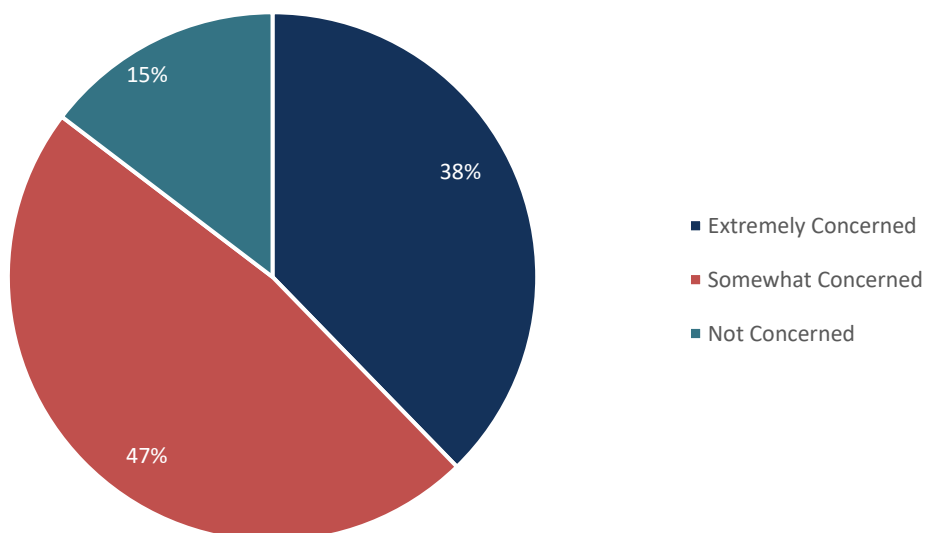


<sup>1</sup> Some respondents were in neighboring counties, however due to their proximity to Travis County, their responses were included in the survey results.

3. If you answered “Yes” to Question #2, please explain.



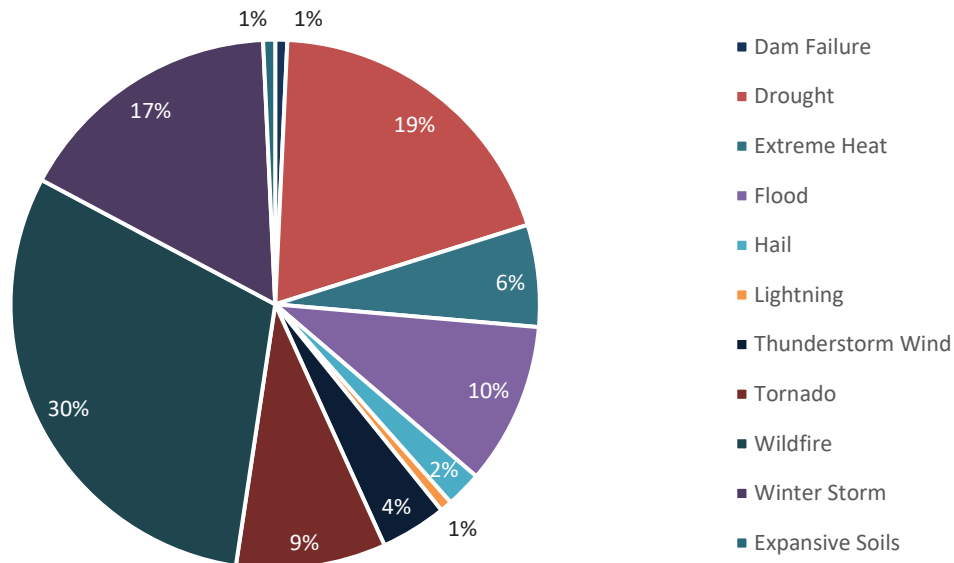
4. How concerned are you about the possibility of your community being impacted by a disaster?



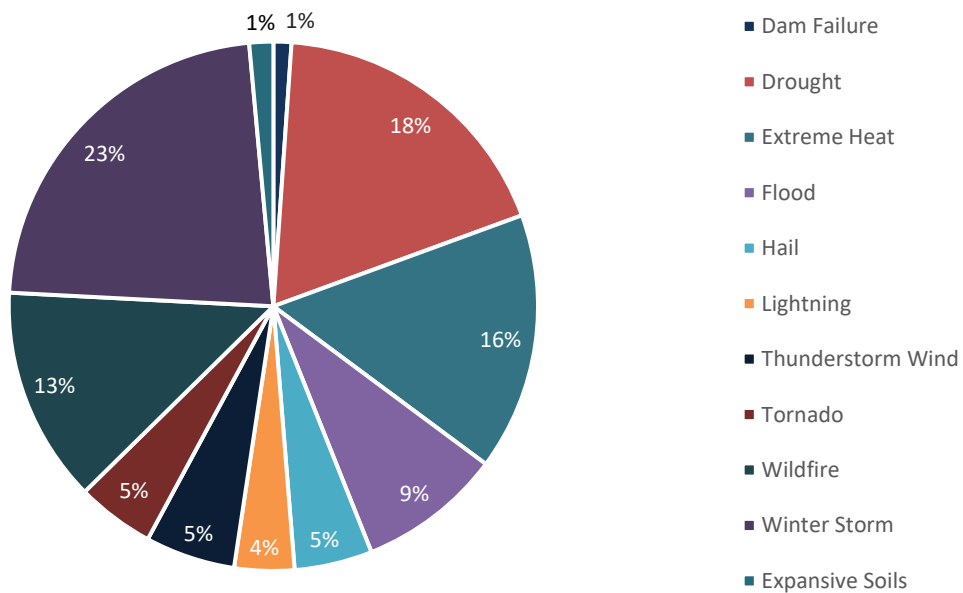
## APPENDIX B: PUBLIC SURVEY RESULTS

Item 8.

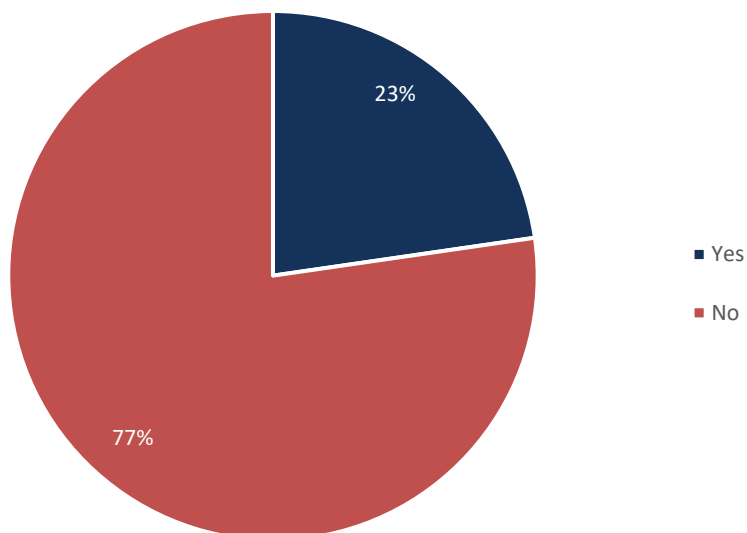
5. Please select the one hazard you think is the highest threat to your neighborhood:



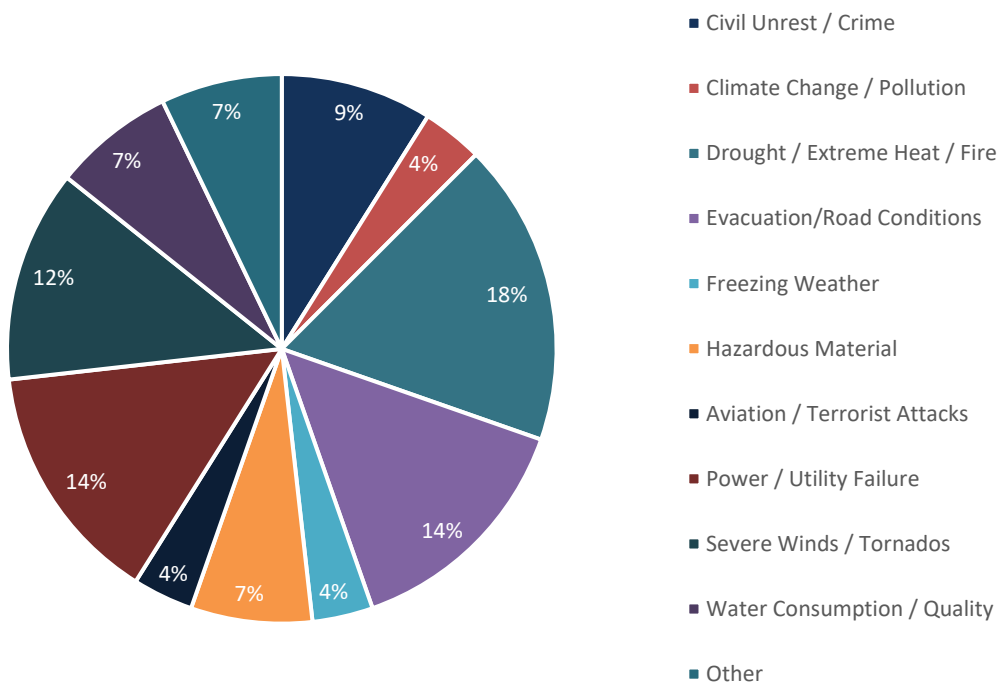
6. Please select the one hazard you think is the second highest threat to your neighborhood:



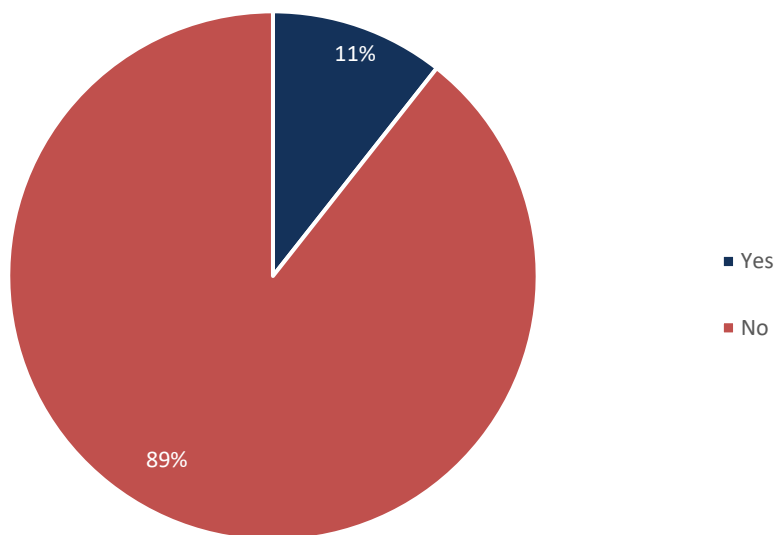
7. Is there another hazard not listed above that you think is a wide-scale threat to your neighborhood?



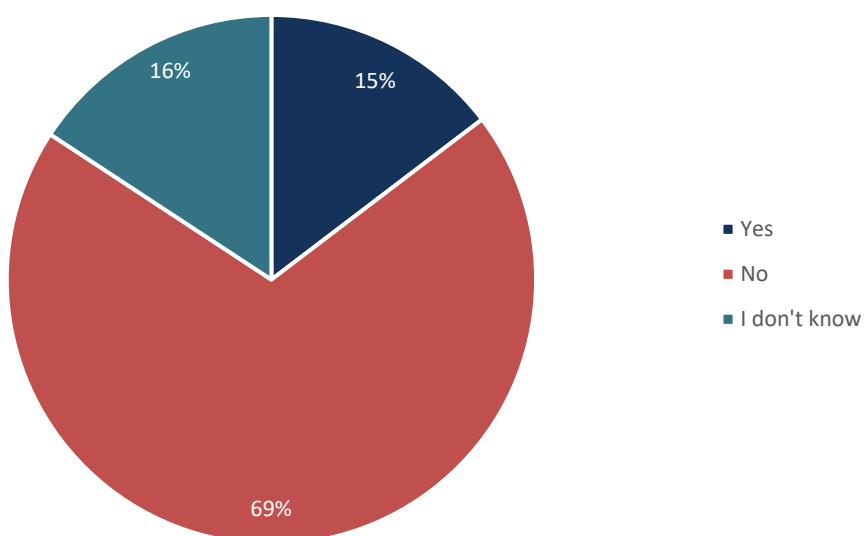
8. If you answered "Yes" to Question #7, please explain.



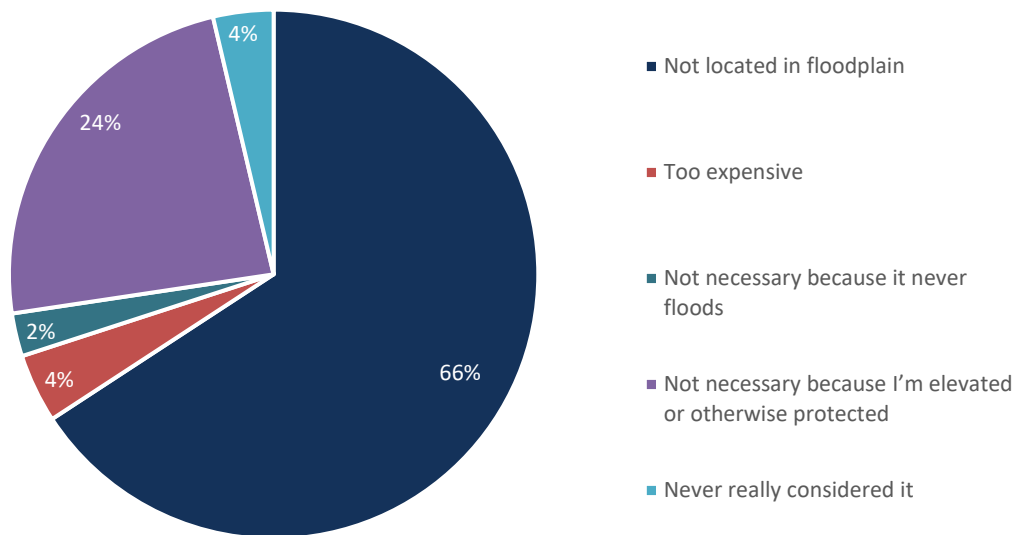
9. Is your home located in a floodplain?



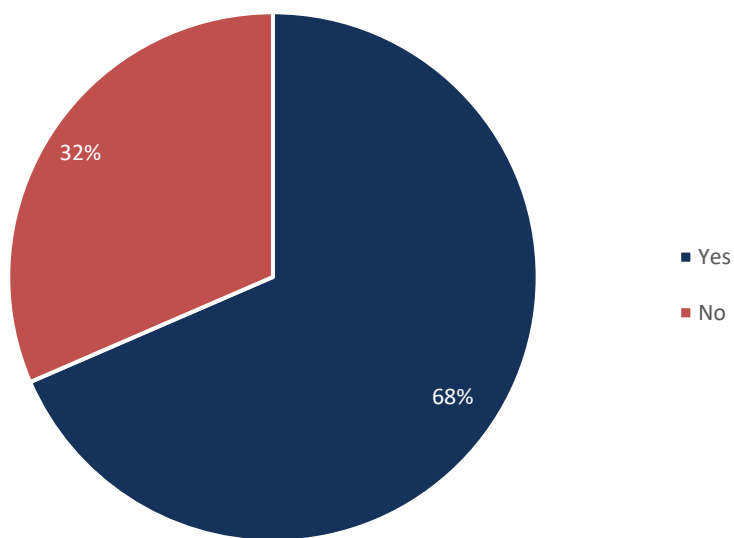
10. Do you have flood insurance?



11. If you do not have flood insurance, why not?

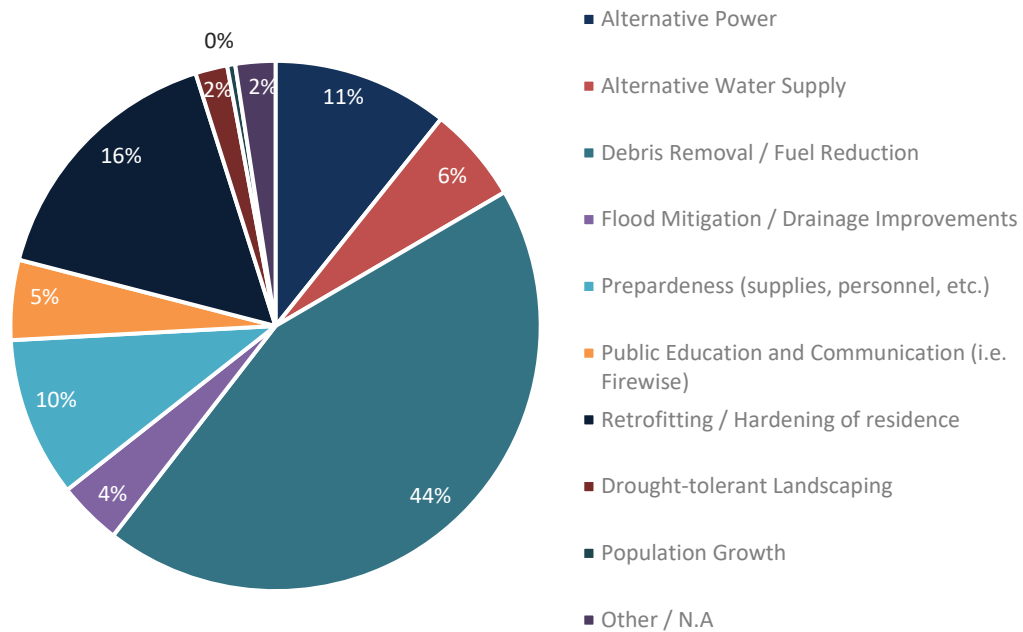


12. Have you taken any actions to make your home or neighborhood more resistant to hazards?

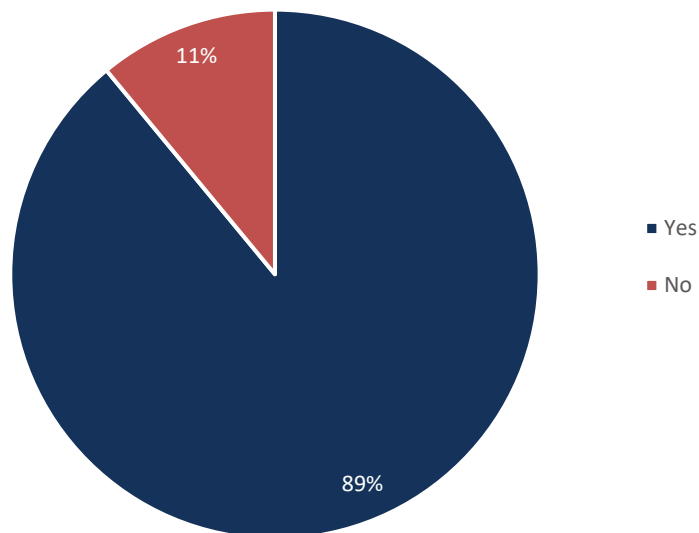




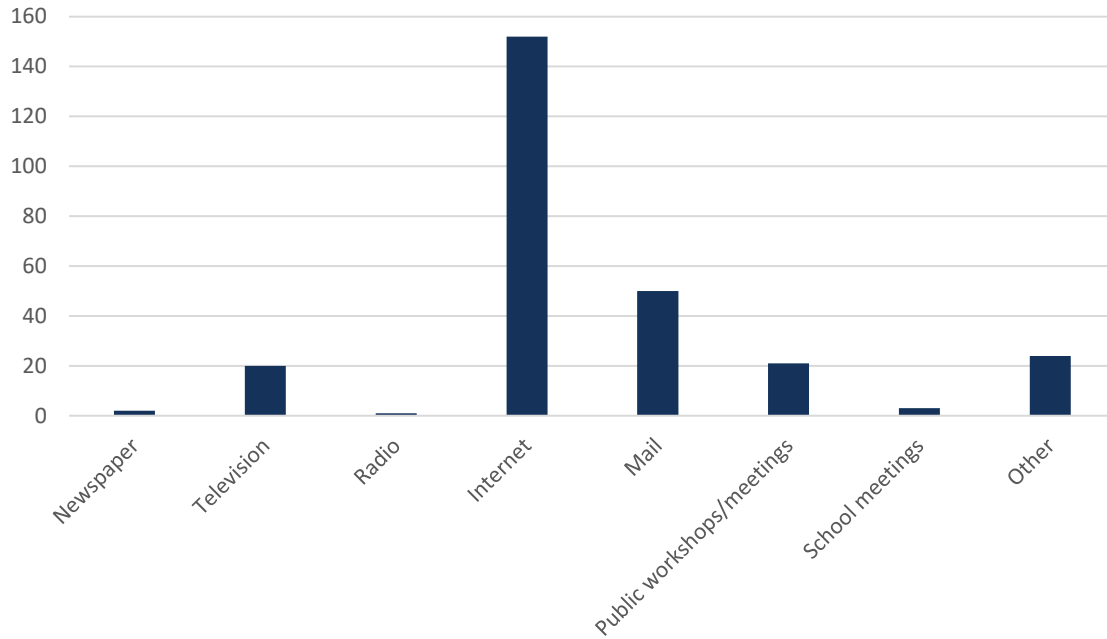
13. If you answered “Yes” to Question #12, please explain.



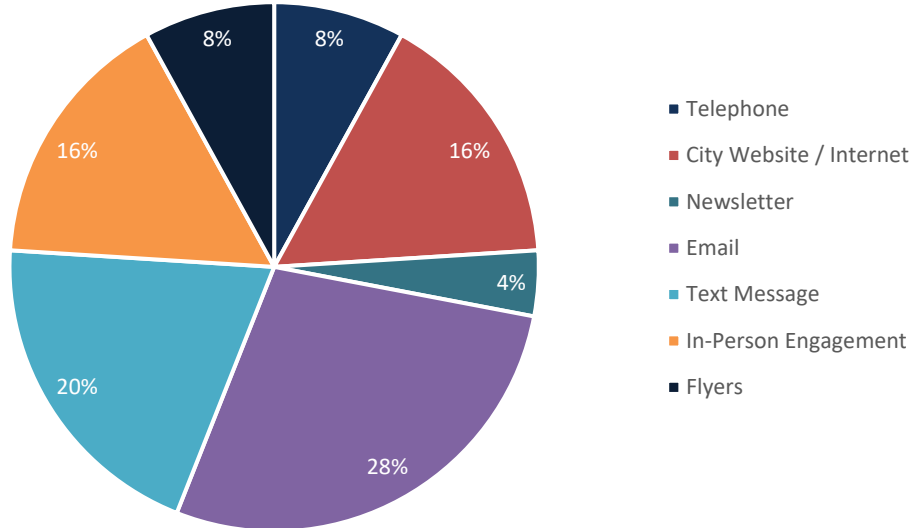
14. Are you interested in making your home or neighborhood more resistant to hazards?



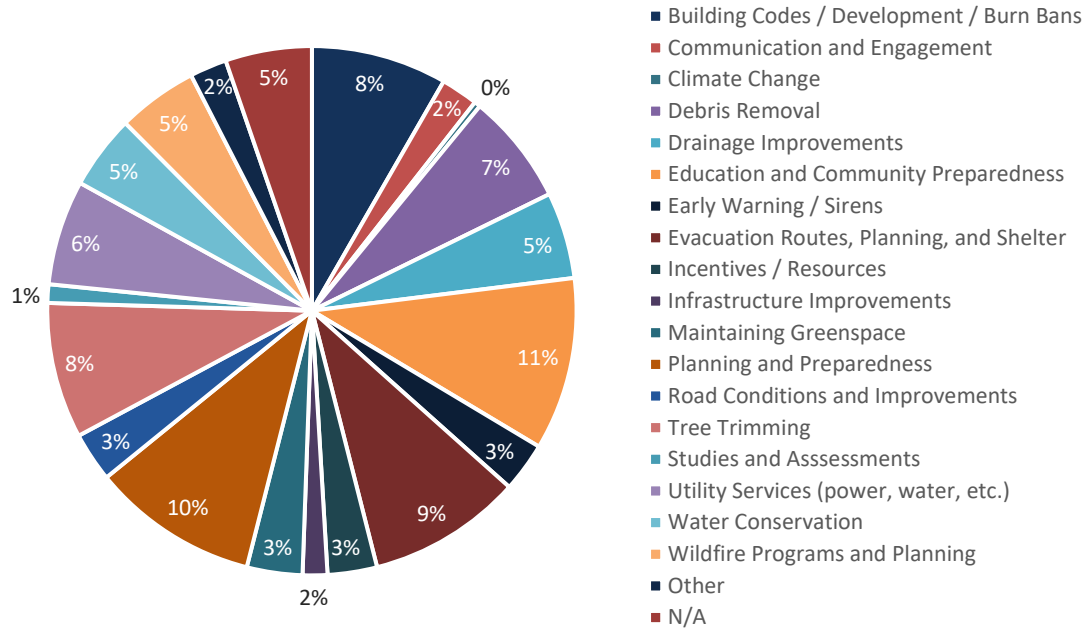
15. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?



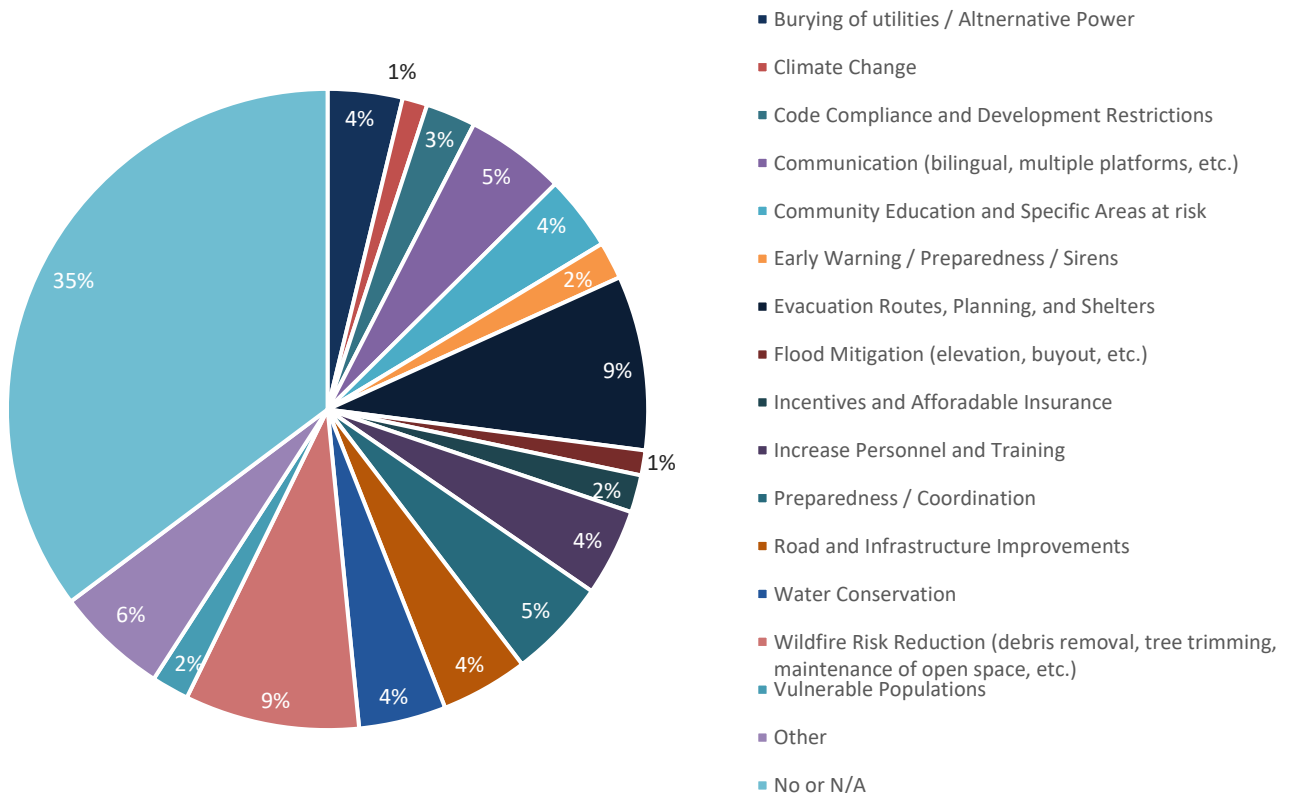
16. If you answered "Other" to Question #15, please explain.



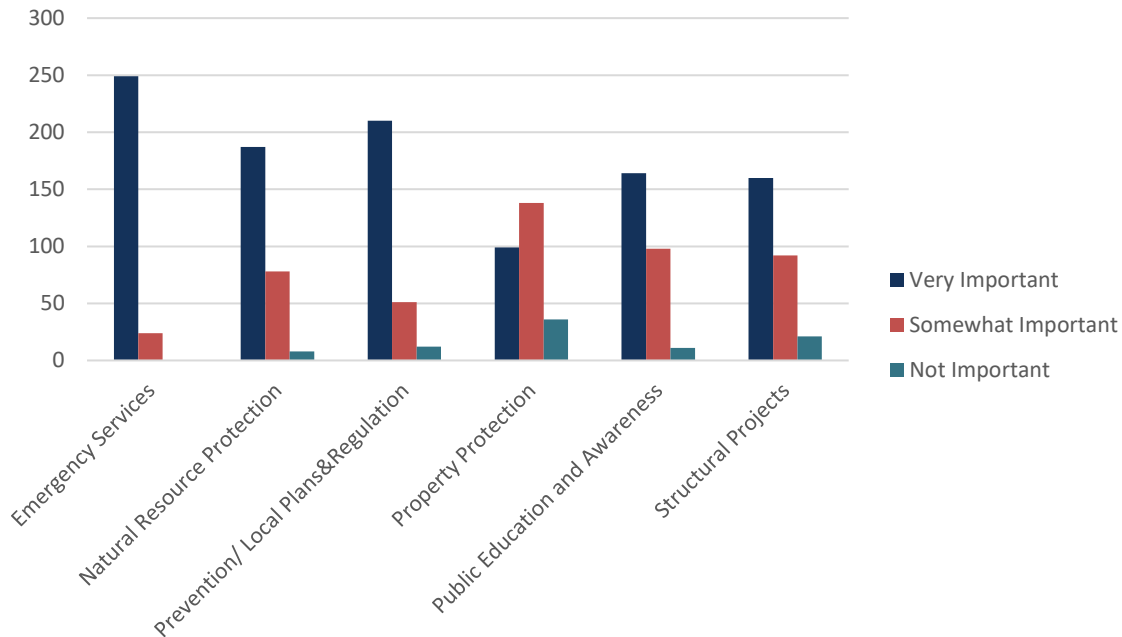
17. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?



18. Are there any other issues regarding the reduction of risk and loss associated with hazards or disaster in the community that you think are important?



19. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.



**Emergency Services** - Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical facilities or systems.

**Natural Resource Protection** - Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.

**Prevention / Local Plans & Regulations** - Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.

**Property Protection** - Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.

**Public Education and Awareness** - Actions to inform citizens about hazards and techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials, and demonstration events.

**Structural Projects** - Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, seawalls detention / retention basins, channel modification, retaining walls, and storm sewers.



# APPENDIX C

# CRITICAL FACILITIES

## APPENDIX C: CRITICAL FACILITIES

Item 8.

Appendix C is For **Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).





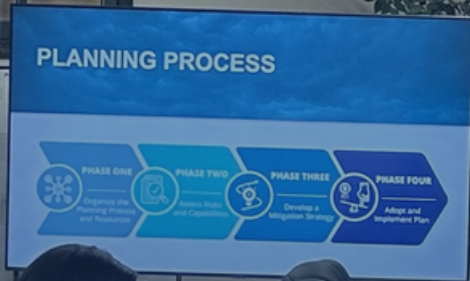
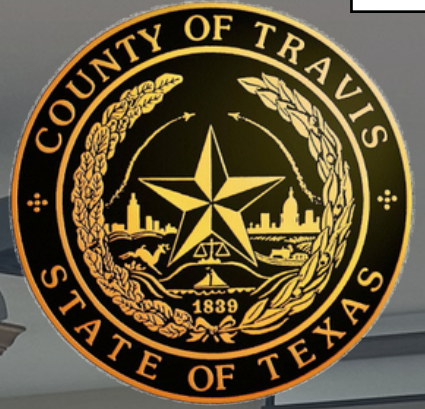
# APPENDIX D DAM LOCATION



## APPENDIX D: DAM LOCATIONS

Item 8.

Appendix D is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).



# APPENDIX E MEETING DOCUMENTATION

## APPENDIX E: MEETING DOCUMENTATION

Item 8.

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# APPENDIX F CAPABILITY ASSESSMENT



## APPENDIX F: CAPABILITY ASSESSMENT

Item 8.

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# APPENDIX G STATE AND FEDERAL FUNDING OPPORTUNITIES

Overview.....	1
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## OVERVIEW

Texas utilizes state funds to improve statewide hazard mitigation capabilities and advance their hazard mitigation goals to help identify, understand, and manage various risks associated with natural hazards. State funds also provide funding for state facility and infrastructure upgrades, hazard mapping, mitigation planning, and other mitigation programmatic activities. Table G-1 describes a variety of loan and grant programs offered by state agencies for which mitigation activities may be eligible.

**Table G-1. Summary of State Funded Mitigation Programs**

AGENCY	FUNDING PROGRAM
<b>Texas A&amp;M Forest Service (TAMFS)</b>	<ul style="list-style-type: none"> <li>Community Fire Protection Program</li> <li>Community Wildfire Defense Grant</li> <li>Fire-Adapted Communities Program (FAC)</li> <li>Firewise USA Program</li> <li>Mitigation Project Support Fund</li> <li>Forest Land Enhancement Program</li> <li>Forest Legacy Program</li> <li>Prescribed Fire Grants</li> <li>Resilient Landscapes Program</li> <li>Rural Fire Assistance Grant</li> <li>State Fire Assistance for Mitigation (SFAM) - Mechanical Fuels Grants</li> <li>SFAM Vegetative Fuel Break Grant</li> <li>Texas Longleaf Conservation Assistance Program</li> <li>Urban Tree Canopy Project (UTC)</li> </ul>
<b>Texas Commission on Environmental Quality (TCEQ)</b>	<ul style="list-style-type: none"> <li>Clean Water Act Section 319 Grants</li> <li>Nonpoint Source Grant Program</li> <li>High Hazard Potential Dam Program (HHPD)</li> <li>U.S.-Mexico Border Water Infrastructure Program</li> </ul>
<b>Texas Department of Agriculture (TDA)</b>	<ul style="list-style-type: none"> <li>Agricultural Management Assistance (AMA)</li> <li>Agricultural Water Enhancement Program (AWEP)</li> <li>Community Development Block Grant</li> <li>Community Development Block Grant for Rural Texas</li> <li>Conservation Innovation Grants (CIG)</li> <li>Environmental Quality Incentives Program (EQUIP)</li> </ul>
<b>Texas Department of Housing and Community Affairs (TDHCA)</b>	<ul style="list-style-type: none"> <li>Texas HOME Disaster Relief</li> </ul>
<b>Texas Department of State Health Services (TXDSHS)</b>	<ul style="list-style-type: none"> <li>Hospital Preparedness Program (HPP) Cooperative Agreement</li> <li>Public Health Emergency Preparedness (PHEP) Cooperative Agreement</li> </ul>

AGENCY	FUNDING PROGRAM
Texas Department of Transportation (TXDOT)	<ul style="list-style-type: none"> <li>• Bridge Preventative Maintenance Program</li> <li>• Emergency Relief (ER) Program</li> <li>• Highway Bridge Replacement and Rehabilitation Program</li> <li>• Safe Rest Stops Program</li> <li>• Transportation Enhancement Program</li> </ul>
Texas Division of Emergency Management (TDEM)	<ul style="list-style-type: none"> <li>• Building Resilient Infrastructure &amp; Communities (BRIC)</li> <li>• Emergency Management Performance Grant (EMPG)</li> <li>• Fire Management Assistance Grants (FMAG)</li> <li>• Hazard Mitigation Planning Grants Program (HMGP)</li> <li>• Homeland Security Grant Program (HSGP)</li> <li>• Individual Assistance (IA)</li> <li>• National Earthquake Hazard Reduction Program (NEHRP)</li> <li>• Public Assistance (PA) Section 406 Funds</li> <li>• Fire Management Assistance Grants (FMAG)</li> </ul>
Texas Economic Development & Tourism (EDT)	<ul style="list-style-type: none"> <li>• Economic Development Administration Grants and Investments</li> </ul>
Texas General Land Office (TXGLO)	<ul style="list-style-type: none"> <li>• Beach Grants</li> <li>• Beach Maintenance Reimbursement Fund</li> <li>• Coastal Erosion Planning and Response Act (CEPRA)</li> <li>• Coastal and Estuarine Land Conservation Program (CELCP)</li> <li>• Coastal Management Program (CMP)</li> <li>• Community Development Block Grant – Disaster Recovery (CDBG-DR)</li> <li>• Community Development Block Grant – Mitigation (CDBG-MIT)</li> <li>• Gulf of Mexico Energy Security Act (GOMESA)</li> <li>• Hazard Mitigation Grant Program Supplemental -LHMPP</li> </ul>
Texas Parks and Wildlife Department (TPWD)	<ul style="list-style-type: none"> <li>• Nation Resources Damage Assessment (NRDA)</li> <li>• National Wildlife Wetland Refuge System</li> <li>• North American Wetland Conservation Fund</li> <li>• Partners for Fish and Wildlife</li> <li>• Texas Farm and Ranch Lands Conservation Program (TFRLCP)</li> <li>• Wildlife Habitat Incentive Program (WHIP)</li> </ul>
Texas State Soil and Water Conservation Board (TSSWCB)	<ul style="list-style-type: none"> <li>• Clean Water Act Section 319 Grants</li> <li>• Nonpoint Source Grant Program</li> </ul>
Texas Water Development Board (TWDB)	<ul style="list-style-type: none"> <li>• Agricultural Water Conservation Grants</li> <li>• Agricultural Water Conservation Loans</li> <li>• Clean Water State Revolving Fund (SWSRF)</li> <li>• Community Assistance Program (CAP)</li> <li>• Drinking Water State Revolving Fund (DWSRF)</li> <li>• Economically Distressed Areas Program</li> </ul>



AGENCY	FUNDING PROGRAM
	<ul style="list-style-type: none"> <li>• Emergency Community Water Assistance Grants</li> <li>• Flood Infrastructure Fund (FIF)</li> <li>• Flood Mitigation Assistance (FMA) Program</li> <li>• Flood Protection Planning Program</li> <li>• Groundwater Conservation District Loan Program</li> <li>• Planning Assistance to States</li> <li>• Regional Facility Planning Grant Program</li> <li>• Regional Water Planning Group Grants</li> <li>• Research and Planning Fund and Fund Development program</li> <li>• Risk MAP Program</li> <li>• Rural Development Grants</li> <li>• Rural Water Assistance Fund</li> <li>• Silver Jackets</li> <li>• Small Flood Control Projects (USACE Section 205)</li> <li>• State Participation Program – Regional Water and Wastewater Facilities</li> <li>• State Water Implementation Fund for Texas (SWIFT)</li> <li>• State Water Resources Research Act Program</li> <li>• Texas Infrastructure Resiliency Fund (TIRF)</li> <li>• Water Research Grant Program</li> <li>• Water SMART - Drought Response Program</li> <li>• Texas Water Development Fund (DFund)</li> </ul>

In addition to State funded programs, many local jurisdictions benefit from federal mitigation funding opportunities. FEMA'S Hazard Mitigation Assistance is a primary source for the implementation of mitigation projects throughout the Nation. Table G-2 described additional Federal, State, Local, and Non-Profit mitigation funding sources specifically within the State of Texas.

**Table G-2. Federal, State, Local and Non-Profit Mitigation Funding Sources in Texas**

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
<b>Agricultural Management Assistance (AMA)</b>	Federal	USDA, NRCS	TDA	Provides financial and technical assistance to agricultural producers to voluntarily address issues such as water management, water quality, and erosion control by incorporating conservation methods into their farming operations.
<b>Agricultural Water Enhancement Program (AWEP)</b>	Federal	USDA, NRCS	TDA	Voluntary conservation initiative that provides financial and technical assistance to agricultural producers to implement water enhancement activities on agricultural land to conserve surface and ground water and improve water quality.

## APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
<b>Agricultural Water Conservation Grants</b>	State	TWDB	TWDB	Provided to state agencies and political subdivisions for projects that support the implementation of conservation of water management strategies identified in state and regional water plans. Yearly applications. Up to \$1.2 million available annually. Grant categories vary from year to year.
<b>Agricultural Water Conservation Loans</b>	State	TWDB	TWDB	Agricultural water conservation loans to use either for improvements on facilities or as loan to individuals. Low-interest, fixed rates. Up to 10-year repayment terms. U.S. Iron and Steel requirements apply to certain projects. Eligible Loan applicants include political subdivisions.
<b>AmeriCorps - Corporation for National &amp; Community Service (CNCS)</b>	Federal	AmeriCorps	N/A	Provides funding for volunteers to serve communities, including disaster prevention. AmeriCorps/Vista has assisted local communities with wildfire mitigation projects.
<b>American Recovery and Reinvestment Act (ARRA)</b>	Federal	DOT Federal Transit Administration	TDA	Nicknamed the Recovery Act was a stimulus package enacted by the 111th U.S. Congress and signed into law by President Barack Obama in February 2009. Developed in response to the Great Recession, the primary objective of this federal statute was to save existing jobs and create new ones as soon as possible. Other objectives were to provide temporary relief programs for those most affected by the recession and invest in infrastructure, education, health, and renewable energy.
<b>Assistance to Firefighters program - Fire Prevention &amp; Safety (FP&amp;S) Grants</b>	Federal	FEMA, AFG		Fire Prevention & Safety (FP&S) Grants support projects that enhance the safety of the public and firefighters from fire and related hazards.
<b>Beach Grants</b>	Federal	EPA	TXGLO	EPA awards grants under authority of the BEACH Act to eligible states, territories, and tribes with beaches on ocean and Great Lakes coasts to develop and implement programs to monitor their beaches and notify the public when it is not safe to swim.

# APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
<b>Beach Maintenance Reimbursement Fund</b>	State	GLO	TXGLO	Allocates approximately \$750,000 per year to help communities keep their beaches maintained. Applications are distributed to eligible participants in early fall and are due within a specified amount of time, no less than 30 days. Contracts are renewable annually.
<b>Bridge Preventative Maintenance Program</b>	State	TXDOT	TXDOT	A planned, cost-effective treatment that preserves, improves, or delays future deterioration of the condition of a bridge. To be eligible for the BMIP a bridge must have a condition rating of 5 or 6 for at least one of the following: deck, superstructure, substructure, culvert, or channel. Safety and improvement to the physical conditions of the State's on-system bridges are TxDOT's main goals in the prioritization of the bridges using BMIP funds. The Bridge Division develops an initial list each FY of eligible bridges in each district and distribute to the districts for the annual program call.
<b>Building Resilient Infrastructure &amp; Communities (BRIC)</b>	Federal	FEMA	TDEM	Pre-disaster/annual cycle addressing all natural hazards, emphasis on infrastructure & lifelines.
<b>Clean Water Act Section 319 Grants</b>	Federal	EPA	TCEQ and TSSWCB	Provides grants for a wide variety of activities related to non-point source pollution runoff mitigation.
<b>Clean Water State Revolving Fund (CWSRF)</b>	Federal	EPA	TWDB	Providing low-cost financing for a wide range of wastewater, stormwater, reuse, and other pollution control projects.
<b>Coastal Erosion Planning and Response Act (CEPRA)</b>	State	GLO	TXGLO	Since 2000, the Texas General Land Office's Coastal Erosion Planning and Response Program has received more than \$62 million in state funding and more than \$62 million in matching funds, completing more than 200 coastal erosion projects and studies. The application process for non-emergency project funding requests opens every even year in February and closes in early June of that same year.



NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
<b>Coastal and Estuarine Land Conservation Program (CELCP)</b>	Federal	NOAA	TXGLO	When NOAA provides funding for CELCP, the GLO provides coastal communities an opportunity to apply for up to three projects per year, with federal grants for any single project not to exceed \$3 million.
<b>Coastal Management Program (CMP)</b>	Federal	NOAA	TXGLO	Texas receives approximately \$2 million annually in grants from National Oceanic and Atmospheric Administration (NOAA) and 90% of the funds are passed through to local governments and entities to address environmental needs and promote sustainable economic development along the coast. Projects must improve the management of the state's coastal resources and ensure long-term ecological and economic productivity. Section 306 administrative funds can be used for non- construction, coastal planning and education, and research. Section 306A improvement funds can be utilized for construction and land acquisition projects and preservation and restoration. CMP funding categories include Coastal Natural Hazards Response, Critical Areas Enhancement, Public Access, Water/Sediment Quantity and Quality Improvements, Waterfront Revitalization and Ecotourism Development, Permit Streamlining/ Assistance, Governmental Coordination and Local Government Planning Assistance.
<b>Community Assistance Program (CAP)</b>	Federal	FEMA, NFIP	TWDB	Product-oriented financial assistance program directly related to the flood loss reduction objectives of the NFIP.
<b>Community Development Block Grant</b>	Federal	HUD	TDA	The primary objective is to develop viable communities by providing decent housing and suitable living environments and expanding economic opportunities principally for persons of low- to moderate- income. Eligible applicants are non-entitlement cities under 50,000 in population and non-entitlement counties that have a non-metropolitan population under 200,000 and are not eligible for direct CDBG funding from HUD may apply for funding through any of the Texas CDBG programs.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Community Development Block Grant for Rural Texas	State	TDA	TDA	TDA administers the Community Development Block Grant for Rural Texas. The primary objective of the CDBG is to develop viable communities by providing decent housing and suitable living environments and expanding economic opportunities principally for persons of low- to moderate-income. Eligible applicants are non-entitlement cities under 50,000 in population and non-entitlement counties that have a non-metropolitan population under 200,000 and are not eligible for direct CDBG funding from HUD may apply for funding through any of the Texas CDBG programs.
Community Development Block Grant – Disaster Recovery (CDBG-DR)	Federal	HUD	TXGLO	Often following a disaster, the state may receive a CDBG-DR Supplement intended for mitigation and disaster recovery projects in the affected areas. Funding can be used to acquire properties in hazard prone areas. Since CDBG funds lose their federal identify they can also be used to supplement state or local match requirements on other funds such as FEMA HMA grants. Funding also supports public facilities including water and wastewater.
Community Development Block Grant – Mitigation (CDBG-MIT)	Federal	HUD	TXGLO	Eligible grantees to use this assistance in areas impacted by recent disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses. In February of 2018, Congress appropriated \$12 billion dollars in Community Development Block Grant (CDBG) funds specifically for mitigation activities for qualifying disasters in 2015, 2016, and 2017. HUD was able to allocate an additional \$3.9 billion, bringing the amount available for mitigation to nearly \$16 billion.
Community Fire Protection Program	Federal	USDA	TAMFS	Mitigation delivered via USDA Forest Service and Private Forestry Coop Fire Program.
Community Wildfire Defense Grant	Federal	USFS	TAMFS	Offers financial assistance to at-risk local communities with planning for and mitigating against the risk of catastrophic wildfire. This program is authorized in Public Law 117-58, the Infrastructure Investment and Jobs Act.

## APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
				Two primary objectives: The development and revision of Community Wildfire Protection Plans (CWPP), and the implementation of projects described in a CWPP that is less than ten years old. Prioritizes at-risk communities that are in an area identified as having high or very high wildfire hazard potential, are low-income, and/or have been impacted by a severe disaster. No minimum federal funding limit for projects.
<b>Conservation Innovation Grants (CIG)</b>	Federal	USDA, NRCS	TDA	Voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging federal investment in environmental enhancement and protection, in conjunction with agricultural production.
<b>Drinking Water State Revolving Fund (DWSRF)</b>	Federal	EPA	TWDB	Makes funds available to drinking water systems to finance infrastructure improvements. The program also emphasizes providing funds to small and disadvantaged communities and to programs that encourage pollution prevention as a tool for ensuring safe drinking water.
<b>Economic Development Administration Grants and Investments</b>	Federal	U.S. DOC, EDA	EDT	Invests and provides grants for community construction projects, including mitigation activities.
<b>Economically Distressed Areas Program</b>	State	TWDB	TWDB	Provides financial assistance for projects serving economically distressed areas where water or sewer services do not exist, or systems do not meet minimum state standards. Eligible EDAP applicants include cities, counties, water districts, nonprofit water supply corporations, and all other political subdivisions. The city or county where the project is located must adopt and enforce Model Subdivision Rules for the regulation of subdivisions prior to application for financial assistance. Projects must also be in an economically distressed area where the median household income is not greater than 75 percent of the median state household income.

# APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
Emergency Community Water Assistance Grants	Federal	USDA	TWDB	\$150,000 to \$500,000 available to rural communities with populations over 10,000 people with a median household income less than \$65,900. Aids communities who have experienced a decline in quantity or quality of drinking water as a result of an emergency including drought.
Emergency Management Performance Grant (EMPG)	Federal	FEMA	TDEM	The EMPG program provides a yearly allocation of funding to support state and local emergency management programs. This has included providing some funding for local mitigation plans, mitigation-oriented studies, and related activities.
Emergency Relief (ER) Program	Federal	US DOT - FHWA	TXDOT	Provides funds for roads and bridges on Federal-aid highways that are damaged as a direct result of a natural disaster or catastrophic failure from an external cause.
Emergency Watershed Protection (EWP)	Federal	USDA, NRCS	TWDB	Provides funding and technical assistance for emergency measures such as floodplain easements in impaired watersheds. Funding available through the Simplified Acquisition Procedures (SAP) ranges from \$25K to \$100K. Funded through contracts between project sponsors and the NRCS. There are no grants. The NRCS pays 75% of the costs.
Environmental Quality Incentives Program (EQUIP)	Federal	USDA, NRCS	TDA	Provides funding and technical assistance to farmers and ranchers to promote agricultural production and environmental quality as compatible goals.
Fire-Adapted Communities Program (FAC)	Federal	FEMA, USFA	TAMFS	Collaborates to identify its wildfire risk and works collectively on actionable steps to reduce its risk of loss. This work protects property and increases the safety of firefighters and residents.
Fire Management Assistance Grants (FMAG)	Federal	FEMA	TDEM	Provides fire suppression support to states when loss of life and property are imminent. Wildfire mitigation is also eligible under emergency protection if life is in imminent danger.
Firewise USA Program	Federal	USDA, DOI, NASFF, NFPA	TAMFS	The national Firewise USA® recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
<b>Flood Infrastructure Fund (FIF)</b>	State	TWDB	TWDB	Enacted through Senate Bill 7 to address needs identified following the flood disasters of 2015, 2016, and 2017. Senate Bill 500 appropriated \$793 million. The purpose is to provide loans and grants for flood activities and projects. Once the State Flood Plan is adopted, the account may only be used for projects included in the plan. The SWIFT Advisory Committee is the oversight entity.
<b>Flood Mitigation Assistance Program (FMA)</b>	Federal	FEMA	TWDB	Repetitive flood loss property reduction and projects that mitigate losses to NFIP insured properties.
<b>Flood Protection Planning Program</b>	State	TWDB	TWDB	Developed to evaluate solutions to flooding problems in the state of Texas. Planning activities eligible for this program may include:
<b>Forest Land Enhancement Program</b>	Federal	USDA, NRCS	TAMFS	Provides educational, technical, and financial assistance to help landowners implement sustainable forestry management objectives.
<b>Forest Legacy Program</b>	Federal	USFS	TAMFS	Program providing funding to protect private forest lands that are environmentally, economically, and socially critical. This program reduces development in the wildland-urban interface.
<b>Hazard Mitigation Grant Program (HMGP)</b>	Federal	FEMA	TDEM	Post-disaster multi-hazard mitigation funding for federally declared disasters. HMGP Post Fire funds are available for FMAG declarations.
<b>Hazard Mitigation Grant Program Supplemental – Local Hazard Mitigation Plan Program (LHMPP)</b>	Federal	FEMA	TXGLO	Local Hazard Mitigation Plan Program (LHMPP) assists eligible entities by providing grants to develop or update local hazard mitigation plans, or to provide cost share for hazard mitigation planning activities funded through other federal sources. Community Development Block Grant Mitigation (CDBG-MIT) funds allocated by the United States Department of Housing and Urban Development (HUD) and administered by the Texas General Land Office (GLO) fund these planning activities, and the Hazard Mitigation Plan development and approval oversight is administered by the Federal Emergency Management Agency (FEMA) and administered

# APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
				by the Texas Division of Emergency Management (TDEM Grant awards will range from \$20,000 – \$100,000.
High Hazard Potential Dam Program (HHPD)	Federal	FEMA	TCEQ	Pre-disaster/annual cycle, for non-federal high hazard dams rated Unsatisfactory. Local match is 35% for each of the four grant periods.
Highway Bridge Replacement and Rehabilitation Program	Federal	FHWA	TXDOT	Provides funding to enable states to improve the condition of highway bridges through replacement, rehabilitation, and systematic preventive maintenance. Also includes the National Historic Covered Bridge Preservation Program.
Homeland Security Grant Program (HSGP)	Federal	DHS	TDEM	Homeland security activities identified in the state and local strategic plans. Funding supports threat & hazard and risk identification for natural, technological, and human-caused hazards. Some prevention activities may be considered mitigation.
Hospital Preparedness Program (HPP) Cooperative Agreement	Federal	HHS	TXDSHS	HPP is the primary source of federal funding for health care system preparedness and response and, in collaboration with public health, prepares health care delivery systems to save lives through the development of health care coalitions (HCCs). Under the direction of the HPP providers, the HCCs develop plans and provide training, and coordinate regional exercises.
Hydrologic Research Grants	Federal	NOAA		Up to \$125,000 to conduct joint research and development on pressing surface water hydrology issues common to national, regional, local operational offices. Eligible applicants are federally recognized agencies of state or local governments, quasi-public institutions such as water supply or power companies, hydrologic consultants and companies involved in using and developing hydrologic forecasts.
Groundwater Conservation District Loan Program	State	TWDB	TWDB	Provides short-term loans to finance the start-up costs of Groundwater Conservation Districts. Funding is available for any Groundwater District or Authority with the authority to regulate the spacing of water wells, the production from water wells, or both. The program is authorized under



# APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
				Texas Water Code Chap. 36, Subchapter. L, and governed by TWDB rules in 31 Tex. Admin. Code Chap. 363, Subchapter. H.
<b>Gulf of Mexico Energy Security Act (GOMESA)</b>	Federal	DOI	TXGLO	GOMESA significantly enhances oil and gas leasing activities and creates revenue sharing provisions for the oil- and gas-producing states of Alabama, Louisiana, Mississippi, and Texas, and their coastal political subdivisions (CPSs). GOMESA funds are used for coastal conservation, restoration, and hurricane protection. The second phase of GOMESA revenue sharing began in Fiscal Year 2017 and expands the definition of qualified Outer Continental Shelf revenues to include receipts from Gulf of Mexico leases subject to withdrawal or moratoria restrictions. A revenue-sharing cap of \$500 million per year for the four Gulf producing states, their CPSs and the Land and Water Conservation Fund applies from fiscal years 2016 through 2055.
<b>Individual Assistance (IA)</b>	Federal	FEMA	TDEM	Following a disaster, funds can be used to mitigate hazards when repairing individual and family homes.
<b>In-Lieu Fee Program Mitigation Projects</b>	Federal	USACE	Community Applicants	Restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for Department of the Army permits.
<b>Mitigation Banks</b>	Federal	USACE	Community Applicants	Mitigation Banks are sites approved by the Corps to sell compensatory mitigation credits for projects resulting in unavoidable impacts to waters of the U.S. When a permit is issued that requires compensatory mitigation, the permit will specify how many credits are required to be purchased at an approved mitigation bank.
<b>National Earthquake Hazards Reduction Program (NEHRP)</b>	Federal	FEMA	TDEM	Provides money to support enhanced earthquake risk assessments in local hazard mitigation plans and other earthquake hazard mitigation and preparedness activities.

## APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

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<b>Natural Resources Damage Assessment (NRDA)</b>	Federal	EPA	TPWD	ERAs evaluate the likelihood that adverse ecological effects are occurring or may occur as a result of exposure to physical stressors (e.g., cleanup activities) or chemical stressors (e.g., release of hazardous substances) at a site.
<b>National Weather Service (NWS)</b>	Federal	NOAA - NWS		NWS offers storm spotter training, along with weather and flooding safety guides. They can also sometimes provide funding to support severe weather signage in parks or other public places.
<b>National Wildlife Wetland Refuge System</b>	Federal	USFWS	TPWD	Provides funding for the acquisition of lands into the federal wildlife refuge system.
<b>Nonpoint Source Grant Program</b>	Federal	EPA	TCEQ, TSSWCB	The federal Clean Water Act (CWA) requires States to develop a program to protect the quality of water resources from the adverse effects of nonpoint source (NPS) water pollution. TCEQ and TSSWCB administer federal grants for activities that prevent or reduce nonpoint source pollution (NPS).
<b>North American Wetland Conservation Fund</b>	Federal	USFWS	TPWD	Provides funding for wetland conservation projects.
<b>NRCS Conservation Programs</b>	Federal	USDA, NRCS	Community Applicants	Provides funding through several programs for the conservation of natural resources.
<b>Partners for Fish and Wildlife</b>	Federal	USFWS	TPWD	Provides financial and technical assistance to landowners for wetland restoration projects in "Focus Areas" of the state.
<b>Planning Assistance to States</b>	Federal	USACE	TWDB	Aids states in planning for the development, utilization, and conservation of water and related land resources.
<b>Pre-Disaster Mitigation Loan Program</b>	Federal	SBA		Provides low-interest loans to small businesses for mitigation projects.
<b>Prescribed Fire Grants</b>	State	TAMFS	TAMFS	TAMFS's Mitigation & Prevention Department annually implements four prescribed fire grants intended to protect local communities and restore ecosystems.

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				<p>(1) SFAM Plains Prescribed Fire Grant – aids communities that have been or may be threatened by wildland fire by funding prescribed burning to reduce hazardous fuels in or around communities. Treatment areas will be located adjacent to priority communities in Texas that are at the highest risk for loss during a Southern Plains Wildfire Outbreak event.</p> <p>(2) The Community Protection Program Grant aids reducing the hazard of high-risk fuels on private lands through the use of prescribed burning. The treatment area will be within 10 miles of a National Forest boundary. The grant's goal is to protect high-risk communities and associated forest resources by reducing the risk of catastrophic wildfire on private and public lands.</p> <p>(3) The State Fire Assistance for Mitigation Central &amp; East Texas Grant provides assistance to communities that have been or may be threatened by wildfire by funding prescribed burning to reduce hazardous fuels in and around communities. Treatment areas will be private property in the 43 Counties in Central and East Texas that have a Community Wildfire Protection Plan within the county. The goal is to protect high-risk communities and aid in ecosystem restoration by utilizing prescribed fire to consume excess vegetation before it contributes to catastrophic wildfire. Priority will be given to treatments sites that are within a CWPP, located near a Firewise community, located near homes based on Texas Wildfire Risk Assessment Portal and contain ecosystems that will benefit from prescribed fire.</p> <p>(4) Neches River and Cypress Basin Watershed Restoration Program - Prescribed Fire Grant provides assistance to landowners in utilizing prescribed fire for ecological improvement to the Neches River and Cypress Basin watersheds. This program will benefit the public and natural resources through improvement of water quality and quantity, control of invasive species and enhancement</p>

# APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
				of wildlife habitat. Treatment areas will be private property in the Neches River and Cypress Basin Watersheds. Priority will be given to prescribed burn treatments that promote native ecosystem restoration, are in priority watershed protection zones and near public land.
<b>Public Assistance (PA) Section 406 Funds</b>	Federal	FEMA	TDEM	Following a disaster, funds can be used to mitigate hazards when repairing damages to a public structure or infrastructure. Wildfire mitigation is also eligible under emergency protection if life is in imminent danger.
<b>Public Health Emergency Preparedness (PHEP) Cooperative Agreement</b>	Federal	CDC	TXDSHS	Helps health departments build and strengthen their abilities to effectively respond to a range of public health threats, including infectious diseases, natural disasters, and biological, chemical, nuclear, and radiological events. Preparedness activities funded by the PHEP cooperative agreement specifically target the development of emergency-ready public health departments that are flexible and adaptable.
<b>Regional Facility Planning Grant Program</b>	State	TWDB	TWDB	TWDB grants to political subdivisions of the State of Texas for studies and analyses to evaluate and determine the most feasible alternatives to meet regional water supply and wastewater facility needs, estimate the costs associated with implementing feasible regional water supply and wastewater facility alternatives, and identify institutional arrangements to provide regional water supply and wastewater services for areas in Texas.
<b>Regional Water Planning Group Grants</b>	State	TWDB	TWDB	Developed to guide and support planning of the state's water resources by administering and assisting in the development of the regional and state water plans. The department strives to improve the planning process each cycle by developing clear guidance for the program's stakeholders and utilizing best-available data, methodologies, and technical innovations.
<b>Research and Planning Fund and Fund Development Program</b>	State	TWDB	TWDB	Offers grants to eligible applicants for the development or revision of regional water plans. The proposed planning must be a plan, an amendment to an approved regional water plan developed by the regional water planning group

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				for a regional water planning area pursuant to the Texas Water Code, §16.053 and Chapter 357, or other special studies approved by the TWDB which will enhance water planning efforts in the region. Activities eligible for funding are those related to the development, revision, or improvement of regional water plans including public meetings, hearings, and special studies.
<b>Resilient Landscapes Program</b>	Federal	USDA, USFS	TAMFS	The USFS is working with partners to restore healthy, resilient, fire-adapted ecosystems. Restoring ecosystems includes thinning crowded forests and using prescribed fire on two to three million acres each year, which can help prevent the buildup of flammable vegetation that feeds extreme wildfires.
<b>Risk MAP Program</b>	Federal	FEMA, NFIP	TWDB	Establishes or updates floodplain mapping and multi-hazard risk products.
<b>Rural Development Grants</b>	Federal	USDA-Rural Development	TWDB	Provides grants and loans for infrastructure and public safety development and enhancement in rural areas. Provides \$100,000 or 75% of the total project, whichever is less.
<b>Rural Fire Assistance Grant</b>	Federal	NIFC	TAMFS	Funds fire mitigation activities in rural communities.
<b>Rural Utilities Service (RUS)</b>	Federal	USDA-Rural Development		RUS administers programs that provide much-needed infrastructure or infrastructure improvements to rural communities. These include water and waste treatment, electric power, and telecommunications services.
<b>Rural Water Assistance Fund</b>	State	TWDB	TWDB	Designed to assist small rural utilities to obtain low-cost financing for water and wastewater projects. The RWAFF offers tax-exempt equivalent interest rate loans with long-term finance options.
<b>Safe Rest Stops Program</b>	State	TXDOT	TXDOT	Texas has 21 major highways that serve as long distance travel corridors. Along each of these roadways, rest areas are an essential safety feature to reduce accidents caused by driver fatigue. These facilities give travelers a break from driving, and then return them to the road rested, refreshed and alert.

# APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
<b>State Fire Assistance for Mitigation (SFAM) - Mechanical Fuels Grants</b>	State	TAMFS	TAMFS	Provides financial assistance to reduce the hazard of high-risk fuels on private lands using hazardous fuel reduction. The grant's goal is protected high risk communities within the 32 high risk counties in Central Texas identified by Texas A&M Forest Service Mitigation and Prevention Department. Priority will be given to landowners that live with in the 32 high risk counties, are in a county or city that has an active Community Wildfire Protection plan or live with in a Firewise USA Site.
<b>SFAM Vegetative Fuel Break Grant</b>	State	TAMFS	TAMFS	Provides financial assistance for the creation of vegetative fuel breaks on private lands in Texas. Vegetative fuel breaks are trees and shrubs systematically planted adjacent to fields, homesteads, or feedlots to reduce or redirect the wind. Projects will be in the Texas High Plains. The goal of the grant is to protect high-risk communities by reducing the risk of catastrophic wildfire on private and public lands. Grant recipients will be reimbursed up to \$2,500 for actual costs associated with creating a green, vegetative fuel break, consisting of a minimum of 3 rows of trees and 400 feet in length.
<b>Silver Jackets</b>	Federal	USACE	TWDB	Can provide funding for flood related studies, public awareness, risk analysis, and flood response plans. Construction of small flood control projects.
<b>Small Flood Control Projects (USACE Section 205)</b>	Federal	USACE	TWDB	Authorizes use of USACE to do feasibility and construction of small flood control projects.
<b>State Participation Program – Regional Water and Wastewater Facilities</b>	State	TWDB	TWDB	The State Participation Program enables the TWDB to provide funding and assume a temporary ownership interest in a regional water, wastewater, or flood control project when the local sponsors are unable to assume debt for an optimally sized facility. The program is intended to encourage the optimum regional development of projects by funding excess capacity for future use where the benefits can be documented, and where such development is unaffordable without state participation. The goal is to allow for the



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				"right sizing" of projects in consideration of future needs.
<b>State Water Implementation Fund for Texas (SWIFT)</b>	State	TWDB	TWDB	Passed by the Legislature and approved by Texas voters through a constitutional amendment, the SWIFT program helps communities develop and optimize water supplies at cost-effective rates. The program provides low-interest loans, extended repayment terms, deferral of loan repayments, and incremental repurchase terms for projects with state ownership aspects.
<b>State Water Resources Research Act Program</b>	Federal	USGS	TWDB	USGS in cooperation with the National Institutes for Water Resources supports an annual call for proposals to focus on water problems and issues that are of a regional or interstate nature or relate to a specific program priority identified by the Secretary of the Interior and the Institutes.
<b>Texas Farm and Ranch Lands Conservation Program (TFRLCP)</b>	State	TPWD	TPWD	Maintains and enhances the ecological and agricultural productivity of these lands through Agricultural Conservation Easements. The TFRLCP supports responsible stewardship and conservation of working lands, water, fish and wildlife, and agricultural production through: <ul style="list-style-type: none"> <li>Generating interest and awareness in easement programs and other options for conserving working lands.</li> <li>Leveraging available monies to fund as many high-quality projects as possible.</li> </ul> Highlighting the ecological and economic value of working lands and the opportunities to conserve working lands for the future.
<b>Texas HOME Disaster Relief</b>	Federal	TDHCA	TDHCA	The Texas HOME Disaster Relief Program is a long-term housing program designed to help eligible organizations serve income eligible households impacted by disasters. Funds are available to assist with federal or state declared disasters, or other natural or man-made disasters that may occur. The Department's practice is to maintain a HOME Disaster Relief Fund balance of \$1 million whenever possible. These funds can be accessed to support impacted households not located in communities that receive HOME funds

# APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

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				directly from the U.S. Department of Housing and Urban Development (HUD).
<b>Texas Longleaf Conservation Assistance Program</b>	Federal	National Fish and Wildlife Foundation (NFWF)	TAMFS	Provides eligible landowners with financial and technical assistance for establishing, enhancing, and managing longleaf pine. Landowners with property within ten East Texas counties which include Angelina, Hardin, Jasper, Nacogdoches, Newton, Polk, San Augustine, Sabine, San Jacinto, Trinity, and Tyler are eligible to apply. Approved participants may receive up to 50% payment not to exceed a standard cap rate for implementing approved conservation practices. Approved conservation practices include prescribed burning, reforestation, site preparation, and forest stand improvement.
<b>Texas Infrastructure Resiliency Fund (TIRF)</b>	State	TWDB	TWDB	Enacted through Senate Bill 7 to address needs identified following the flood disasters of 2015, 2016, and 2017. Senate Bill 500 appropriated \$685 million. Purpose is to provide loans, grants, and matching funds for flood projects through four separate accounts. Each account has different purposes. The oversight entity is the TIRF Advisory Board (SWIFT Advisory Committee and TDEM Director as non-voting member).
<b>Texas Water Development Fund (DFund)</b>	State	TWDB	TWDB	State funded loan program The DFund enables the Board to fund multiple eligible components in one loan to our borrowers, e.g., an application for funding of water and wastewater components can be processed in a single loan. Provide financial assistance for water supply projects, wastewater projects, and flood control projects (including structural and nonstructural flood protection improvements).
<b>Transportation Enhancement Program</b>	Federal	FHWA	TXDOT	Provides opportunities for non-traditional transportation related activities. Projects should go above and beyond standard transportation activities and be integrated into the surrounding environment in a sensitive and creative manner that contributes to the livelihood of the communities, promotes the quality of our environment, and enhances the aesthetics of our roadways. Projects undertaken with enhancement funds are eligible for

## APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
				reimbursement of up to 80 percent of allowable costs.
United States Geological Survey (USGS)	Federal	USGS		USGS issues competitive grants and cooperative agreements to support research in earthquake hazards, the physics of earthquakes, earthquake occurrence, and earthquake safety policy.
Urban Tree Canopy Project (UTC)	Federal	USDA, USFS	TAMFS	Urban tree canopy (UTC) is the layer of leaves, branches, and stems of trees that cover the ground when viewed from above. In urban areas, the UTC provides an important stormwater management function by intercepting rainfall that would otherwise run off of paved surfaces and be transported into local waters through the storm drainage system, picking up various pollutants along the way. UTC also reduces the urban heat island effect, reduces heating/cooling costs, lowers air temperatures, reduces air pollution, increases property values, provides wildlife habitat, and provides aesthetic and community benefits such as improved quality of life.
U.S.-Mexico Border Water Infrastructure Program	Federal	EPA	TCEQ	Provides grant assistance to U.S. and Mexican communities located within 60 miles of the border for the development and construction of high-priority drinking water and wastewater facilities. The program furthers EPA's mission of protecting human health and the environment by providing critical resources for what is often an area's first drinking water and basic sanitation services.
Water Research Grant Program	State	TWDB	TWDB	TWDB funds a variety of water planning and water research studies and projects intended to assist and support regional water planning efforts or to answer regional water planning questions.
Water Conservation Field Services Program	Federal	HUD	Texas A&M AgriLife	Provides several grants related to safe housing initiatives.
Water2025 Challenge Grant Program for Western States	Federal	Bureau of Reclamation	TWDB	Up to \$25,000 for projects that improve water use efficiency and improve water management practices.

## APPENDIX G: STATE AND FEDERAL FUNDING OPPORTUNITIES

Item 8.

NAME	LEVEL	SOURCE AGENCY	MANAGING STATE AGENCY	PURPOSE OF FUNDING
<b>Watershed Processes and Water Resources</b>	Federal	Bureau of Reclamation	TWDB	Up to \$250,000 for projects that can be completed within 24 months and that reduce conflicts through water conservation, efficiency, and markets.
<b>Watershed Processes and Water Resources – National Research Initiative Standard Research (Part T)</b>	Federal	USDA	TWDB	\$100,000 available. Sponsors research that addresses two areas: (1) understanding fundamental watershed processes; and (2) developing appropriate technology and management practices for improving the effective use of water (consumptive and non-consumptive) and protecting or improving water quality for agriculture and forestry production.
<b>WaterSMART – Drought Response Program</b>	Federal	USDA	TWDB	\$500,000 available. Innovative research in understanding fundamental processes that affect the quality and quantity of water resources at diverse spatial and temporal scales, ways on improving water resource management in agriculture, forested, and rangeland watersheds, and developing appropriate technology to reach those goals.
<b>Wildlife Habitat Incentive Program (WHIP)</b>	Federal	USDA, NRCS	TPWD	Voluntary program for conservation-minded landowners who want to develop and improve wildlife habitat on agricultural land, nonindustrial private forest land, and tribal land.



## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Scott Dunlop, Director  
**DEPARTMENT:** Development Services

### AGENDA ITEM DESCRIPTION:

Discussion, consideration, and possible action on an appointment to the Planning and Zoning Commission, Alternate No. 1 position expiring in January 2025.

### BACKGROUND/SUMMARY:

Ordinance 723 was approved by the City Council on October 18, 2023. The Ordinance provided the City Council the ability to appoint 2 alternate positions to the Planning and Zoning Commission to fill in if a regular member is vacant. This was to help reduce or eliminate no quorum meetings of the P&Z.

**LEGAL REVIEW:** Not Applicable  
**FISCAL IMPACT:** No  
**PRESENTATION:** No  
**ATTACHMENTS:** No

### STAFF RECOMMENDATION:

The City Staff recommends that the City Council appoint to the Planning and Zoning Commission, Alternate No. 1 position expiring in January 2025.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**



## AGENDA ITEM SUMMARY FORM

**PROPOSED MEETING DATE:** November 15, 2023  
**PREPARED BY:** Scott Dunlop, Director  
**DEPARTMENT:** Development Services

### AGENDA ITEM DESCRIPTION:

Discussion, consideration, and possible action on an appointment to the Planning and Zoning Commission, Alternate No. 2 position expiring in January 2026.

### BACKGROUND/SUMMARY:

Ordinance 723 was approved by the City Council on October 18, 2023. That Ordinance provided the City Council the ability to appoint 2 alternate positions to the Planning and Zoning Commission to fill in if a regular member is vacant. This was to help reduce or eliminate no quorum meetings of the P&Z.

**LEGAL REVIEW:** Not Applicable  
**FISCAL IMPACT:** No  
**PRESENTATION:** No  
**ATTACHMENTS:** No

### STAFF RECOMMENDATION:

The City Staff recommends that the City Council appoint to the Planning and Zoning Commission, Alternate No. 2 position expiring in January 2026.

**PLANNING & ZONING COMMISSION:**      **Recommend Approval**      **Disapproval**      **None**