

WILLIAMSON COUNTY INTERJURISDICTIONAL COMMUNITY WILDFIRE PROTECT PLAN



Williamson County Interjurisdictional Community Wildfire Plan Protection

PREPARED FOR

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TABLE OF CONTENTS

Executive Summary	vi
1. Introduction	1-1
1.1 Authorization	1-1
1.1.1 National	1-1
1.1.2 Local	1-1
1.2 CWPP Planning Process	1-1
1.2.1 Plan Purpose	1-1
1.2.2 Plan Maps	1-2
1.3 Plan Vision	1-3
1.4 Plan Goals	1-3
1.5 The Plan	1-4
1.6 The Process	1-5
2. Community Wildfire Protection Plan Standards	2-1
2.1 Community and Agency Engagement in the Development of this Community Wildfire Protection Plan	2-1
3. Community Wildfire Risk	3-1
3.1 Communities at Risk	3-1
4. Historical Background	4-1
4.1 Williamson County Hazard Mitigation Plan – Wildfire Planning Process Summary	4-1
4.2 Historical Context for Wildfire Protection	4-4
5. Community Characteristics and Demographics	5-1
5.1 Location and Geography	5-1
5.1.1 Geography	5-1
5.1.2 Location	5-2
5.1.3 Land type and open space	5-2
5.2 Climate	5-2
5.3 Williamson County Wildfire History	5-4
5.3.1 Past Events	5-4
5.4 Location	5-8
5.5 Environment	5-8
5.6 Vegetation and Land Coverage	5-9
5.6.1 Surface Fuels	5-10
5.6.2 Vegetation	5-12
5.7 Land Use Planning	5-15
5.7.1 Land Use	5-15
5.7.2 Building Permit Growth	5-15
5.7.3 Urban Encroachment	5-16
5.7.4 General Plans	5-16
5.8 Population	5-17
5.8.1 Growth	5-17
5.8.2 Age Distribution	5-18

5.8.3 Disabled Populations	5-19
5.8.4 Ethnic Populations	5-19
5.9 Forest Management	5-20
5.10 Infrastructure.....	5-21
5.10.1 Critical Facilities	5-21
5.11 County Land Use and Development Trends AND issues	5-23
5.11.1 Trends.....	5-23
5.11.2 Issues	5-23
6. Fire Protection Infrastructure.....	6-1
6.1 Fire Protection Districts	6-1
7. Community Protection Assessment	7-1
7.1 Introduction.....	7-1
7.2 Characteristic Flame Length.....	7-1
7.3 Risk Of Wildfire Threat.....	7-4
7.4 Wildfire Occurrence Statistics	7-6
7.5 Wildfire Ignition Density.....	7-6
7.6 Areas of High Wildfire Threat.....	7-7
8. Community Wildfire Public Involvement and Survey	8-1
8.1 Public Involvement	8-1
8.1.1 Stakeholders and the Steering Committee	8-1
8.1.2 Survey/Questionnaire	8-1
9. Wildfire Preparedness Strategies	9-1
9.1 Wildfire Objectives	9-1
10. Implementation	10-1
10.1 Accomplishments	10-1
10.2 Chipping Program Results	10-4
10.3 Wildfire Implementation to Date	10-5
10.1 Wildfire Projects Funded to Date	10-8
10.2 Other Prioritized Wildfire Projects	10-8
Appendices	1
Glossary of Terms	1

Tables

Table 4-1. Williamson County Hazard Mitigation Plan’s Countywide Mitigation Actions Related to Wildfire ...	4-2
Table 4-2. Mitigation Actions Related to Wildfire for the Cities of Cedar Park, Florence, and Hutto	4-3
Table 5-1. Location and Geography of Williamson County	5-1
Table 5-2. Williamson County Temperature Summaries from 1929 to 2001	5-2

Table 5-3. Federal Disaster Declarations in Williamson County	5-5
Table 5-4. Federally Reported Wildfires Greater than 50 Acres from 1980 to 2014 in Williamson County and Participating Communities	5-5
Table 5-5. Williamson County Present Land Use	5-9
Table 5-6. Types of Surface Fuels in Williamson County	5-10
Table 5-7. Williamson County Vegetation	5-12
Table 5-8. Recent Population Data	5-18
Table 5-9. Critical Facilities and Infrastructure by Wildfire Class in Williamson County	5-23
Table 6-1. Williamson County Fire Departments and Districts	6-1
Table 7-1. Characteristic Flame Length (in acres) in Williamson County	7-2
Table 7-2. Wildfire Threat by Burn Classification in Williamson County	7-4
Table 8-1. Survey Question Regarding Agency Roles	8-2

Figures

Figure 3-1 Williamson County Wildland Urban Interface	3-3
Figure 3-2. Williamson County Wildland Urban Interface	3-4
Figure 5-1. Location of the Williamson County Planning Area within the State of Texas	5-2
Figure 5-2. Monthly Temperature Data (1929-2001)	5-3
Figure 5-3. Average Monthly Precipitation (1929-2001)	5-4
Figure 5-4. Historic Wildfires By Location And Acreage	5-7
Figure 5-5. Surface Fuels Map for Williamson County	5-11
Figure 5-6. Vegetation Map for Williamson County	5-14
Figure 5-7. Residential Building Permits in Williamson County from 1980 to 2016	5-16
Figure 5-8. Williamson County Age Distribution	5-19
Figure 5-9. Williamson County Ethnic Distribution	5-20
Figure 5-10. Critical Infrastructure within Williamson County	5-22
Figure 6-1. Williamson County Emergency Service Districts	6-7
Figure 7-1. Characteristic Flame Length (in acres) in Williamson County	7-3
Figure 7-2. Wildfire Threat	7-5
Figure 7-3. Wildfire Acres Burned in Williamson County and the State of Texas (2005–2016)	7-6
Figure 7-4. Statewide Wildfire Occurrence from 2005 to 2009	7-7

Annexes

Appendix A.
Appendix B.

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Williamson County

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Consultants

- Laura Johnston, Tetra Tech, Inc., Project Manager

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Signature Pages

EXECUTIVE SUMMARY

COMMUNITY WILDFIRE OVERVIEW

Williamson County's population has more than tripled in the last several decades, with a corresponding increase in new development occurring in forested areas that have a high risk of wildfire. The community has a vested interest in minimizing the hazard of wildfire in these areas. The community, through various forums, has expressed a desire to maintain forests with the purpose of reducing the hazard of wildfire, but are also diverse and healthy.

Given that resources to address this concern are limited, officials from Williamson County, local fire protection districts, state and federal forest agencies, cities, towns and others have joined forces to develop the Williamson County communities' first wildfire protection plan.

Early in the development of this first plan, participating entities agreed that it should be generally consistent with the Texas A&M/Forest Service Wildland Urban Interface Program, Mitigation and Prevention Department, Community Wildfire Protection Plan Guide (November 2012) as well as the national model for community wildfire protection planning, as set forth by the National Association of Counties. This national model for wildfire protection planning is an extension of the Healthy Forest Restoration Act authorized by the U.S. Congress in 2003.

This Williamson County Interjurisdictional Community Wildfire Protection Plan (CWPP) was developed in tandem with the Williamson County CWPP Core Team and the CWPP Stakeholder Committee established in early 2017. The Williamson County CWPP sets forth goals and objectives; actions and policies designed to reduce the risk and impact of wildfire in the County. Additionally, annexes for each of the participating fire protection districts are included with this plan. The goal is for the CWPP Core Committee, together with the fire district staff, to provide an annual review and refine the CWPP to meet the community's changing needs concerning wildfire protection. This plan envisions cooperation between various agencies, including the close collaboration between the County, local fire protection districts, the Texas A&M Forest Service (TFS), and the cities and towns.

1. INTRODUCTION

1.1 AUTHORIZATION

1.1.1 National

On August 22, 2002, President Bush established the Healthy Forests Initiative, directing the Departments of Agriculture and the Interior, and the Council on Environmental Quality, to improve regulatory processes to ensure more timely decisions, greater efficiency, and better results in reducing the risk of catastrophic wildland fires.

Destructive wildland fires in 2002 were a catalyst for the U.S. Congress to pass the Healthy Forests Restoration Act (HFRA) in 2003. The intent of the HFRA was to provide funding and guidance for better forest management practices throughout wildland areas and the wildland urban interface (WUI). One of the key outcomes of the HFRA was to incentivize communities to create a community wildfire protection plan (CWPP). An approved CWPP can influence and prioritize future funding for hazardous fuel reduction projects, including where and how federal agencies implement fuel reduction projects on federal lands. Over the past 2 years, administrative procedures and processes governing preparation of projects to reduce hazardous fuel and restore healthy ecological conditions on federal land have undergone many changes. These changes have resulted from the Healthy Forests Initiative (HFI), launched in 2002 to reduce administrative process delays implementing such projects, and from the HFRA, passed in December 2003. The HFRA provides improved statutory processes for hazardous-fuel reduction projects on certain types of at-risk National Forest System (NFS) and Bureau of Land Management (BLM) lands. The HFRA also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands under all ownerships.

1.1.2 Local

Wildfires in Texas are both a rural and urban issue. Since 1996, the State has seen significant fire seasons in seven out of the past ten years. In 2005 and 2006, more than 2.2 million acres have burned as a result of more than 29,000 fires. Of those fires, 85% were less than two miles from a community. In this same time period, \$556 million in property has been lost.

To adequately protect the State, Texas needs to resolve the increasing statewide deficiency in firefighting resources—the State is in critical need of additional firefighters, fire coordinators, prevention and mitigation specialists, and heavy firefighting equipment.

The Texas Wildfire Protection Plan (TWPP) was funded in 1999 by the Texas Legislature as a pilot project at \$4 million per year. However, per the State's TWPP, the funding for this highly successful pilot has been eroding since its inception. Currently, the original \$4 million budget has been reduced nearly in half. By making a moderate investment in the TWPP—up front instead of after acres start burning—to prevent fires and mitigate the factors which cause wildfires, the lives and properties of Texans will be protected and saved from catastrophic loss.

1.2 CWPP PLANNING PROCESS

1.2.1 Plan Purpose

Williamson County has a documented history of droughts, flash floods, and wildfires. The threat of wildfire increases following flooding or periods sustained rainfall, which increases the growth of grasses and other

vegetation, followed by extended periods of drought. Future wildfires in the County are inevitable. This document, Williamson County's CWPP, is to help prepare for the inevitable.

Past wildfires—most notably the Horseshoe and Moonglow Fires in August and September of 2011—have dramatically changed the lives of hundreds of residents and fundamentally altered the fabric of numerous communities in the region. People are now more aware than ever of the risks associated with wildfire.

This is Williamson County's plan for turning increased awareness about wildfires into sustained action. The purpose of this plan is to identify areas where the hazard and potential community impact of wildfire is greatest and to guide and coordinate community efforts to reduce the risk of wildfire through public education, reduction of hazardous fuels, and reduction of structural ignitability. The key objectives of this plan include:

- To reduce the number (prevention) and severity (mitigation) of future wildfires in Williamson County
- To save hundreds of millions of dollars in property losses, environmental damages, firefighting costs, restoration expenses, infrastructure costs, and other financial impacts associated with catastrophic wildfire
- To save thousands of residents the pain and suffering associated with losing their home; their possessions; their loved ones; and their sense of place, security, and community
- To help restore Williamson County forests to good health
- To effectively and efficiently support the development of strong local Community Wildfire Protection Plan Annexes of individual fire protection districts
- To unite all communities of Williamson County in a collaborative effort to reduce the negative impacts of wildfire

1.2.2 Plan Maps

Wildfire maps included in this plan and the plan annexes were generated using www.texaswildfirerisk.com, report version: 4.0 developed by Texas Wildfire Risk Assessment project / Texas A&M Forest Service. Reports were generated for Williamson County as well as for each of the individual fire districts presented in the annex portion of this plan.

The Texas Wildfire Risk Assessment Portal (TxWRAP) provides a consistent, comparable set of scientific results to be used as a foundation for wildfire mitigation planning in Texas. Results of the assessment can be used to help prioritize areas in the state where tactical analyses, community interaction and education, or mitigation treatments might be necessary to reduce risk from wildfires. The TxWRAP products included in this report are designed to provide the information needed to support the following key priorities:

Identify areas that are most prone to wildfire

- Identify areas that may require additional tactical planning, specifically related to mitigation projects and Community Wildfire Protection Planning
- Provide the information necessary to justify resource, budget and funding requests

- Allow agencies to work together to better define priorities and improve emergency response, particularly across jurisdictional boundaries
- Increase communication with local residents and the public to address community priorities and needs
- Plan for response and suppression resource needs
- Plan and prioritize hazardous fuel treatment programs

The maps included in this plan were developed by Texas A&M Forest Service (using the Texas Wildfire Risk Assessment Portal (TxWRAP) and the Williamson County GIS Department

TXWRAP Product	Description
Wildland Urban Interface	Depicts where humans and their structures meet or intermix with wildland fuel
Wildfire Threat	Likelihood of a wildfire occurring or burning into an area
Characteristic Flame Length	Represents the distance between the tip and base of the flame
Surface Fuels	Contains the parameters needed to compute surface fire behavior characteristics
Vegetation	General vegetation and landcover types

It should be noted that risk assessments are a systematic process for identifying and assessing the range of elements that could lead to undesirable outcomes for a specific situation. TxWRAP, the Texas Wildfire Risk Assessment Portal, is an online public tool available at www.TexasWildfireRisk.com. Results of the online assessment can be used to help prioritize areas in the state where community interaction and education, or mitigation treatments might be necessary to reduce risk from wildfires. Since, data used to create maps in Texas Wildfire Risk Assessment Portal is prior to 2015, and due to the rapid growth in Williamson County over the last few years, the TxWRAP maps should be used as general guidance, and not be taken as exact conditions. Field assessments completed by the local fire departments verify information and should be used to direct any actions taken.

1.3 PLAN VISION

By actively implementing this plan, residents, communities, and organizations in Williamson County will protect citizens and first responders while significantly and increasing and improving wildfire mitigation and preparedness efforts in advance of wildfires to accurately reflect the high risk and enormous costs associated with wildfire in the county.

1.4 PLAN GOALS

This CWPP is an expansion of the Wildfire Chapter and actions documented in the recently adopted 2016 Williamson County Hazard Mitigation Plan. The main goals of the HFRA are to enhance life-safety for residents and responders and to mitigate undesirable fire outcomes to property, infrastructure, the environment and quality of life. This CWPP addresses these goals and guides the Williamson County community in implementation.

The goals of this plan are to:

1. Provide for the safety of residents and emergency personnel
2. Limit the number of homes destroyed by wildfire
3. Promote and maintain healthy ecosystems
4. Educate citizens about wildfire prevention

The objectives of this plan are to:

1. Complete wildfire risk assessments
2. Identify strategic fuels reduction projects
3. Address treatment of structural ignitability
4. Identify local capacity building and training needs
5. Promote wildfire awareness programs

1.5 THE PLAN

The Plan is intended to:

- Contains key ideas and useful information for a variety of audiences
- Provides an action plan for the Williamson County emergency management community
- Complements the existing local Williamson County Hazard Mitigation Plans
- Meets all HFRA and Texas A&M Forest Service (TFS) requirements

The Plan is not intended to:

- A regulatory document
- A scientific report
- A comprehensive report of all wildfire-related issues
- A fire management plan

1.6 THE PROCESS

Teams and Work Groups

The development of this plan is a product of the Williamson County Wildfire Core and Stakeholder Groups. The list of members for the Wildfire Core Group can be found below. Some Core Group members also participated in the Stakeholder Group.

Core Team

This plan is the product of a collaborative effort represented first and foremost by its Core Group. As required, this plan's Core Group includes representatives from local government, a local fire authority, and the TFS. In addition, a representative from the U.S. Forest Service participated. Individuals serving on the Core Group included:

Williamson County Interjurisdictional CWPP Core Committee Members	
Committee Member	Agency
Chad Berg	EMC, Georgetown
Jim Clarno	Lower Brushy Creek WCID
Dan Dodson	Sun City Texas Firewise Group
Ruth Haberman	Upper Brushy Creek WCID
Kari Hines	Texas A&M Forest Service
Scott Kerwood	Hutto Fire Rescue
Frank Martin	Wilco GIS
Dorothy Miller	EMC, Round Rock
Paul Ohlenbusch	Sun City Texas Firewise Group
George Strebel	Wilco GIS
Jarred Thomas	WilCo OEM
David Zwernemann	WilCo Engineering
John Cummings	EMC, Cedar Park

Stakeholder Group

While the Stakeholder Group meetings were open to the public, regular participants are included below. Sign-in sheets for all meetings can be found in Appendix A of this plan.

Williamson County Interjurisdictional CWPP			
Stakeholder Committee Members			
Committee Member	Agency	Committee Member	Agency
Jared Allen	NOAA, National Weather Service	Chris Likon	Public Safety GIS Analyst
David Arctur, PhD	University of Texas @ Austin	Anthony Lincoln	Liberty Hill Fire Liberty Hill Fire Department / Williamson County ESD No. 4
Bobby Belcher	Jarrell Fire Chief	Cynthia Long	Wilco PCT 2 Commissioner
Randy Bell	Wilco Parks Director	James Mallinger	Cedar Park Fire Chief
Chad Berg	EMC, Georgetown	Frank Martin	Wilco GIS
Gary Boyd	Wilco Environmental Program Director	Mark McAdams	ESD5
John Bright	EMC, Cedar Park	Justin McInnis	Assistant EM Coordinator, Hays County
Robert Chody	Williamson County Sheriff	Dorothy Miller	EMC, Round Rock
Blake Clampffer	Travis County Office of Emergency Management	M Moellenberg	Travis County Office of Emergency Management
Charles Dittman	RRFD	Ryan Moeller	WilCo and Cities Health District
John Dittman	RRFD	Paul Ohlenhusch	Sun City Texas Firewise Group
Dan Dodson	Sun City Texas Firewise Group	Scott Parker	Director, Wilco Emergency Communications
Jack Doeblbler	District Coordingator, Texas Division of Emergency Management	Daniel Pearson	USGS
Pat Ekiss	Taylor Fire Chief	Matt Porcher	City of Austin
Craig Engelmann	USDA County Executive Director	Warren Samuelson	Texas Commission on Environmental Quality
Terron Evertson	Wilco Road and Bridge	Cheryl Schneider	Wilco Animal Services Director
Bill Gardner	Leander Fire Chief	Carl Schwope	U. S. Fish and Wildlife
Dan Gattis	Williamson County Judge	Robert (Bobby) Shelton	Florence Volunteer Fire Department
Nick Hampshire	Coupland Volunteer Fire Department	John Sneed	Wilco Emergency Services Senior Director

Williamson County Interjurisdictional CWPP
Stakeholder Committee Members

Committee Member	Agency	Committee Member	Agency
Marty Herrin	Williamson County Hazmat	George Stebel	Wilco GIS Manager
Kari Hines	Texas A&M Forest Service	Adam Story	Cedar Park Fire Chief
Billy Highes	Taylor Volunteer Fire Dept.	John Sullivan	Georgetown
Robert Isbell	Fire Chief, Round Rock	Russell Summers	RM/LISD
Justice Jones	Austin Fire Dept.	Cooper Terrill	Texas A & M
Kim Jones	Round Rock GIS	Roger Thompson	Fire Chief, City of Jarrell
Melanie Karns	Texas A&M Forest Service	Jarred Thomas	Wilco Office of Emergency Management
Scott Kerwood	Hutto Fire Rescue	Steve Vaughn	Brazos River Authority
David Kieschnick	Sam Bass Volunteer Fire Department	Steven Vrable	Sam Bass VFD
J Kiracofe	Jollyville Fire Department Chief	Connie Watson	Wilco Public Information Officer
Eric Kruegar	U.S. Fish and Wildlife	Michael Wofford	Wilco Hazmat
N Lang	Texas A&M	B. Woods	Texas A&M
Larry Madsen	Wilco Pct. 4 Commissioner		Williamson County

Notes:

EM	Emergency Management
EMC	Emergency Management Coordinator
ESD	Emergency Services District
GIS	Geographic Information System
NOAA	National Oceanic and Atmospheric Administration
LISD	Leader Independent School District
RRFD	Round Rock Fire Department
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
Wilco	Williamson County

2. COMMUNITY WILDFIRE PROTECTION PLAN STANDARDS

2.1 COMMUNITY AND AGENCY ENGAGEMENT IN THE DEVELOPMENT OF THIS COMMUNITY WILDFIRE PROTECTION PLAN

CWPPs must meet three basic criteria, per both the National Strategy and the Texas A&M Forest Service:

1. **Collaboration:** A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.

The CWPP development process requires that an entity establish a CWPP working group and hold regular meetings, tracking their progress along the way. At the first meeting, core members should discuss the need and process for developing a CWPP. Identify individuals who will conduct community wildfire hazard assessments, develop community maps, collect data and record CWPP meeting notes.

2. **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.
3. **Treatment of Structural Ignitability:** A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

The area covered by a CWPP usually includes communities or parts of communities. This CWPP is developed at the Williamson County level with annexes for each of the fire protection districts in the County. Therefore, this plan addresses these requirements with a greater number of participants than some previous community plans. As a result, information included in this plan will be accessible to other communities in the County as they prepare their CWPPs. This Williamson County Interjurisdictional CWPP provides a higher overview of wildfire issues, concerns, and risk reduction solutions throughout the County. The expectation of the leadership of this plan is a set of common countywide strategic goals accompanied with specific target projects at the community level to achieve those goals.

Information from the Williamson County Interjurisdictional CWPP is intended to be a resource to support Williamson County, its cities and fire protection districts in the development of their own general plans and local hazard mitigation plans. Land use planning that incorporates provisions for fire-resilient design in WUI areas has been shown to dramatically improve public safety and reduce fire losses.

The value of CWPPs is in the collaboratively developed information and recommendations that can identify and guide activities that mitigate wildfire risk and hazard. CWPPs alone provide no authority to enforce findings and conclusions. The Williamson County Interjurisdictional CWPP can be used by government entities as a reference to guide land use planning and promulgate codes and ordinances in response to its recommendations.

3. COMMUNITY WILDFIRE RISK

3.1 COMMUNITIES AT RISK

Fire danger consists of the various factors of fuels, weather, topography and risk combined to assess the daily fire potential on an area. The most commonly accepted definition of fire danger, per the Texas A&M Forest Service, is “the resultant descriptor of the combination of both constant and variable factors which affect the initiation, spread and difficulty of control of wildfires on an area”.

Texas Wildfire Risk Assessment Portal, or TxWRAP, is the primary mechanism for the TFS to deploy risk information and create awareness about wildfire issues across the state. TxWRAP is comprised of a suite of web tools tailored to support specific workflow and information requirements for the public, local community groups, government officials, professional hazard mitigation planners, and wildland fire managers. Collectively these tools provide the baseline information needed to support mitigation and prevention efforts across the state.

Wildland Urban Interface Fire Hazard and Environment

On the national level, following the establishment of the National Fire Plan via Executive Order developed in August of 2000 in response to the 2000 national wildfire season, areas throughout the U.S. were identified to be at high risk from wildfire. Subsequently, these locations were targeted for hazardous fuel reduction projects designed to reduce this risk. Communities across the nation that are considered to have a WUI have been identified and this list is published in the *Federal Register*.

Loss of structures due to wildland fires has been attributed to many factors, one of which is the proximity of hazardous fuels to homes and communities. During periods of hot, dry weather, the buildup of vegetation that has occurred on some federal, state, and private lands in the vicinity of communities poses a potentially high risk of damage to homes and other structures, disruption to the local economy, or loss of life.

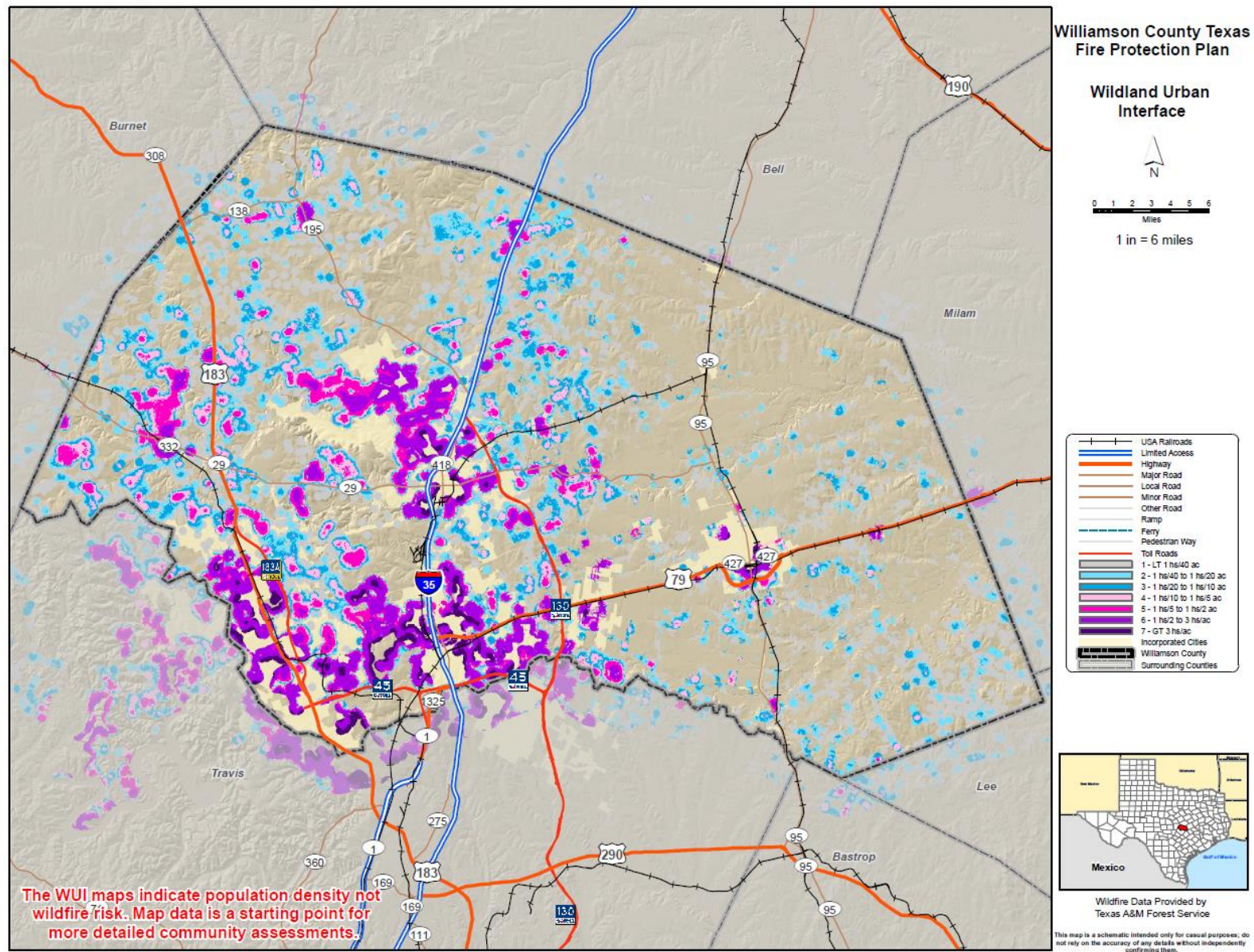
Other factors—including weather conditions and patterns, and the hazardous fuels conditions in the immediate vicinity of homes, businesses, and other structures—play important roles in the spread of wildland fire. Reducing hazardous fuel near communities may reduce, but not eliminate, wildlife risks to these communities. Some risk is inherent to communities that exist in fire-dependent ecosystems. Private landowners may help reduce this risk by creating defensible space around their homes and businesses, and by using fire-resistant materials in building those structures. Without such precautionary measures, fuel reduction on federal land in the vicinity may be ineffective in significantly reducing community risk.

Per the TFS, “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% of wildfires occur within two miles of a community.” 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 WUI.

The TFS WUI dataset is derived using advanced modeling techniques based on the Where People Live dataset and LandScan USA population count data available from the Department of Homeland Security, Homeland Security Infrastructure Program Freedom dataset. WUI is simply a subset of the Where People Live dataset. The primary difference is populated areas surrounded by sufficient non-burnable areas (i.e., interior urban areas) are removed from the Where People Live dataset, as these areas are not expected to be directly impacted by a wildfire.

The Williamson County Wildland Urban Interface is provided in Figure 3-1 and indicates population density (not wildfire risk) in the Wildland Urban Interface (WUI). The Wildland Urban Interface is defined by Texas A&M FS as the area where developed areas intermingle with undeveloped areas. It is the area adjacent to property where actions can be taken to prevent damage or loss from wildfire. Texas A&M FS reports that there are over 14,500 communities at risk of wildfire in Texas. Training community leaders to work with local residents to develop and implement local wildfire preparedness programs is the best strategy for reaching as many people as possible. Wildland urban interface, or WUI, specialists are well-trained professionals that provide a wide range of services to the public, as well as community leaders with cities, counties and other agencies.

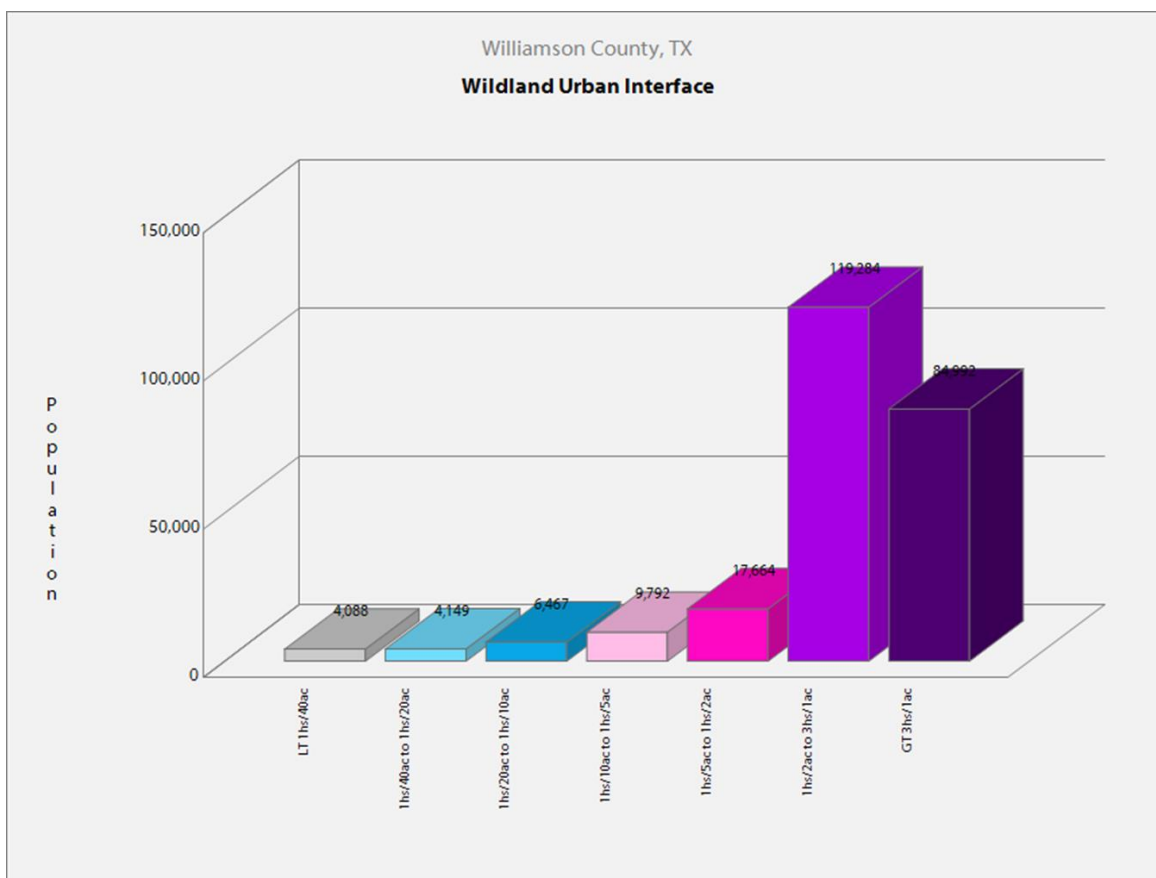
Figure 3-1 Williamson County Wildland Urban Interface



Based on the Texas A&M Forest Service Risk Assessment Tool for the Williamson County, TX project area, estimate that 246,436 people or 60% of the total project area population of 410,345 live within the WUI. Proportionately adjusting that rate for the current population of 508,514 concludes that more than 305,000 Williamson County residents currently live within the WUI area.

As the percent of population continues to increase within the WUI in Williamson County the loss of structures due to wildland fires could increase. Efforts should be considered to mitigate this potential increase of conflict points in individual communities as well as unincorporated areas of the County.

Figure 3-2. Williamson County Wildland Urban Interface



The TFS 2011 Wildfires Report indicated that wildfire activity in Texas has increased during the past two decades, requiring the extended mobilization of fire suppression resources. According to TFS experts, the State can expect this trend to continue for years to come. Population growth and development place more Texans at risk every year as cities and towns expand into previously rural areas.

As changes occur in weather cycles, population and land use, Texas wildfires have become larger and more difficult to contain. Significant Texas wildfire seasons occurred in the years noted in the history of wildfire events and disaster declarations following and in Table 3-1.

With 60% of the population of Williamson County estimated to be living in the WUI area, the development of a CWPP is critical. This CWPP includes practical, realistic and implementable wildfire mitigation actions minimizing the potential risk and impacts to residents, businesses and infrastructure in Williamson County.

4. HISTORICAL BACKGROUND

Add intro explaining the predecessor plans?? Including the HMP? And that this outcomes are incorporated into this plan?

4.1 WILLIAMSON COUNTY HAZARD MITIGATION PLAN – WILDFIRE PLANNING PROCESS SUMMARY

The Williamson County Hazard Mitigation Plan received final approval from the Federal Emergency Management Agency (FEMA) on February 9, 2017. A planning team was assembled to provide technical support for the plan update, consisting of Texas Colorado River Floodplain Coalition representatives, key county and city staff, and a team of technical consultants. The first step in developing the plan update was to re-establish a planning partnership. Planning partners participating in the update were the Cities of Cedar Park, Florence, and Hutto. Both a Core Committee and a Steering Committee were assembled to oversee the plan update, consisting of planning partner staff and community representatives from the planning area. Coordination with other county, state, and federal agencies involved in hazard mitigation occurred throughout the plan update process.

Mitigation actions designed to reduce the potential impacts from natural hazards including wildfires were presented in this plan. Mitigation actions are activities designed to reduce or eliminate losses resulting from natural hazards. The update process resulted in the identification of 40 mitigation actions targeted for implementation by individual planning partners. The Steering Committee ranked the mitigation actions in order of priority, with 1 being the highest priority. Table 4-1 on the following page lists the countywide proposed mitigation actions which were included in the hazard mitigation plan that address wildfire education, mapping and other potential impacts of wildfires.

Of special note in the hazard migration plan, is Mitigation Action #11 entitled: Community Wildfire Protection Plan. Williamson County representatives proposed that County personnel collaborate with public safety professional, building associations, homeowner's associations, the TFS, and public information professionals to develop a comprehensive CWPP to include public education, fuels reduction, residential mitigation, and response recommendations. The County prioritized this action as their number two prioritized action. This plan is the implementation of that priority.

Table 4-1. Williamson County Hazard Mitigation Plan's Countywide Mitigation Actions Related to Wildfire

Action No.	Title	Description	Mitigation Action Ranking
Williamson County			
13	All-hazards mapping	Collaborate with public safety professionals, GIS, hazard-specific subject matter experts, private partners, and CIKR owner/operators to obtain data and create a comprehensive all-hazards mapping solution. Additional GIS tools may be required to facilitate use of the data.	1
11	Community Wildfire Protection Plan	Collaborate with public safety professional, building associations, homeowner's associations, forest service, and public information professionals to develop a comprehensive CWPP to include public education, fuels reduction, residential mitigation, and response recommendations.	2
6	Critical infrastructure THIRA	As a part of the County COOP planning process audit and map each facility relating to the potential risk to natural hazards. Develop a prioritization list and strategies for mitigating potential risks and hazards.	7
8	Comprehensive evacuation planning	Collaborate with public safety professional, traffic engineers, public information professionals and homeowner's associations to develop comprehensive plans and messaging. Develop area-specific plans based upon local THIRA.	8
9	Develop and establish a comprehensive volunteer program	Establish and train a core group of CERT instructors. Develop and implement a comprehensive CERT program to include training, continuing education, exercise program, and activation procedures.	9
4	Wildfire fuels reduction	Perform a THIRA on each property and develop a priority list of properties requiring mitigation actions. Following WHP assessments perform the fuels reduction and create shaded fuel breaks. Upon completion, prescribed burning should take place where appropriate to lower fuel loads.	11
12	Install "Burn Ban" or "Fire Danger" signs along major county roadways	Appropriate signage would be placed strategically through Williamson County, primarily in the rural areas, by County Road and Bridge personnel. During burn bans, the signs could be positioned by local fire departments and/or road and bridge personnel.	12
1	Purchase NOAA All Hazard Radios	Purchase radios and disperse to residents to use for hazard events in the area.	13
2	Educate homeowners on hazards	Educate homeowners on how to mitigation their homes from these hazards on county website and public forums.	14

Wildfire mitigation actions were also developed for the three participating communities: the Cities of Cedar Park, Florence, and Hutto. They were also ranked by the individual communities. They are listed in Table 4-2.

Table 4-2. Mitigation Actions Related to Wildfire for the Cities of Cedar Park, Florence, and Hutto

Action No.	Title	Description	Mitigation Action Ranking
City of Cedar Park			
7	Education to homeowners on all hazards	Obtain printed detailed instruction checklist and other education brochures for homeowners to mitigate their homes from all hazards. Distribute through information booths at all public events. Social media outreach as well as an informative webpage with links to severe weather-related agencies.	1
8	Mobile Command Center/Emergency Operations Center	Receive funding approval by City Leadership and or apply for funding through a grant process.	2
6	Wildfire Mitigation Plan	Create an independent Wildfire Mitigation Plan for the City. This plan will identify all the wildfire interface areas and high fuel areas in the City.	5
2	Adopt and enforce updated building codes to reduce damages	Adopt 2015 IBC. Stricter building codes goes to mitigate identified hazards, such as tornado, high wind, and impact resistant materials (windows, doors, roof bracings); dry-proofing public buildings for flooding; upgrading to higher standard insulation for extreme heat and winter storms; installing lighting rods and grounding systems on public buildings; retrofitting to low-flow plumbing and replacing landscaping with drought and fire resistant plants; stricter codes for hail and fire resistant roofing and siding; implementing higher standards for foundations, and upgrading requirements for construction beams, brackets and foundations to mitigation impacts of earthquake and expansive soils.	6
3	Wildfire training	Continued training of Cedar Park firefighters in wildlife response is required.	7
City of Florence			
2	Upgrade alert system	Upgrade alert systems and disseminate information on warnings.	2
1	Public information and education	Public awareness education through outreach programs for homeowners to mitigate their homes from all hazards.	3
6	Increase fire suppression capabilities	Increase capability of fire suppression, equipment, and training.	4
5	Drainage structure	Install new larger capacity infrastructure to mitigate flooding near Beck Street and West Main Street.	5
3	Update building codes	The City of Florence currently has the 2006 IBC and IRC editions, and the 2006 edition of the National Electric Code effective August 2009. These need to be updated to 2012 International Building Codes. Stricter building codes goes to mitigate identified hazards, such as tornado, high wind, and impact resistant materials (windows, doors, roof bracings); dry-proofing public buildings for flooding; upgrading to higher standard insulation for extreme heat and winter storms; installing lighting rods and grounding systems on public buildings; retrofitting to low-flow plumbing and replacing landscaping with drought and fire resistant plants; stricter codes for hail and fire resistant roofing and siding; implementing higher standards for foundations, and upgrading requirements for construction beams, brackets and foundations to mitigation impacts of earthquake and expansive soils.	6
7	Strengthen zoning ordinance to encourage higher densities only outside of known hazard areas	Strengthening the zoning ordinance would decrease the chance of property damage to new and existing structures.	7
9	Develop a Capital Improvements Plan	A Capital Improvements Plan would provide a forecast of funds available for capital improvement projects and equipment purchases for long-term use.	9
City of Hutto			
8	Create an evacuation plan, with multiple routes for varying scenarios	Safe routes will be identified for various emergency scenarios, and the designated emergency coordinator will publish these to the appropriate entities.	1
7	Educate homeowners on all hazards	Educate homeowners of how to mitigation their homes from these hazards on city website and public forums.	6
1	Establish and implement an agricultural zoning district to preserve areas of land in high-hazard areas	Establish an Agricultural Zoning District Ordinance to preserve open space of land in high-hazard areas.	7
2	Purchase NOAA All Hazard Radios	Purchase NOAA All Hazard Radios to be used in city offices and residents	8

4.2 HISTORICAL CONTEXT FOR WILDFIRE PROTECTION

Pre-disaster mitigation is critical to minimizing loss during a wildfire. Texas has had its share of devastating wildfires in the past decade. The 2011 wildfire season was comprised of a series of destructive wildfires in Texas, United States that occurred primarily in the late summer and fall of the 2011 fire season. During 2011 in Texas, around 31,453 fires burned 4,000,000 acres (about double the previous record), 2,947 homes (1,939 of which were destroyed over the Labor Day weekend), and over 2,700 other structures. Of all the acreage burned in the United States in 2011, 47.3% was in Texas. The fires were particularly severe due to the drought that covered the State and the southern U.S., and were exacerbated by the unusual convergence of strong winds, unseasonably warm temperatures, and low humidity. Overall, wildfires in Texas during 2011 caused \$510.927 million in damages, caused six fatalities, with an additional 62 people that were injured.

Timber lost to drought and wildfire in 2011 could have produced \$1.6 billion worth of products, resulting in a \$3.4 billion economic impact in eastern Texas. A trend is emerging that fires are becoming less numerous but more destructive. The Bastrop County Complex Fire in central Texas was the most destructive wildfire in Texas history, striking areas of Bastrop County in September and October 2011. Three separate fires started on September 4, 2011, as a result of strong winds caused by nearby Tropical Storm Lee, and merged into one large blaze that burned east of the city of Bastrop. Two people were killed by the fire, which destroyed 1,673 homes and inflicted an estimated \$325 million of insured property damage.

Per TFS, “The 2011 wildfire season was unique in its scope, duration and complexity. But while the severity of the wildfire season and number of homes threatened will change from year to year, the fundamental reasons homes burn remain the same. There are simple and inexpensive measures that residents can take to prepare for wildfire and increase the chances of home survivability. Resources also are available for community leaders who want to take action and empower their residents as partners in wildfire preparedness.”

Until about 2000 Williamson County’s threat of wildfire may have been high but the risk was low. It’s been only within the past 15 years that the explosive growth into the WUI has occurred resulting in increases in both wildfire risk and wildfire threat. While the concept of wildfire mitigation and implementation of mitigation measures is relatively new to the County, the record setting growth in Williamson County dictates that the County take a proactive stance to address wildfire mitigation issues.

5. COMMUNITY CHARACTERISTICS AND DEMOGRAPHICS

5.1 LOCATION AND GEOGRAPHY

This section provides an overview of the location and geography of Williamson County. Table 5-1 provides a description of the location, boundaries and significant features.

5.1.1 Geography

Table 5-1. Location and Geography of Williamson County

Williamson County	
Latitude/longitude	30.7592° N, 97.6982° W
Plan area and unit boundaries	Williamson County covers 1,134 square miles. It is located in Central Texas (Figure 5-1) and it is a part of the Austin-Round Rock Metropolitan Area. The City of Round Rock is the largest city and the City of Georgetown holds the county seat for Williamson County.
Frontage and/or perimeter road(s), and railroads	U.S. Highway 183, Interstate Highway 35, and State Highways 95 and 130 (toll road) are the major north-south roads. U.S. Highway 79 and State Highway 29 cross the county east and west. The county is also crossed by four railroads, the Southern Pacific, the Missouri-Kansas-Texas, the Union Pacific, and the Georgetown.
Rivers and creeks	The San Gabriel River and Brushy Creek flow through the county in a west-east direction.

5.1.2 Location

Figure 5-1 indicates the location of the county relative to the State of Texas. Figure 5-1. Location of the Williamson



County Planning Area within the State of Texas

5.1.3 Land type and open space

The County is a mix of urban development, rural non-agriculture and agricultural consisting of farming and cattle ranching. The County is split into two geographical regions along the Balcones Escarpment. The western half of the County is comprised of rocky limestone, limited topsoil, native trees and the invasive Mountain Juniper. The eastern half is primarily an extension of Coastal Prairie comprised of expansive soils and limited native trees. The Balcones Canyonlands National Wildlife Refuge is located in the western part of Williamson County and conserves habitat for wildlife in the Texas Hill Country.

According to the Texas A&M Institute of Renewable Natural Resources survey on land trends, Texas has been losing open space lands between 1997 and 2012, and Williamson County has lost 8.49% of open space land to the growing Austin-Round Rock Metropolitan Area.

5.2 CLIMATE

Williamson County is hot and humid in the summer and cool in winter when an occasional surge of cold air causes a sharp drop in otherwise mild temperatures. Average temperatures range from 95 degrees Fahrenheit (°F) in the summer to 38.2°F in the winter. The Western Regional Climate Center reports data from the Taylor weather station in Williamson County. Table 5-2 contains temperature summaries for the station. Figure 5-2 graphs the daily temperature averages and extremes from January 1, 1929, through August 31, 2001.

Table 5-2. Williamson County Temperature Summaries from 1929 to 2001

Climate Measure Period of Record 1929-2001	Temperature (and Date)
Winter ^a Average Minimum Temperature ^b	38.2°F
Winter ^a Mean Temperature ^b	50.0°F
Summer ^a Average Maximum Temperature ^b	95.0°F
Summer ^a Mean Temperature ^b	83.0°F
Maximum Temperature (and Date)	112°F (July 27, 1954, and September 4, 2000)
Minimum Temperature (and Date)	-5°F (January 31, 1949)
Average Annual Number of Days >90°F	117.3°F
Average Annual Number of Days <32°F	31.9°F

Notes:

a. Winter: December, January, February. Summer: June, July, August

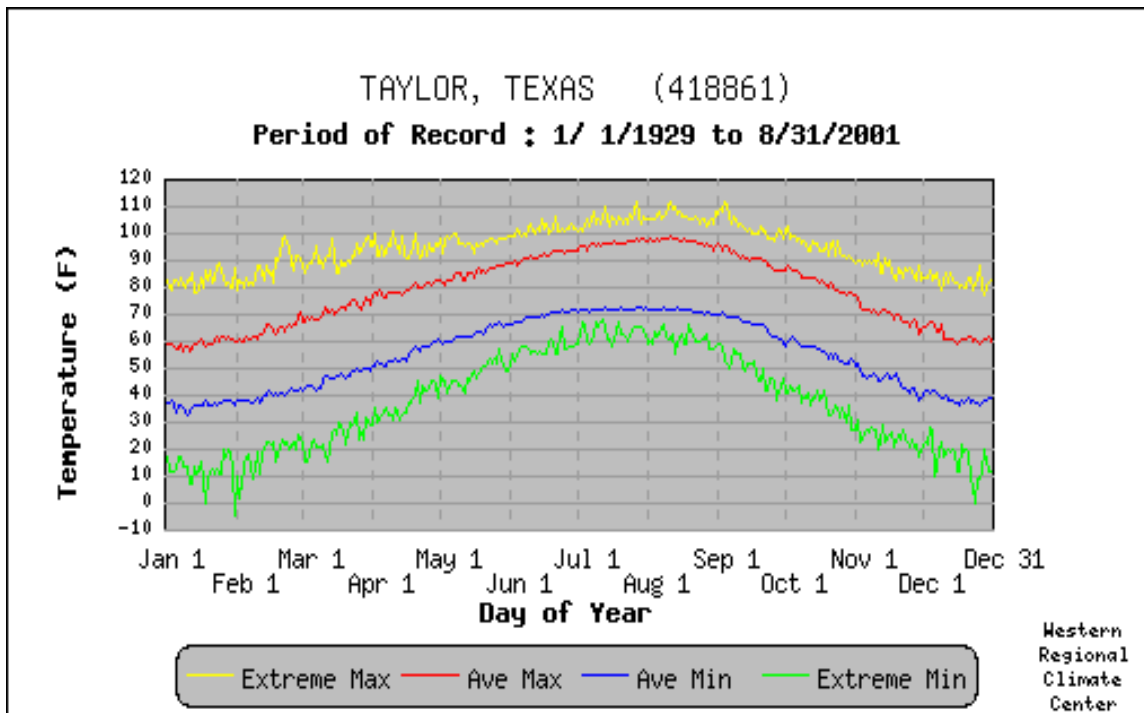
b. Temperatures are in degrees Fahrenheit

°F Fahrenheit

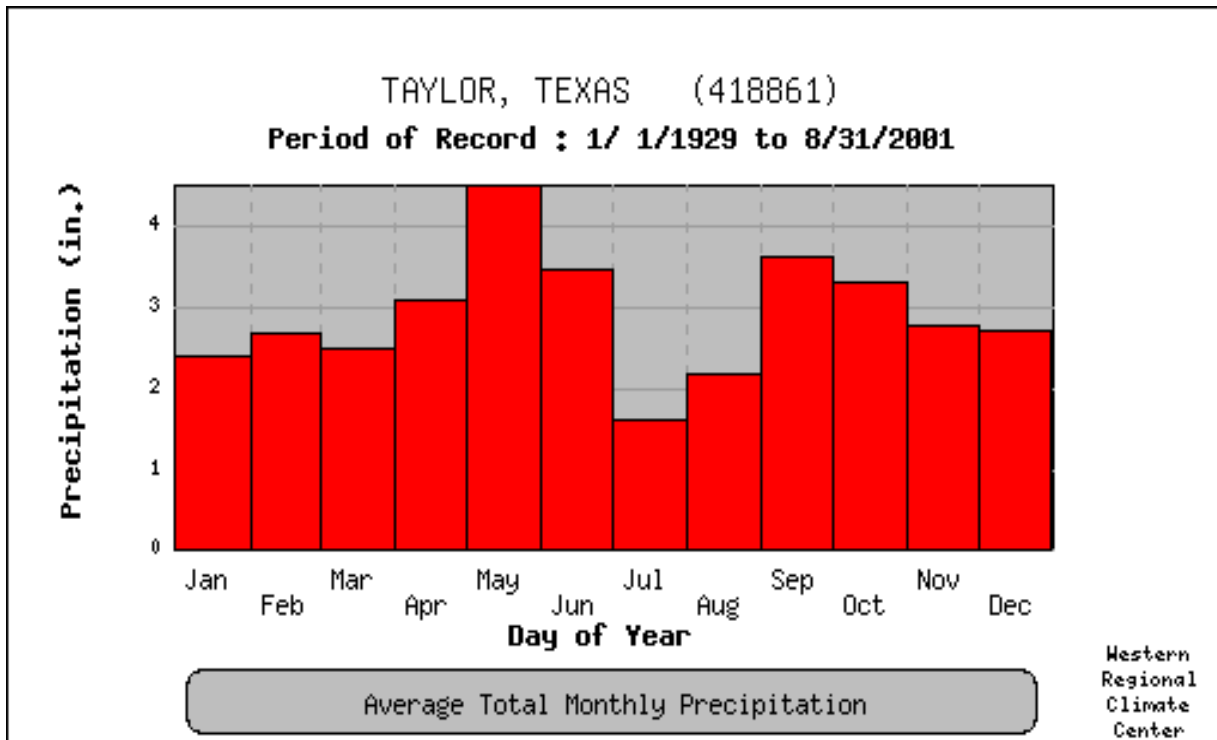
Source: Western Regional Climate Center, Taylor Weather Station

Source: Western Regional Climate Center, <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?tx8861>

Figure 5-2. Monthly Temperature Data (1929-2001)



Rainfall in Williamson County is uniformly distributed throughout the year, reaching a slight peak in spring. Snowfalls are infrequent. Precipitation is highest in May. The average annual precipitation is 34.68 inches. Severe thunderstorm occur mostly in the spring. Figure 5-3 shows the average monthly precipitation in Williamson County.

Figure 5-3. Average Monthly Precipitation (1929-2001)

5.3 WILLIAMSON COUNTY WILDFIRE HISTORY

Since the mid-1990s, Texas has experienced larger and more complex wildfires and extended wildfire seasons, which have challenged the ability of state and local resources to protect citizens and their property. At the root of this evolving situation is a change in the climate cycle that increases the occurrence of drought. In 2011, Texas experienced the worst one-year drought in recorded state history (dating back to 1895). The result was devastating wildfires and massive destruction. But the 2011 drought was not an isolated event. In Texas, droughts have been occurring with increasing severity since 1996. One-year droughts were recorded in 1996, 1998, 1999, 2000 and 2001. Each year, the occurrence of large and complex wildfires mimicked the scope and intensity of the droughts.

The TFS reports that 80% of wildfires in Texas occur within two miles of a community. That means 80% of wildfires could pose a threat to life and property. They further report that it can take less than half an hour for fire to travel two miles, leaving residents very little time to evacuate. It's imperative communities prepare their businesses, residents, home and families long before a fire ignites.

5.3.1 Past Events

Table 5-3 shows the locations of federally reported wildfires in Williamson County and participating communities, documented by federal and state agencies from 1980 through 2014. Recent fires larger than 50 acres are listed in The locations of past wildfires in each partner community are shown on Figure 5-4.

Table 5-3. Federal Disaster Declarations in Williamson County

FEDERAL DISASTER DECLARATIONS IN WILLIAMSON COUNTY		
Disaster Declaration	Description	Incident Date
DR-4029	Wildfires	8/30/2011 - 12/31/2011
FM-2963	Moonglow Fire	9/5/2011 – 9/5/2011
FM-2949	Horseshoe Fire	8/15/2011 – 8/15/2011
FM-2922	Grand Mesa Fire	6/16/2011 – 6/19/2011
FM-2785	Florence Fire	8/7/2008 – 8/14/2008
EM-3284	Wildfires	3/14/2008 - 9/1/2008
DR-1624	Extreme Wildfire Threat	11/27/2005 – 5/14/2006
EM-3142	Extreme Fire Hazards	8/1/1999 – 12/10/1999
EM-3113	Extreme Fire Hazard	8/30/1993 – 11/15/1993

Note: Federal disaster declarations are coded as follows: DR = Major Disaster Declaration; FM = Fire Management; EM = Emergency Declaration

Source: FEMA Disaster Declarations Summary - Open Government Dataset
(<http://www.fema.gov/media-library/assets/documents/28318?id=6292>)

State Level Wildfire Historical Data

- 1996: 2,808 wildfires burned 226,575 acres *
- 1998: 2,793 wildfires burned 197,571 acres *
- 2000: 2,758 wildfires burned 211,939 acres *
- 2006: 23,198 wildfires burned 2 million acres and destroyed 413 homes
- 2008: 20,482 wildfires burned 1.6 million acres and destroyed 256 homes
- 2009: 17,488 wildfires burned 726,502 acres and destroyed 436 homes
- 2011: 31,453 wildfires burned 4 million acres and destroyed 2,947 homes

Table 5-4. Federally Reported Wildfires Greater than 50 Acres from 1980 to 2014 in Williamson County and Participating Communities

Historic Wildfire Events in Williamson County and Participating Communities (50+ Acres) (1980-2014)				
Fire ID	Name	Cause	Start Date	Acres Burned
654495	N/A	Debris Burning	2/17/1994	90
200421561AZ6Q	Big James	Human	1/26/2004	184.4
651451	N/A	Debris Burning	1/28/2004	290
3364	Gower Ranch	Equipment use	6/26/2005	70
27789	County Land	Miscellaneous	1/3/2006	350
62792	State Highway 95	Miscellaneous	7/27/2006	50

Historic Wildfire Events in Williamson County and Participating Communities (50+ Acres) (1980-2014)

Fire ID	Name	Cause	Start Date	Acres Burned
200721561C9SD	Dove Fire	Human	2/24/2007	90
112787	Jarrell County Road 311	Miscellaneous	12/22/2007	50
72846	Walburg Fire	Miscellaneous	1/12/2008	123
693278	N/A	Miscellaneous	1/29/2008	1,400
73300	Lobo Fire	Smoking	3/25/2008	175
200821561EE2T	Robinson Fire	Human	8/4/2008	86.2
200821561EFG3	Highway 195 Fire	Human	8/7/2008	1,412.2
74083	Florence	Miscellaneous	8/7/2008	1,452
74185	Knight Branch	Miscellaneous	10/19/2008	120
170449	Highway 29 & County Road 203	Miscellaneous	12/27/2008	1,000
201338985	Hycrest Fire	Powerline	8/11/2011	132
FM-2963*	Moonglow Fire (the largest per-acre home loss fire in Texas history)	Human	9/5/2011	Approx.84 acres *16 homes destroyed
FM-2949	Horseshoe Fire		2011	30 acres *15 homes destroyed and multiple vehicles
FM-2922	Grand Mesa Fire		2011	

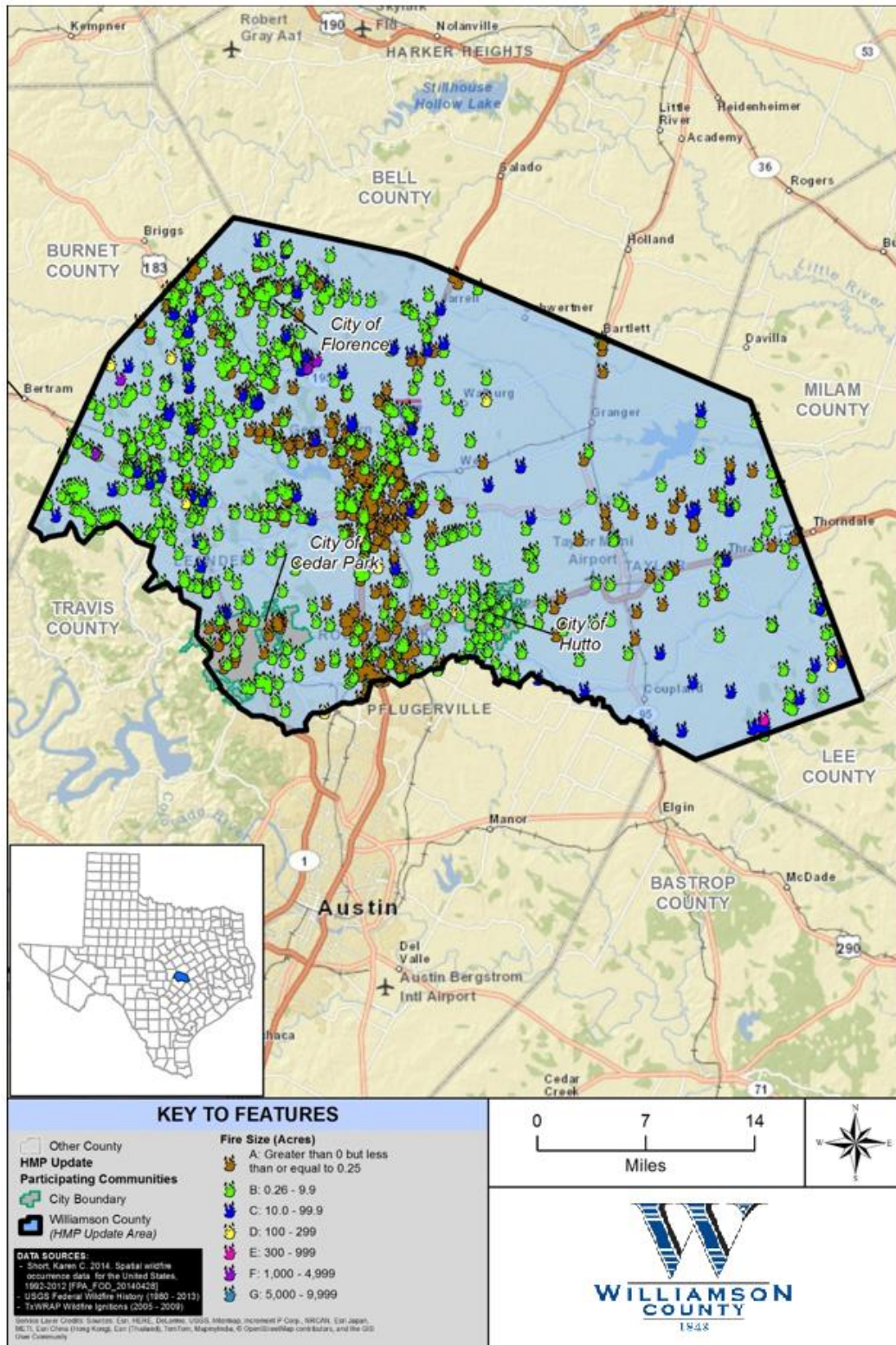
Source: TxWRAP (<https://www.texaswildfirerisk.com/>), USGS (<http://wildfire.cr.usgs.gov/firehistory/data.html>), USDA (<http://www.fs.usda.gov/rds/archive/Product/RDS-2013-0009.2/>)

Notes:

- a. Table may list more events than are shown on related figures since some recorded events do not include specific geographic coordinates (GIS-enabled data) for precise graphical representation.

N/A Not Applicable

Figure 5-4. Historic Wildfires By Location And Acreage



5.4 LOCATION

According to the TFS CWPP, nearly 85% of wildfires in Texas occur within two miles of a community. These wildfires pose a threat to life and property. There are approximately 14,000 communities in Texas that have been identified as “at risk” for potentially devastating fires by the Forest Service.

Texas is one of the fastest growing states in the nation. Much of this growth is occurring in the WUI area, where structures and other human improvements meet and mix with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk from wildfires. For Williamson County, the TxWRAP estimates that 246,436 people or 60% of the total county population (410,345) live within the WUI. The WUI layer reflects housing density depicting where humans and their structures meet or intermix with wildland fuels.

The TxWRAP report for Williamson County and the participating communities maps the WUI Response Index, which is a rating of the potential impact of a wildfire on people and their homes. The key input, WUI, reflects housing density (houses per acre) consistent with Federal Register National Standards. The TxWRAP report states that the location of people living in the WUI and rural areas is essential for defining potential wildfire impacts to people and homes.

According to the TxWRAP report for Williamson County, wildfire Values Response Index (VRI) layer reflects a rating of the potential impact of a wildfire on values or assets. The VRI is an overall rating that combines the impact ratings for WUI (housing density) and Pine Plantations (pine age) into a single measure. VRI combines the likelihood of a fire occurring (threat) with those areas of most concern that are adversely impacted by fire to derive a single overall measure of wildfire risk.

The TxWRAP report for Williamson County maps the Community Protection Zones (CPZ), which represent those areas considered highest priority for mitigation planning activities. CPZs are based on an analysis of the “Where People Live” housing density data and surrounding fire behavior potential. “Rate of Spread” data is used to determine the areas of concern around populated areas that are within a two-hour fire spread distance.

Finally, wildfire threat or Wildfire Hazard Potential (WHP) is the likelihood of a wildfire occurring or burning into an area. Threat is calculated by combining multiple landscape characteristics including surface and canopy fuels, fire behavior, historical fire occurrences, weather observations, terrain conditions, and other factors. On its own, WHP is not an explicit map of wildfire threat or risk, but when paired with spatial data depicting highly valued resources and assets such as structures or power lines, it can approximate relative wildfire risk to those specific resources and assets. WHP is also not a forecast or wildfire outlook for any particular season, as it does not include any information on current or forecasted weather or fuel moisture conditions. It is instead intended for long-term strategic fuels management and appropriate for regional, county, or local protection mitigation or prevention planning.

5.5 ENVIRONMENT

Fire is a natural and critical ecosystem process in most terrestrial ecosystems, dictating in part the types, structure, and spatial extent of native vegetation. However, wildfires can cause severe environmental impacts:

- **Soil Erosion** – After a fire, the protective covering provided by foliage and dead organic matter is removed, leaving the soil fully exposed to wind and water erosion. Accelerated soil erosion occurs, causing landslides and threatening aquatic habitats.

- **Spread of Invasive Plant Species** – Non-native woody plant species frequently invade burned areas. When weeds become established, they can dominate the plant cover over broad landscapes, and become difficult and costly to control.
- **Disease and Insect Infestations** – Unless diseased or insect-infested trees are swiftly removed, infestations and disease can spread to healthy forests and private lands. Timely active management actions are needed to remove diseased or infested trees.
- **Destroyed Endangered Species Habitat** – Catastrophic fires can have devastating consequences for endangered species.
- **Soil Sterilization** – Topsoil exposed to extreme heat can become water repellant, and soil nutrients may be lost. It can take decades or even centuries for ecosystems to recover from a fire. Some fires burn so hot that they can sterilize the soil.

DEFINITIONS

Surface fuels – Surface fuels, or fire behavior fuel models as they are technically referred to, contain the parameters needed by the Rothamel (1972) surface fire spread model to compute surface fire behavior characteristics, such as rate of spread, flame length, fireline intensity, and other fire behavior metrics.

Many ecosystems are adapted to historical patterns of fire occurrence. These patterns, called “fire regimes,” include temporal attributes (e.g., frequency and seasonality), spatial attributes (e.g., size and spatial complexity), and magnitude attributes (e.g., intensity and severity), each of which have ranges of natural variability. Ecosystem stability is threatened when any of the attributes for a given fire regime diverge from its range of natural variability.

5.6 VEGETATION AND LAND COVERAGE

The Balcones Fault line runs approximately underneath Interstate-35. Interstate-35 cuts through the center of Williamson County in a north-south direction. To the east of the fault line, the land consists of black, rich soil. The undeveloped areas consist of crop and grassland. Trees are sparse and can be found congregated around areas of water. To the west of the fault line, top soil is generally only a few inches in depth. Williamson County consists primarily of grassland/prairie and agriculture lands. Table 5-5. lists the present land use in Williamson County. Developed land accounts for only 16.8% of the County.

Table 5-5. Williamson County Present Land Use

Present Use Classification	Area (acres)	% of Total Land Area
Agriculture	195,493	26.9%
Developed, Open Space	71,064	9.8%
Developed, High Intensity	6,444	0.9%
Developed, Medium Intensity	20,776	2.9%
Developed, Low Intensity	23,123	3.2%
Forest Land	110,714	15.2%
Grassland/Prairie	275,243	37.8%
Water/Wetland	24,253	3.3%
Total	727,110	100%

Note: Acreage covers only mapped parcels and thus excludes many rights-of-way and major water features.

5.6.1 Surface Fuels

Surface fuels are important to categorize for they account for the surface fire potential. Canopy fire potential is computed through a separate but linked process. The Texas Wildfire Risk Assessment Summary Report (TxWRAP) for Williamson County accounts for both surface and canopy fire potential in the fire behavior outputs.

Surface fuels account for the surface fire potential. Canopy fire potential is computed through a separate but linked process. The TxWRAP accounts for both surface and canopy fire potential in the fire behavior outputs.

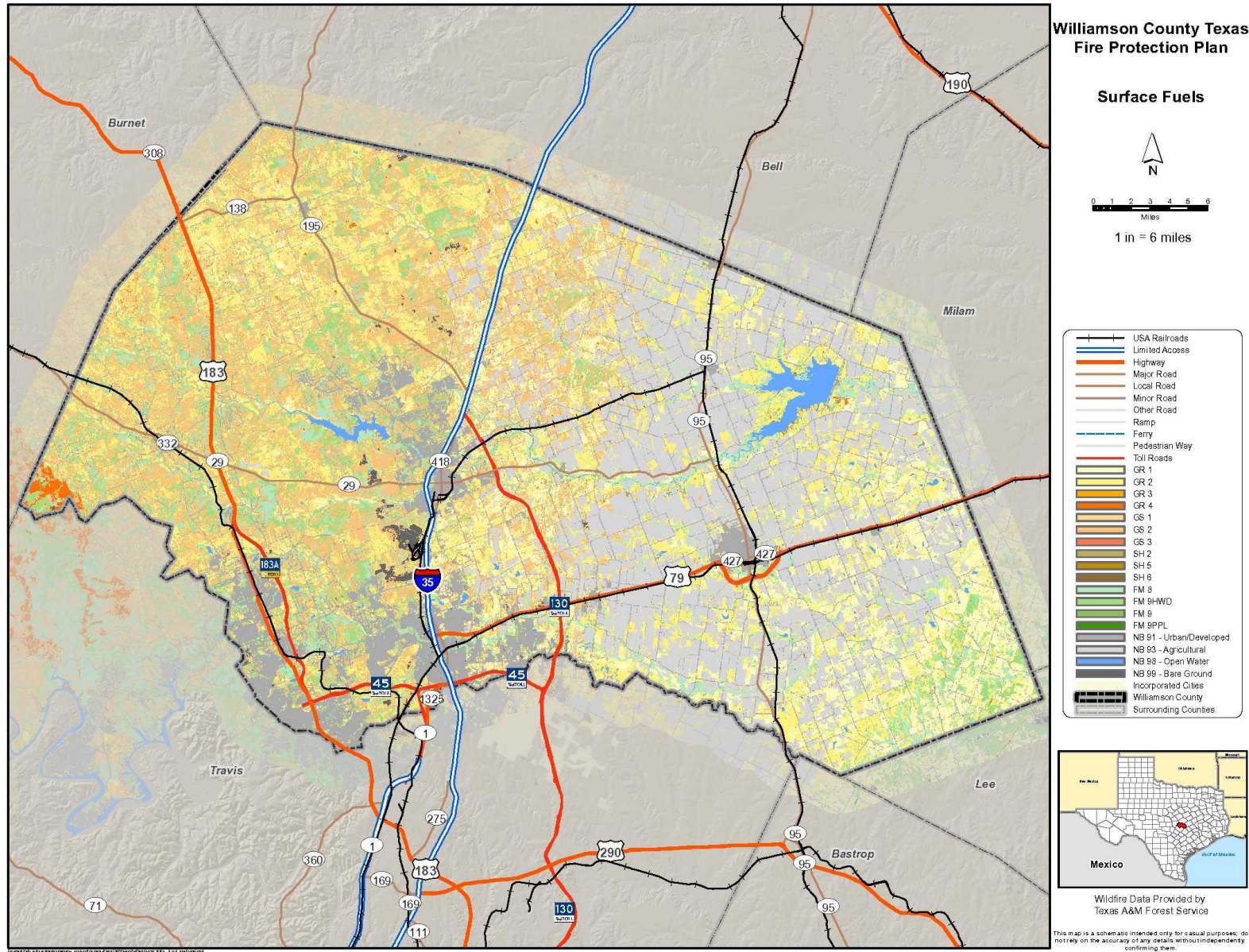
Surface fuels are typically categorized into one of four primary fuel types based on the primary carrier of the surface fire: (1) grass, (2) shrub/brush, (3) timber litter and (4) slash. The following table presents the fuel types as well as the total acres in Williamson County of each fuel type and total percent of county land area.

There are two standard fire behavior fuel model sets published for use. The Fire Behavior Prediction System 1982 Fuel Model Set (Anderson 1982) contains 13 fuel models and the Fire Behavior Prediction System 2005 Fuel Model Set (Scott and Burgan 2005) contains 40 fuel models. The TxWRAP uses fuel models from both sets, as well as two additional custom fuel models devised by the TFS. For a complete list of the fuel models utilized in the TxWRAP refer to the TxWRAP and Figure 5-5. Surface Fuels Map for Williamson County. Table 5-6 and Figure 5-5 show that the county primarily consists of Low Load, Dry Climate Grass at 21.1%, followed by Agricultural at 20.3%, and Moderate Load, Dry Climate Grass-Shrub with 20.1%. Figure 5-5 is a countywide map showing all the surface fuel types.

Table 5-6. Types of Surface Fuels in Williamson County

	Surface Fuels	Description	FBPS Fuel Model Set	Acres	Percent
	GR 1	Short, Sparse Dry Climate Grass (Dynamic)	2005	78,871	10.8%
	GR 2	Low Load, Dry Climate Grass (Dynamic)	2005	153,796	21.1%
	GR 3	Low Load, Very Coarse, Humid Climate Grass (Dynamic)	2005	0	0.0%
	GR 4	Moderate Load, Dry Climate Grass (Dynamic)	2005	2,927	0.4%
	GS 1	Low Load, Dry Climate Grass-Shrub (Dynamic)	2005	0	0.0%
	GS 2	Moderate Load, Dry Climate Grass-Shrub (Dynamic)	2005	146,352	20.1%
	GS 3	Moderate Load, Humid Climate Grass-Shrub (Dynamic)	2005	0	0.0%
	SH 2	Moderate Load Dry Climate Shrub	2005	0	0.0%
	SH 5	High Load, Dry Climate Shrub	2005	134	0.0%
	SH 6	Low Load, Humid Climate Shrub	2005	0	0.0%
	FM 8	Closed timber litter (compact)	1982	46,696	6.4%
	FM 9 HWD	Hardwood litter (fluffy) - Low Load for Texas	Custom	45,717	6.3%
	FM 9	Long-needle (pine litter) or hardwood litter	1982	0	0.0%
	FM 9 PPL	Long-needle (pine litter, plantations) - High Load for Texas	Custom	0	0.0%
	NB 91	Urban/Developed	2005	92,532	12.7%
	NB 93	Agricultural	2005	147,465	20.3%
	NB 98	Open Water	2005	9,551	1.3%
	NB 99	Bare Ground	2005	3,158	0.4%
Total:				727,200	100.0%

Figure 5-5. Surface Fuels Map for Williamson County



5.6.2 Vegetation

The TxWRAP for Williamson County provides a reliable vegetation dataset with special consideration given to mapping of evergreen forest types (pine, red cedar, juniper, live oak, and pinyon) since evergreens contain oils, resins, and waxes that make the plants burn quickly and hot.

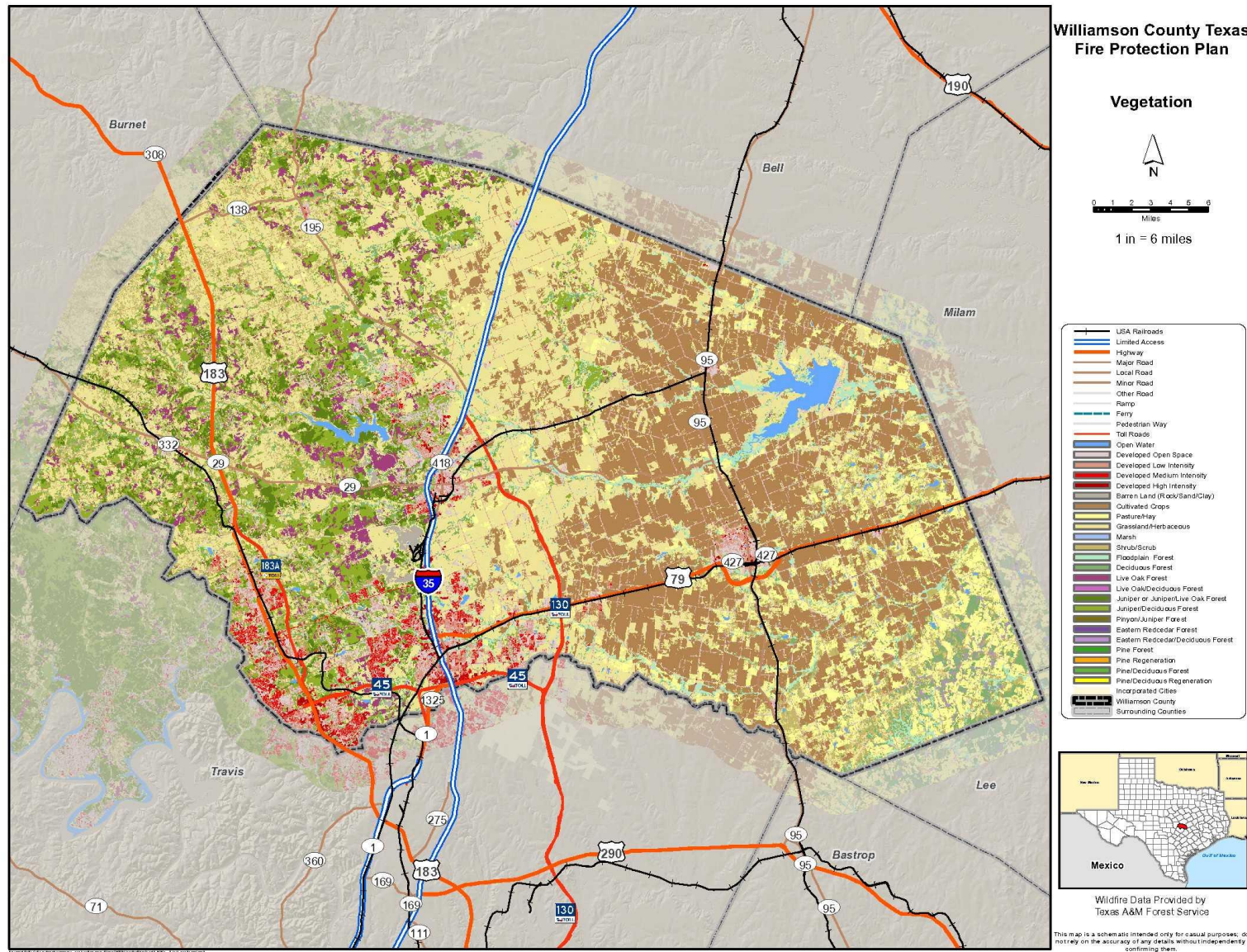
Table 5-7. Williamson County Vegetation

	Class	Description	Acres	Percent
	Open Water	All areas of open water, generally with < 25% cover of vegetation or soil	7,903	1.1%
	Developed Open Space	Impervious surfaces account for < 20% of total cover (i.e., golf courses, parks, etc.)	43,318	6.0%
	Developed Low Intensity	Impervious surfaces account for 20-49% of total cover	35,710	4.9%
	Developed Medium Intensity	Impervious surfaces account for 50-79% of total cover	10,417	1.4%
	Developed High Intensity	Impervious surfaces account for 80-100% of total cover	3,231	0.4%
	Barren Land (Rock/Sand/Clay)	Vegetation generally accounts for <15% of total cover	2,799	0.4%
	Cultivated Crops	Areas used for the production of annual crops, includes land being actively tilled	148,432	20.4%
	Pasture/Hay	Areas of grasses and/or legumes planted for livestock grazing or hay production	43,689	6.0%
	Grassland/Herbaceous	Areas dominated (> 80%) by graminoid or herbaceous vegetation, can be grazed	227,019	31.2%
	Marsh	Low wet areas dominated (> 80%) by herbaceous vegetation	6	0%
	Shrub/Scrub	Areas dominated by shrubs/trees < 5 meters tall, shrub canopy > than 20% of total vegetation	47,585	6.5%
	Floodplain Forest	> 20% tree cover, the soil is periodically covered or saturated with water	16,124	2.2%
	Deciduous Forest	> 20% tree cover, >75% of tree species shed leaves in response to seasonal change	32,561	4.5%

	Live Oak Forest	> 20% tree cover, live oak species represent >75% of the total tree cover	24,392	3.4%
	Live Oak/Deciduous Forest	> 20% tree cover, neither live oak or deciduous species represent >75% of the total tree cover	1	0%
	Juniper or Juniper/Live Oak Forest	> 20% tree cover, juniper or juniper/live oak species represent > 75% of the total tree cover	22,947	3.2%
	Juniper/Deciduous Forest	> 20% tree cover, neither juniper or deciduous species represent > 75% of the total tree cover	59,388	8.2%
	Eastern Red cedar/Deciduous Forest	> 20% tree cover, neither eastern red cedar or deciduous species represent > 75% of the total tree cover	1,678	0.2%
Total:			727,200	100.0 %

Figure 5-6 shows that grassland, cultivated crops, and juniper/deciduous forest make up the largest number of vegetation acreage in the county. Table 5-7 and Figure 5-6 identify the diversity of vegetation in Williamson County.

Figure 5-6. Vegetation Map for Williamson County



5.7 LAND USE PLANNING

5.7.1 Land Use

Per the Texas A&M Forest Service 2011 Texas Wildfires – Common Denominators of Home Destruction report roughly 94 percent of the land in Texas is privately owned, which means the shape of our landscape is largely left up to individual property owners.

Individual land-use practices are as diverse as the landscape itself. The way land is managed, communities and homes are built, and food is produced all have an impact on wildfire activity. As the state continues to see exponential population growth, the potential for fire losses will be affected by how and where homes are built.

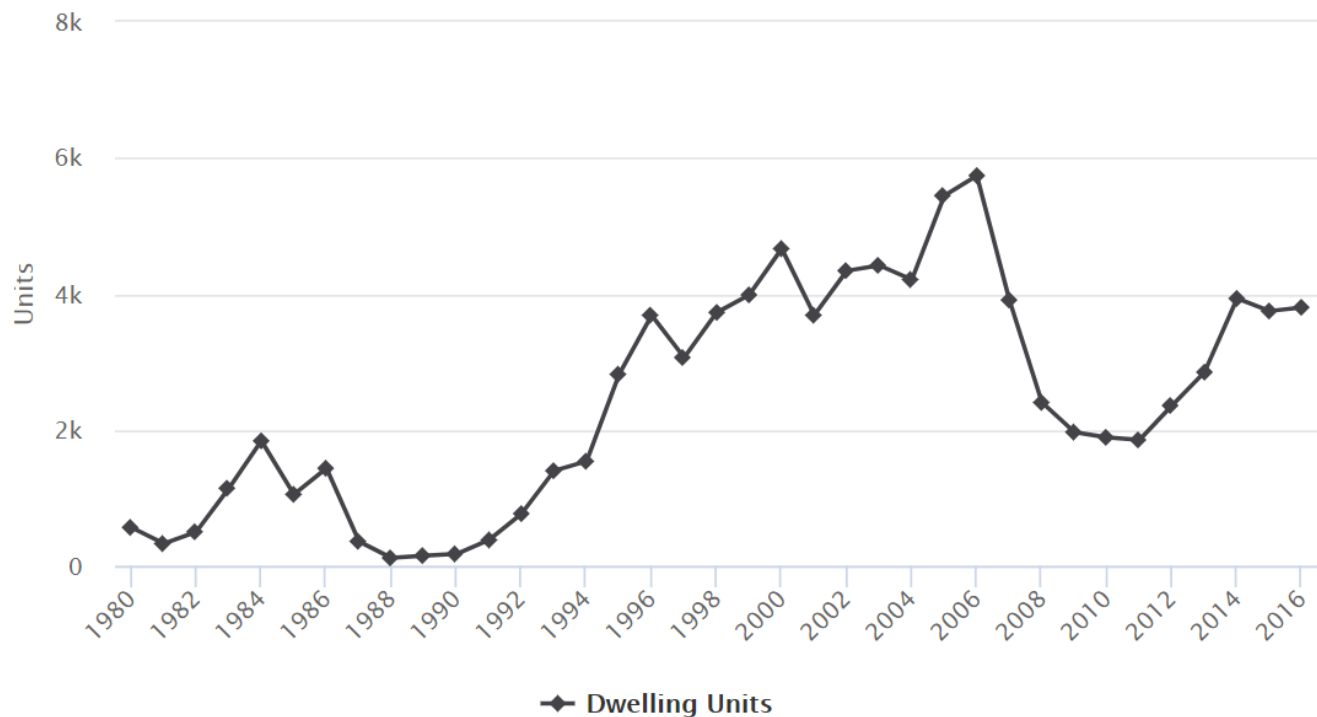
The primary land-use changes listed below impact wildfire occurrence and intensity.

- Increase in woody vegetation
- Changes in grazing practices
- Changes in commercial crop production
- Changes in wildlife management practices
- Fragmentation of land ownership
- Residents living in previously rural areas
- Overgrowth of vegetation around communities

5.7.2 Building Permit Growth

Housing units in Williamson County are mainly single-family detached homes; however, there are approximately 4,575 mobile homes in the county. According to the U.S. Census Bureau, the number of residential building permits reported in Williamson County decreased from 2006 to 2011, dropping from 5,738 in 2006 to 1,851 in 2011. In 2012 to 2014, residential building permits increased. As residential building permits continue to be issued, unincorporated areas of Williamson County will be impacted by an increase in vulnerability. Figure 5-7. shows the reported residential building permits in Williamson County. Structures, aboveground infrastructure, critical facilities, agricultural area (crops and structures), and natural environments are all vulnerable to wildfire hazard.

Figure 5-7. Residential Building Permits in Williamson County from 1980 to 2016



5.7.3 Urban Encroachment

Much of Texas' recent population boom has taken place in unincorporated areas outside of city limits. According to the 2010 U.S. Census, Texas added 4,293,741 residents between April 1, 2000 and April 1, 2010. The state added almost the entire population of Kentucky (4,339,367) to its population in the last decade. The Austin-Round Rock-San Marcos MSA was the eighth fastest growing metropolitan area in the country. Williamson County is one of Texas' 10 fastest growing counties and contains large unincorporated areas next to a major city—Austin. Central Texas towns like Georgetown, Cedar Park, and Round Rock were among the nation's 25 fastest-growing cities in 2016 with 50,000 people or more. The growth has occurred outward rather than upward, commonly referred to as sprawl. This sprawl growth results in increasing impacts on the WUI zone as previously discussed in Chapter 3 of this plan.

5.7.4 General Plans

Long-Range Transportation Plan

The Williamson County Long-Range Transportation Plan focuses on what road and transit improvements should be built or improved over the next 25 years to help address expected growth in the County. This plan guides future capital improvements. The County has worked in close collaboration with its member cities to develop the plan, which analyzes current population and employment data in order to make projections about how and where the County will grow in the future. It also contemplates land-use patterns and the role of transit moving forward.

Subdivision Ordinance

On August 20, 2013, the Williamson County Commissioner's Court approved a revision to Williamson County's Subdivision Regulations, including a new fee structure. These revised regulations were made effective immediately for all new applications received on or after August 20, 2013.

Generally, Texas counties, including Williamson, have no zoning authority and have limited authority to regulate land use, primarily through approval of plats. Many cities use zoning ordinances to plan growth by regulating the types of activities or development that may take place in a given area. City zoning districts include uniform regulations on permissible land uses, building height and lot-size requirements, or other development restrictions.

Approval of plats is the primary tool by which a Texas county regulates subdivision development in unincorporated areas. A plat is a legal document that includes a map of the subdivided property and public improvements, such as streets or drainage infrastructure. A plat must be approved by the county commissioner's court and filed with the county clerk as a permanent real property record. The plat may be used for land title research, land sales, or property tax purposes. Local Government Code, sec. 232.003 specifies the steps a commissioner's court may order before approving a plat, such as requiring rights-of-way on subdivision roads, adopting reasonable specifications on street and road construction and drainage infrastructure, and requiring purchase contracts to specify the availability of water.

5.8 POPULATION

5.8.1 Growth

As of January 1, 2015, the Texas Association of Counties estimates that Williamson County has a population of 508,514 (Texas Association of Counties 2017). Table 5-8. shows planning area population data from 1990 through 2015. The Williamson County population has had a dramatic increase of 79% from 1990 to 2000 and more than doubled in population from 2000 to 2015. Williamson County is one of the fastest growing county in Texas and the nation since 1990.

Table 5-8. Recent Population Data

	Population			
	1990	2000	2010	2015
City of Bartlett (pt) ^a	N/A	857	933	2,076
City of Cedar Park (pt)	5,161	25,508	48,448	62,319
City of Coupland	N/A	N/A	N/A	300
City of Florence	867	1,054	1,136	1,231
City of Georgetown	16,233	28,339	47,400	63,716
City of Granger	1,121	1,299	1,419	1,517
City of Hutto	630	1,250	14,698	22,722
City of Jarrell ^b	N/A	N/A	984	1,171
City of Leander (pt)	N/A	7,596	25,444	36,407
City of Liberty Hill	N/A	1,409	967	1,389
City of Pflugerville (pt)	N/A	0	300	202
City of Round Rock (pt)	N/A	60,060	98,525	114,367
City of Taylor	11,524	13,575	15,191	16,702
City of Thorndale (pt)	N/A	0	2	2
City of Thrall	554	710	839	920
City of Weir	220	591	450	497
Balance of County ^c	N/A	107,719	165,943	182,976
Total	139,551	249,967	422,679	508,514

Note:

a. pt - part of the city population within Williamson County.

b. City incorporated in 2001.

c. Balance of County population estimate includes municipality of Austin and unincorporated county areas.

N/A Not applicable

Source: Texas Association of Counties 2017

Table 5-8 shows 5-year population changes in Williamson County and the State of Texas from 1990 to 2015. Between 1990 and 2015, the State of Texas' population grew by 56% (about 2.2% per year) while Williamson County's population increased by 239% (9.2% per year).

5.8.2 Age Distribution

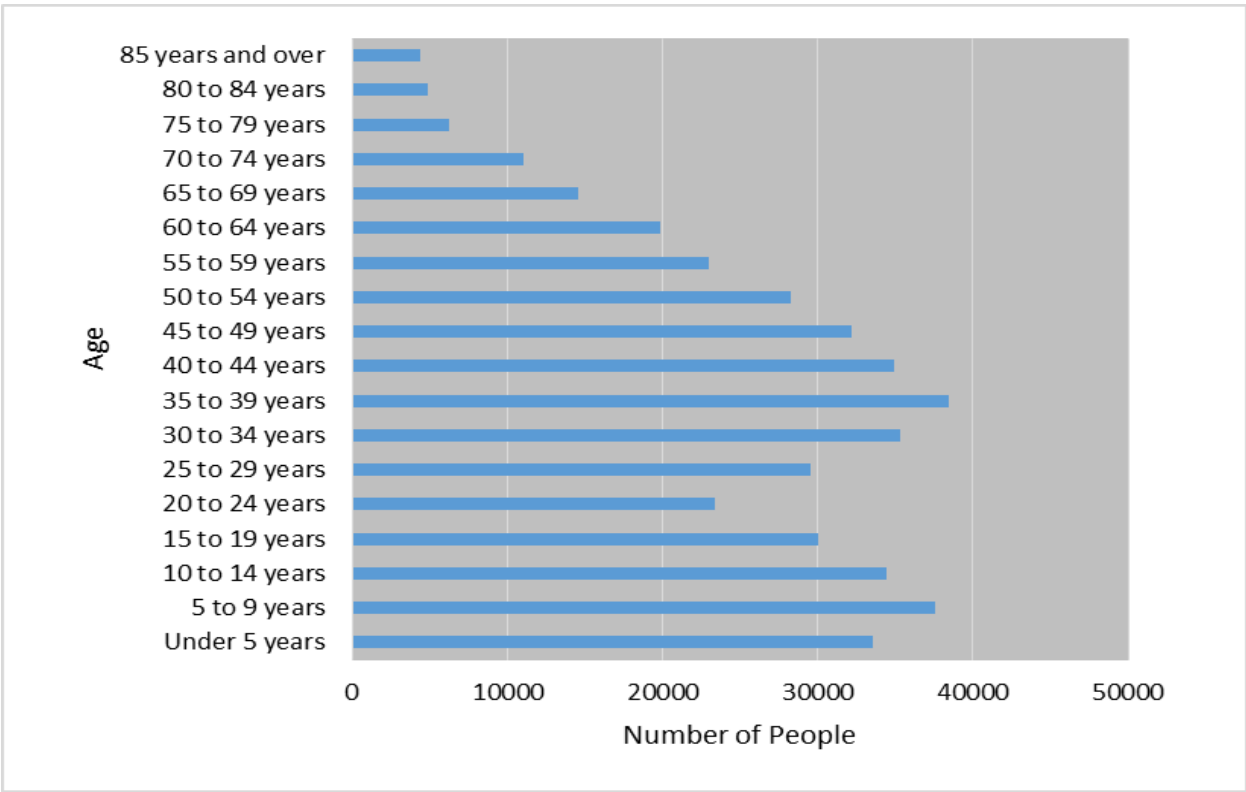
As a group, the elderly are more apt to lack the physical and economic resources necessary for response to hazard events and are more likely to suffer health-related consequences making recovery slower. They are more likely to be vision, hearing, or mobility impaired, and more likely to experience mental impairment or dementia. Additionally, the elderly are more likely to live in assisted-living facilities where emergency preparedness occurs at the discretion of facility operators. These facilities are typically identified as "critical facilities" by emergency managers because they require extra notice to implement evacuation. Elderly residents living in their own homes may have more difficulty evacuating their homes and could be stranded in dangerous situations. This population group is more likely to need special medical attention, which may not be readily available during natural disasters due to isolation caused by the event. Specific planning attention for the elderly is an important consideration given the current aging of the national population.

Children under 14 are particularly vulnerable to disaster events because of their young age and dependence on others for basic necessities. Very young children may additionally be vulnerable to injury or sickness; this

vulnerability can be worsened during a natural disaster because they may not understand the measures that need to be taken to protect themselves from hazards.

The overall age distribution for the planning area is illustrated in Figure 5-8. Based on U.S. Census data estimates, 11.3% of the planning area’s population is 65 or older. U.S. Census data does not provide information regarding disabilities in the planning area’s over-65 population. U.S. Census estimates for 2015 indicate that 6.6% of Williamson County families have children under 18 and are below the poverty line.

Figure 5-8. Williamson County Age Distribution



5.8.3 Disabled Populations

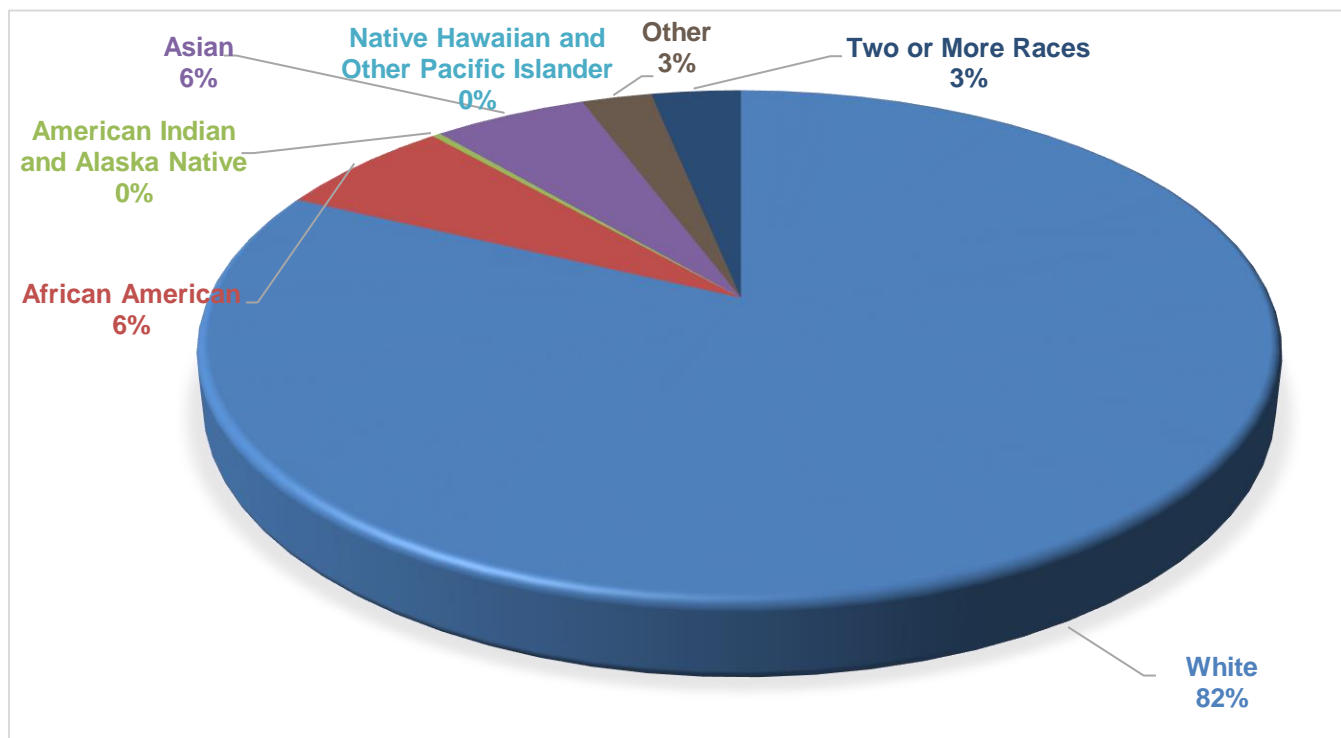
The 2010 U.S. Census estimated that 57 million non-institutionalized Americans with disabilities live in the U.S. This equates to about one-in-five persons. People with disabilities are more likely to have difficulty responding to a hazard event than the general population. Local government is the first level of response to assist these individuals, and coordination of efforts to meet their access and functional needs is paramount to life safety efforts. It is important for emergency managers to distinguish between functional and medical needs in order to plan for incidents that require evacuation and sheltering. Knowing the percentage of population with a disability will allow emergency management personnel and first responders to have personnel available who can provide services needed by those with access and functional needs. According to the 2015 U.S. Census, 9.2% of the population in the Williamson County lives with some form of disability.

5.8.4 Ethnic Populations

Research shows that minorities are less likely to be involved in pre-disaster planning and experience higher mortality rates during a disaster event. Post-disaster recovery can be less effective for ethnic populations and is

often characterized by cultural insensitivity. Since higher proportions of ethnic minorities live below the poverty line than the majority white population, poverty can compound vulnerability. According to the 2015 U.S. Census estimates, the ethnic composition of Williamson County is predominantly white, at about 82.1%. The largest minority ethnic population is Hispanic or Latino at 23.4%. Figure 5-9 shows the population distribution by race and ethnicity in Williamson County. The values shown on Figure 5-9 exceed 100% because according to the U.S. Census, Hispanic or Latino is listed as an ethnicity, not a race. Therefore, the Hispanic or Latino designation encompasses several races.

Figure 5-9. Williamson County Ethnic Distribution



Williamson County has an 11.3% foreign-born population. Other than English, the most commonly spoken language in Williamson County is Spanish. The U.S. Census estimates 6.8% of the residents speak English “less than very well.”

5.9 FOREST MANAGEMENT

The State of Texas contains 26 million acres of forestland, primarily in the eastern third of the State. Approximately 22% of the land within Williamson County is considered to be forested. This forestland provides the State with its third most valuable agricultural commodity, creating more than 91,000 jobs with more than \$2.3 billion in wages and salaries. In addition, forests in Texas provide non-timber benefits such as clean water, habitats for diverse wildlife, eco-tourism, historical preservation, and carbon sequestration abilities. Based on information from the TFS, research shows that actively managed timberland provides more resources and benefits compared to unmanaged timberland. In 2010, eastern Texas was estimated to contain nearly 12 million acres of timberland, most of which is privately owned.

The benefits of these trees are endless. From clean air and water to a source of revenue, we should take pride in caring for this resource. The TFS is here to help you maximize your timberland and its benefits.

Forest management techniques can include: prescribed burning, planting, pre-commercial thinning, mid and late rotation thinning, fertilization, pruning, woody competition control, even-aged regeneration harvests, uneven-aged regeneration harvests, and/or restoration of a historic ecosystem. Each timber stand can be different and have different management needs.

The TFS outlines several steps to better timber management. These steps include:

- Educate yourself. Talk to neighbors, fellow landowners, professionals and explore resources on the Internet.
- Attend educational workshops and programs.
- Have your trees and timber assessed. Assessments can be made on timber stands to determine overall age, health, past management, current and future value, and current and future products and/or benefits the stands provide.
- Create a management plan. A good management plan takes into account land objectives and sets a timeline to achieve those objectives.
- Continually monitor the land and the effects of the management practices.
- Pass the land and passion for timber management along to future generations.

5.10 INFRASTRUCTURE

Critical facilities of wood frame construction are especially vulnerable during wildfire events. In the event of wildfire, there would likely be little damage to most infrastructure. Most roads and railroads would be without damage except in the worst scenarios. Power lines are the most at risk from wildfire because most poles are made of wood and susceptible to burning. Fires can create conditions that block or prevent access and can isolate residents and emergency service providers. Wildfire typically does not have a major direct impact on bridges, but it can create conditions in which bridges are obstructed. Many bridges in areas of high to moderate fire risk are important because they provide the only ingress and egress to large areas and in some cases to isolated neighborhoods.

5.10.1 Critical Facilities

Property damage from wildfires can be severe and can significantly alter entire communities. Figure 5-10 and Table 5-9 display the general locations and the number of critical facilities (as provided by Williamson County GIS Department) in the various wildfire hazard zones within Williamson County. Efforts should be taken in the future to harden and protect critical infrastructure from wildfire as well as to ensure that the siting of future critical infrastructure be outside of high wildfire risk areas.

Figure 5-10. Critical Infrastructure within Williamson County

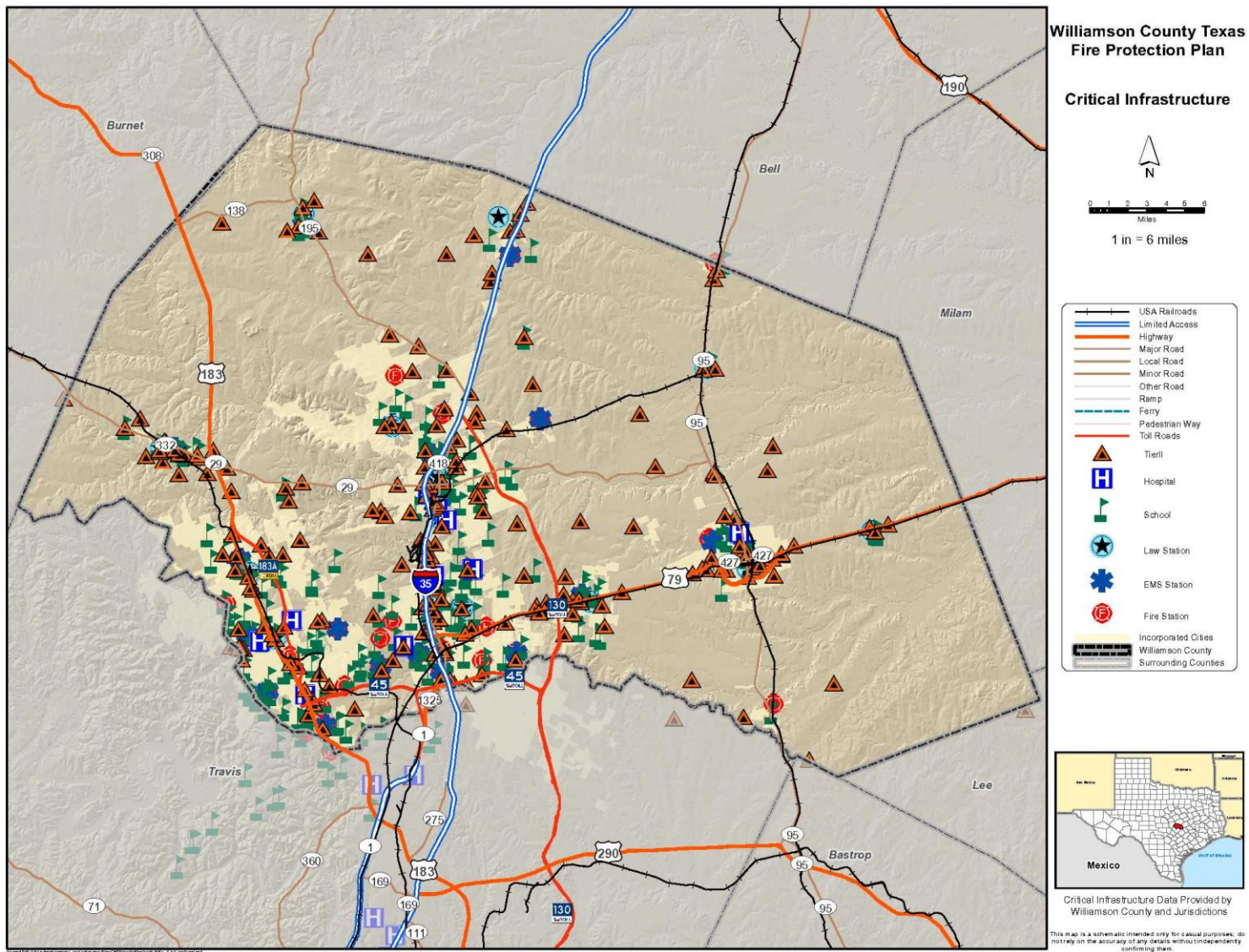


Table 5-9. Critical Facilities and Infrastructure by Wildfire Class in Williamson County

	Very Low	Low	Moderate	High	Very High
Medical and Health	0	0	0	0	0
Government Functions	1	0	0	0	0
Protective Functions	1	0	1	0	0
Schools	11	13	3	0	0
Hazardous Materials	4	13	1	0	0
Bridges	96	112	24	0	0
Wastewater	3	2	0	0	0
Power	0	0	0	0	0
Communications	0	3	0	0	0
Transportation	0	0	0	0	0
Dams	27	21	2	0	0
Source: Williamson County GIS					

5.11 COUNTY LAND USE AND DEVELOPMENT TRENDS AND ISSUES

5.11.1 Trends

The Austin American Statesman has reported that Austin added more than 20,000 people each year from 2011 to 2015, but the new data shows that it added only 17,738 in the most recent year — a gain of 1.9 percent, its smallest increase in six years. At the same time, suburban Central Texas towns like Georgetown, Cedar Park, Round Rock and Pflugerville were among the nation’s 25 fastest-growing cities with 50,000 people or more. Demographers report that the Williamson County area is experiencing a level of urban sprawl that may be unprecedented for Central Texas concluding that one major driver for Austin’s sprawl is the rising cost of housing in the city as compared with the suburbs as well as a post-recession return of big, national suburban home building. Austin demographer Ryan Robinson reported that Central Texas grows because of the vibrancy — economically, culturally, socially — that is still mainly emanating from the city of Austin. In many cases, the rapid growth in the County is expanding developed areas to the edge or into areas historically considered to be wildland increasing the potential conflicts of development and wildland fires.

5.11.2 Issues

The major issues for county land use and development trends in regards to wildfire are listed in this section.

Public education and outreach to people living in or near the fire hazard zones should include information about and assistance with mitigation activities such as defensible space, and advance identification of evacuation routes and safe zones.

- Wildfires could cause landslides as a secondary natural hazard.
- Climate change could affect the wildfire hazard.

-
- Future growth into interface areas should continue to be managed.
 - Area fire districts need to continue to train on WUI events.
 - Vegetation management activities should be enhanced.
 - Regional consistency of higher building code standards should be adopted such as residential sprinkler requirements and prohibitive combustible roof standards.
 - Fire department water supply in high risk wildfire areas should be enhanced.
 - Expand certifications and qualifications for fire department personnel. Ensure that all firefighters are trained in basic wildfire behavior, basic fire weather, and that all company officers and chief level officers are trained in the wildland command and strike team leader level.

6. FIRE PROTECTION INFRASTRUCTURE

6.1 FIRE PROTECTION DISTRICTS

Williamson County is served by sixteen different fire protection districts. These districts are listed in Table 6-1 below.

Table 6-1. Williamson County Fire Departments and Districts

Department / District	
Austin Fire Department	Jollyville Fire Department / Williamson County ESD #1
Bartlett Volunteer Fire Department	Leander Fire Department
Cedar Park Fire Department / Williamson County ESD #11 & 12	Liberty Hill Fire Department / Williamson County ESD #4
Coupland Volunteer Fire Department / Williamson County ESD #10	Round Rock Fire Department / Williamson County ESD #9
Florence Volunteer Fire Department / Williamson County ESD #	Sam Bass Fire Department / Williamson County ESD #2
Georgetown Fire Department / Williamson County ESD #8	Taylor Fire Department
Granger Volunteer Fire Department	Taylor Volunteer Fire Department
Hutto Fire Rescue / Williamson County ESD #3	Thrall Volunteer Fire Department
Jarrell Fire Department Jarrell Fire Department / Williamson County ESD 5	

Each fire protection district within the county has varying capabilities. The capabilities of each department will be profiled in individual annexes (Annexes 1-19) found in this plan. This section will provide a general overview of each department.

Austin Fire Department

A small portion of the City of Austin lies within Williamson County. The City of Austin has completed a Community Wildfire Protection Plan of their own and can accessed via the Department site.

Bartlett Volunteer Fire Department

The City of Bartlett is divided equally within both Bell and Williamson Counties. The Bartlett Volunteer Fire Department provides fire service for the northeastern portions of Williamson County, which primarily consist of rural farm and ranch land. Additionally, the City of Bartlett subscribes to the Bell County Emergency Management Plan.

Cedar Park Fire Department

The Cedar Park Fire Department was established in 1972 as a volunteer department. In 2001, the fire department essentially became a full-time paid department under the City organization. The fire department responds to calls in both the City and the extraterritorial jurisdiction serving a population of approximately 80,000 people. The Center for Public Safety Excellence conferred accredited status to Cedar Park Fire Department in 2014.



Staffing for the Department includes the following:

- Fire Administration
- Emergency Operations
- Fire Protection Division
- Training

Dispatcher

The Cedar Park Fire Department was established in 1972 as a volunteer department. In 2001, the fire department essentially became a full-time paid department under the City organization. The fire department responds to calls in both the City and the extraterritorial jurisdiction serving a population of approximately 80,000 people. The Center for Public Safety Excellence conferred accredited status to Cedar Park Fire Department in 2014.

Staffing for the Department includes the following:

- Fire Administration
- Emergency Operations
- Fire Protection Division
- Training
- Dispatcher

Coupland Volunteer Fire Department, Williamson County ESD #10

The Coupland Volunteer Fire Department provides protection for a population of approximately 2,000 people within 60 square miles of eastern Williamson County, TX. The Coupland VFD primary coverage area is within WilCo ESD#10.



Established in 1979, Coupland VFD is entirely staffed by volunteers. We respond to 350 – 400 calls per year, with medical calls, motor vehicle accidents and outdoor fires being the most frequent incident types.

We Department operates an auto aid agreement with our partners in Thrall, Weir, and Taylor VFDs, allowing all four departments to provide a higher level of service to our communities than one department could alone.

Our response area is largely rural, with small communities and farm land making up much of the area. However, in common with the rest of Williamson County, we are starting to see the establishment of new sub-divisions and an increase in the number of homes in the district.

The department responds out of a single station with a fleet that includes two structural engines, one Type 3 brush truck and one type 6 brush truck.

Florence Volunteer Fire Department

Florence Volunteer Fire Department/ Williamson County ESD#7 District covers 134 square miles of Northwest Williamson County. The area is mostly rural open land with small acreage tracts around the City of Florence. The fire department was established in 1928 as an all-volunteer department. In 2005 the Emergency Service District was established. The department is now a combination department but still relies heavily on the volunteers.



There are two major highways that run through the District US 183 and TX 195. The Wildland Urban Interface area is a reality as more traditional Agriculture property are being sold and subdivided into small tracts. The lack of an adequate water supply in most areas presents a challenge in fire suppression.

The department currently has a station in the City of Florence with a second station under construction in Andice.

The City of Florence and Florence Fire District maintain a Community Wildfire Protection Plan and can be accessed through the fire department website.

Georgetown Fire Department

The Georgetown Fire Department operates 5 stations, combination fire and EMS, staffed with paid personnel. The department covers a diverse area consisting of commercial and residential neighborhoods along with large tracts of undeveloped land. The department operates fire apparatus provided by the Texas Intrastate Fire Mutual Aid System (TFMAS) and deploys upon request. The department is funded by the City of Georgetown and Emergency Services District #8.

Granger Volunteer Fire Department

The Granger Volunteer Fire Department's mission is to save lives and protect property. The department is served by one station and is made up of 15 volunteer firefighters. The Granger Volunteer Fire Department provides firefighting and emergency medical services/first responder services. The firefighters are under the command of one fire chief and two assistant chiefs.

Hutto Fire Rescue/Williamson County Emergency Services District #3

Williamson County Emergency Services District #3 (dba Hutto Fire Rescue) provides fire and rescue services from one fire station to 63 square miles of eastern Williamson County, Texas. We protect a population of approximately 45,000 residents. This includes low-income and high-income residential neighborhoods. Some of these homes are located in the wildland-urban interface areas by residents wishing to improve their quality of life. All of these homes range from one- and two-family single-story dwellings, to one- and two-family or multiple-family dwellings that are 3-stories or greater. Currently Hutto Fire Rescue is responsible for providing a variety of emergency services which includes responding to structure fires, wildland fires, hazardous materials incidents, medical emergencies, motor vehicle collisions, swift water rescue situations, and technical rescue situations.



This emergency service protection is rendered through the efforts of both paid and volunteer firefighters, 24 hours a day. Hutto Fire Rescue currently employs 24 firefighters to staff two engine for three shifts providing eight firefighters on duty each day.

Jarrell Fire Department / Williamson County ESD 5

Williamson County ESD 5/Jarrell Fire Department provides protection for 75 square miles of north Williamson County, Texas. Jarrell Fire Department has grown from a full volunteer department established in 1953 to a combination department that is primarily staffed by career personnel.



Jarrell FD protects 13 miles of the IH-35 corridor and a rapidly growing community. Our response area includes sub-divisions with as many as 1500 homes, the City of Jarrell, along with wild land and agricultural properties with increasing areas of wild land/urban interface.

The department responds out of a single station with a fleet that includes one structural engine, one tender, one squad and one Type 6 brush apparatus.



Jollyville Fire Department

The Jollyville Fire Department covers an area of the unincorporated urban area of Williamson County surrounded by the City of Austin. The department consist of one station staffed by both paid and volunteer staff. The fire district consists primarily of developed neighborhood communities and commercial real estate with large tracts of undeveloped land on the eastern side of the district. The department is funded by Emergency Services District #1.



Leander Fire Department

The Leander Fire Department began as an all-volunteer department in 1965. In 1999, the city hired its first paid staff and since that time, the department has grown to include 4 fire stations, 56 full-time firefighters and 25 volunteer firefighters. The Fire Department responds to calls in both the City and the ETJ serving a population of approximately 60,000. Leander Fire Department is organized into four different divisions to allow for focus in certain areas to meet the mission of the department. The divisions are:

- Fire Administration
- Emergency Operations
- Preparedness and Wellness
- Prevention and Life Safety

The City of Leander and Leander Fire Department maintains a Community Wildfire Protection Plan, which can be accessed on the fire department website.

Liberty Hill Fire Department / Williamson County ESD No. 4

The Liberty Hill Fire Department is in the western area of Williamson County, primarily comprised of ranches, smaller 5-10 acres tracts of land, the City of Liberty Hill, and numerous new subdivisions. Currently, the Liberty Hill Fire Department is housed in one station with both paid and volunteer staff but is in the process of constructing a second station. The department is funded by Emergency Services District #4.

The City of Liberty Hill and Liberty Hill Fire Department maintains a Community Wildfire Protection Plan, which can be access through the fire department website.

Round Rock Fire Department

The Round Rock Fire Department operates 9 station staffed with paid personnel. The department developed a robust wildland firefighting program following the Texas Wildfire of 2011. The City of Round Rock is in the process of developing a Community Wildfire Protection Plan. The department is funded by the City of Round Rock and Emergency Services District #10.

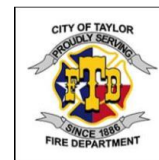
Sam Bass Fire Department

The Jollyville Fire Department covers an area of the unincorporated urban area of Williamson County surrounded by the City of Austin. The department consist of one station staffed by both paid and volunteer staff.

The Sam Bass Fire Department was created in 1980 and covers the unincorporated area located between the Cities of Austin, Cedar Park, Leander, and Round Rock. The department is comprised of both paid and volunteer staff and operates two station with a third under construction. The fire district consists primarily of developed neighborhood communities mixed with commercial and undeveloped land. The department provides fire and medical response services to Emergency Services District #2 and a portion of #9.

Taylor Fire Department

The Taylor Fire Department operates 2 stations staffed with paid personnel and covers the incorporated are of the City of Taylor. The fire district primarily consists of residential and commercials real estate with some areas of undeveloped land. The department is fully funded by the City of Taylor.



Taylor Volunteer Fire Department

Williamson County Taylor Volunteer Fire Department (VFD) provides protection for 79 square miles of east Williamson County, Texas. Taylor VFD has grown from a 6-member volunteer department to 18 strong. The Department is completely volunteer and rely on funding through donations and County Emergency Service Organizations payments for the operations budget.



Taylor VFD protects the 79 and 95 corridors and a rapidly growing community. The response area includes sub-divisions and rural farm land along with wild land and agricultural properties with increasing areas of wild land/urban interface. The District has only 6 hydrants in 79 square miles. The District also has several miles of train tracks along with a large water treatment facility on Granger Lake

The department responds out of a single station with a fleet that includes one structural engine, two tenders, three brush trucks, one rescue apparatus and a command unit.

Thrall Volunteer Fire Department

The Thrall Volunteer Fire Department consist of one station in the City of Thrall and is compromised solely of volunteers. The fire district was recently annexed into Emergency Services District #10 by voters in 2017. The department operates with auto and mutual aid agreements with Coupland, Taylor Volunteer, and Weir Fire Departments.

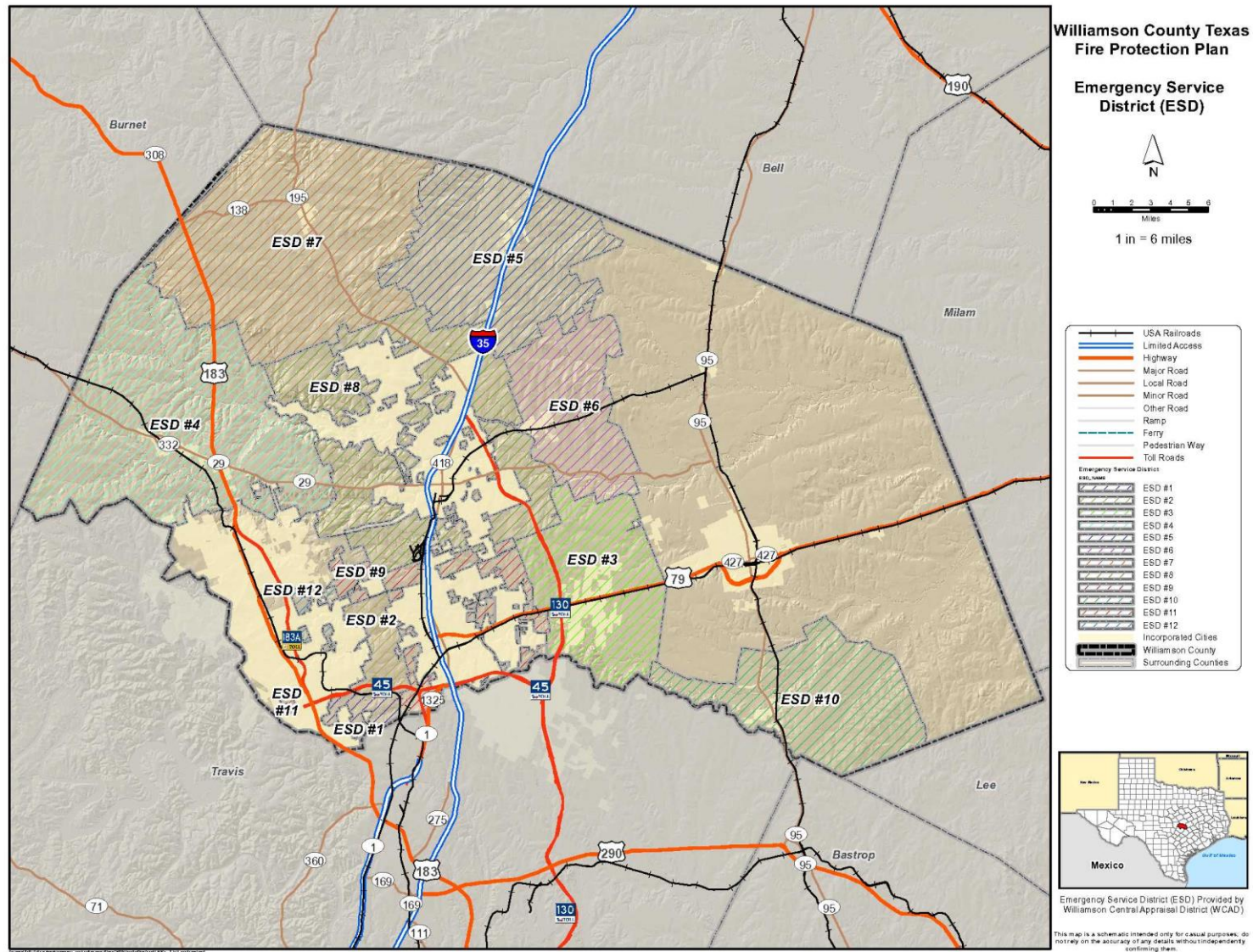
Weir Volunteer Fire Department

The Weir Volunteer Fire Department consist of one station in the City of Weir, is comprised solely of volunteers and is funded through Emergency Services District #6. The department routinely operates with auto and mutual aid agreements with Coupland, Taylor Volunteers, and Thrall Fire Departments.

The Fire District covers the City of Weir and communities of Walburg and Jonah. Most of the area is comprised of large tracts of land, for farming and ranching, with increasing numbers of residential subdivisions.

Figure 6-1below identifies the Emergency Service Districts within Williamson County.

Figure 6-1. Williamson County Emergency Service Districts



7. COMMUNITY PROTECTION ASSESSMENT

7.1 INTRODUCTION

Texas A&M FS, with the understanding that property and homeowners are not powerless in the defense against wildfires. They state that by taking a proactive approach to wildfire prevention, property owners can significantly increase their safety and their improvements likelihood of survival during a catastrophic wildfire event. Texas Wildfire Risk Assessment Portal, or TxWRAP, is the primary mechanism for the Texas Forest Service to deploy risk information and create awareness about wildfire issues across the state. TxWRAP is comprised of a suite of web tools tailored to support specific workflow and information requirements for the public, local community groups, government officials, professional hazard mitigation planners, and wildland fire managers. Collectively these tools provide the baseline information needed to support mitigation and prevention efforts across the state.

TxWRAP allows users to identify wildfire threats for a particular area based on landscape characteristics, historical fire occurrence, weather conditions, terrain and potential fire behavior. It also routes users to resources that can help them implement wildfire prevention practices. TxWRAP characteristics profiles in this plan include: flame length, wildfire threat, vegetation, surface fuels and the wildland urban interface.

7.2 CHARACTERISTIC FLAME LENGTH

Flame length is defined as the distance between the flame tip and the midpoint of the flame depth at the base of the flame, which is generally the ground surface. It is an indicator of fire intensity and is often used to estimate how much heat the fire is generating. Flame length is typically measured in feet. Flame length is the measure of fire intensity used to generate the response index outputs for the TxWRAP.

Flame length is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in Texas. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 22 weather influence zones in Texas. The data shows that more than 55.3% of the County—predominantly the eastern portion, east of Interstate-35—has flame length considered to be Low or Non-Burnable.

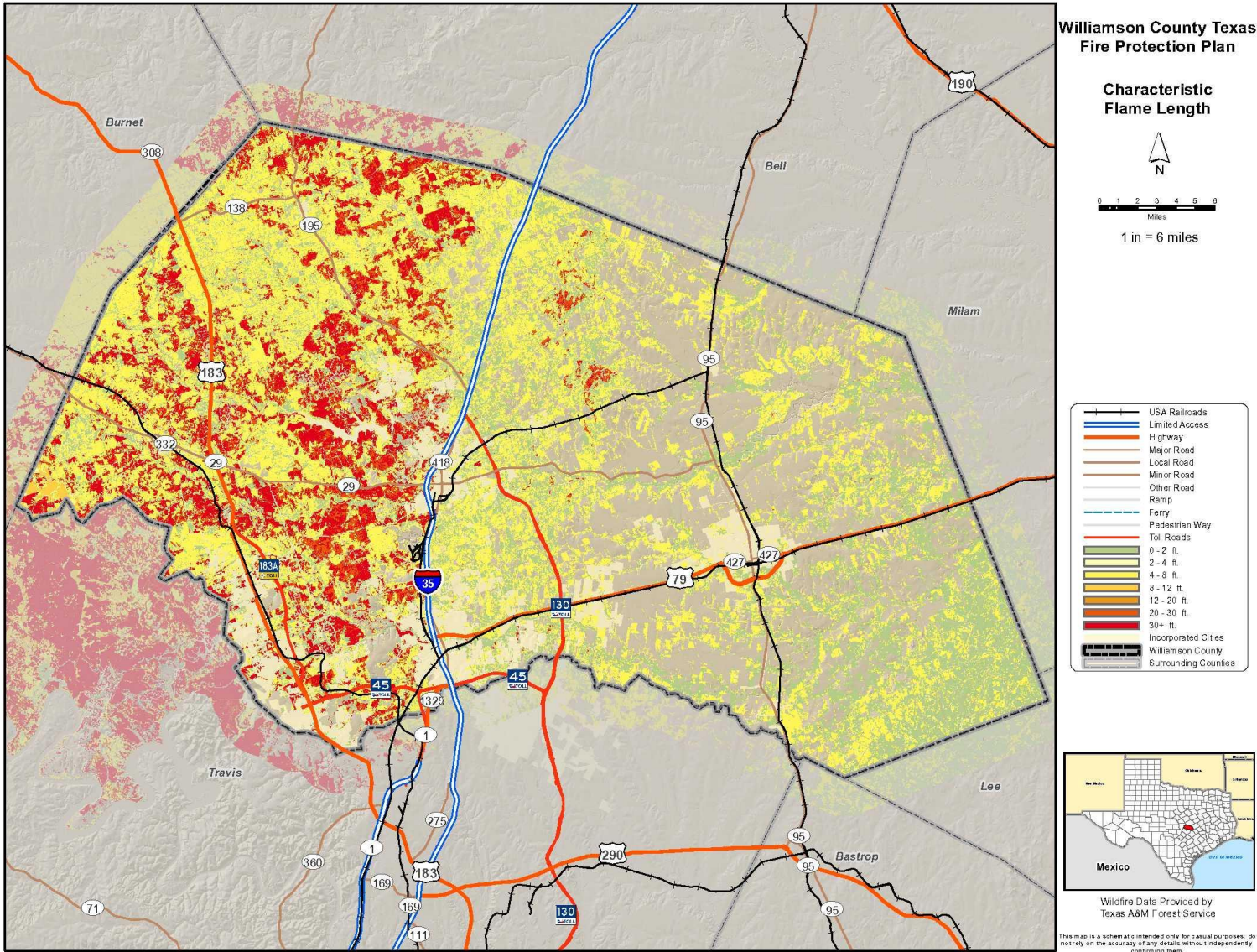
DEFINITION

*Characteristic **Flame Length** is the typical or representative flame length of a potential fire based on a weighted average of four percentile weather categories. Flame length is defined as the distance between the flame tip and the midpoint of the flame depth at the base of the flame, which is generally the ground surface.*

Table 7-1. Characteristic Flame Length (in acres) in Williamson County

	Class	Acres	Percent
	Non-Burnable	252,706	34.8%
	1 (Low)	137,748	18.9%
	2	11,312	1.6%
	3 (Moderate)	236,230	32.5%
	4	2,754	0.4%
	5 (High)	77	0%
	6	36,696	5.0%
	7 (Very High)	49,676	6.8%
Total:		727,200	100.0 %

Figure 7-1. Characteristic Flame Length (in acres) in Williamson County



7.3 RISK OF WILDFIRE THREAT

Per TFS, the “Wildfire Threat” is the likelihood of a wildfire occurring or burning into an area. Threat is derived by combining a number of landscape characteristics including surface fuels and canopy fuels, resultant fire behavior, historical fire occurrence, percentile weather derived from historical weather observations, and terrain conditions. These inputs are combined using analysis techniques based on established fire science.

The measure of wildfire threat used in the Texas Wildfire Risk Assessment Portal is called Wildland Fire Susceptibility Index, or WFSI. WFSI combines the probability of an acre igniting (Wildfire Ignition Density) and the expected final fire size based on rate of spread in four weather percentile categories. WFSI is defined as the likelihood of an acre burning. Since all areas in Texas have WFSI calculated consistently, it allows for comparison and ordination of areas across the entire State. For example, a high threat area in eastern Texas is equivalent to a high threat area in western Texas.

To aid in the use of Wildfire Threat for planning activities, the output values are categorized into seven classes. These are given general descriptions from Low to Very High threat. The following table identifies the seven wildfire threat classes as well as the total number of Williamson County acres that fall within each class and the total percent of Williamson County within each threat class.

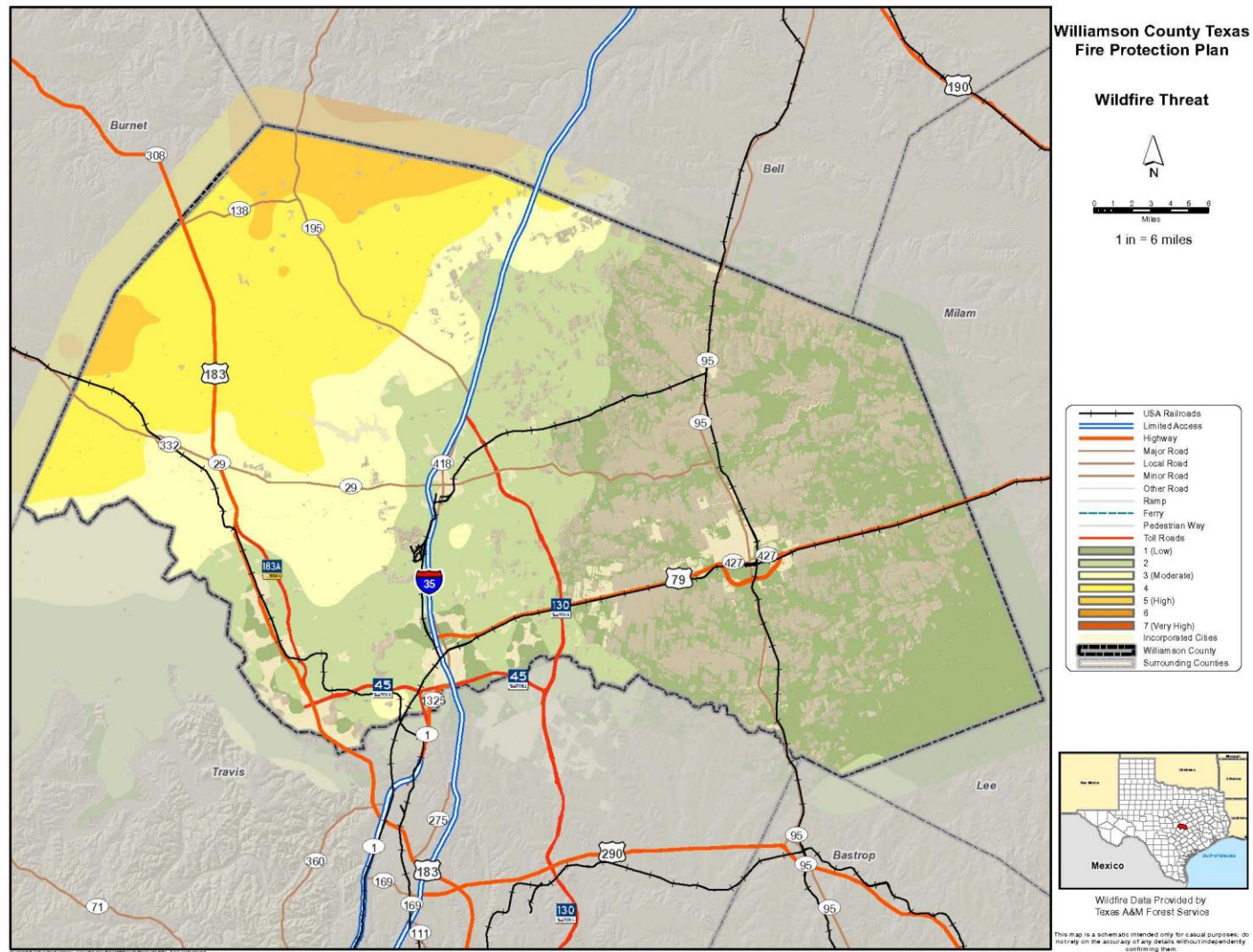
DEFINITIONS

Surface fuels-Surface fuels, or fire behavior fuel models as they are technically referred to, contain the parameters needed by the Rothemel (1972) surface fire spread model to compute surface fire behavior characteristics, such as rate of spread, flame length, fireline intensity, and other fire behavior metrics.

Table 7-2. Wildfire Threat by Burn Classification in Williamson County

	Class	Acres	Percent
	Non-Burnable	184,491	25.4%
	1 (Low)	159,424	21.9%
	2	130,477	17.9%
	3 (Moderate)	94,422	13.0%
	4	127,699	17.6%
	5 (High)	30,687	4.2%
	6	0	0%
	7 (Very High)	0	0%
Total:		727,200	100.0%

Figure 7-2. Wildfire Threat



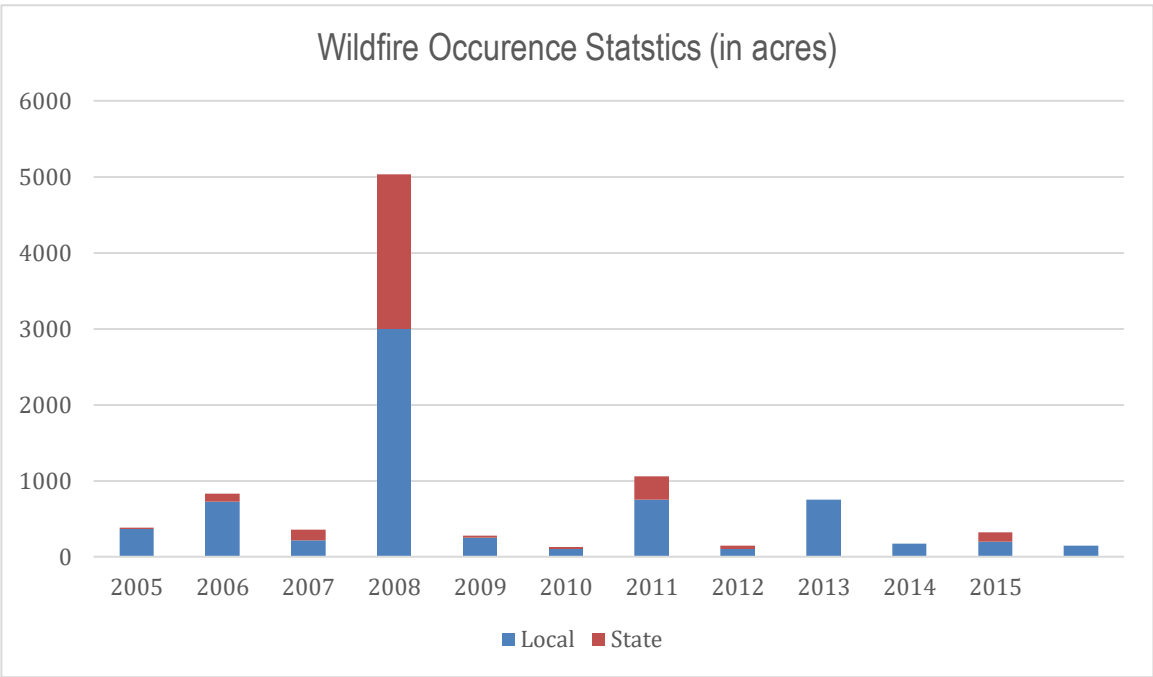
7.4 WILDFIRE OCCURRENCE STATISTICS

Per TFS, wildfire occurrence statistics provide insight as to the number of fires, acres burned and cause of fires in Texas. These statistics are useful for prevention and mitigation planning. They can be used to quantify the level of fire business, determine the time of year most fires typically occur, and develop a fire prevention campaign aimed at reducing a specific fire cause. The fire occurrence statistics are grouped by primary response agency type, which include:

- TFS – The TFS fire occurrence database represents all state-reported fires.
- Local – The local category includes fires reported via TFS’s online fire department reporting system. It is a voluntary reporting system that includes fires reported by both paid and volunteer fire departments since 2005.

Sixteen years of historic fire report data was used to create the fire occurrence summary charts. Data was obtained from state and local fire department report data sources for the years 2005 to 2016. The compiled fire occurrence database was cleaned to remove duplicate records and to correct inaccurate locations.

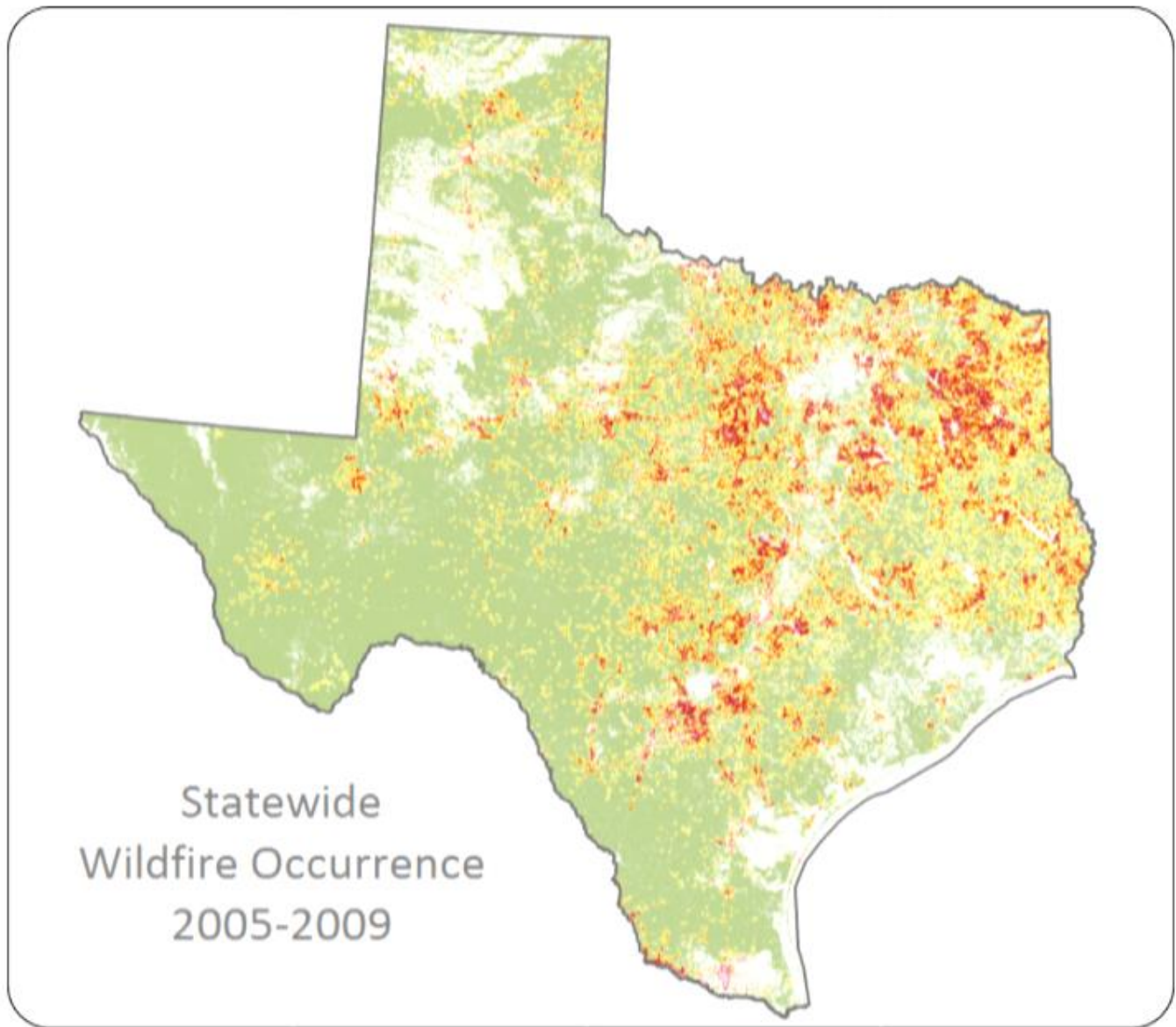
Figure 7-3. Wildfire Acres Burned in Williamson County and the State of Texas (2005–2016)



7.5 WILDFIRE IGNITION DENSITY

Wildfire ignition density as defined by TFS, is the likelihood of a wildfire starting based on historical ignition patterns. The TFS further states that 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. The mapping of the wildfire ignition density is only done on a statewide basis. However, the mapping identifies Williamson County to be located in a mixture of classifications from non-burnable (predominantly east of Interstate-35) to areas of very high burnability (predominantly found west of Interstate-35).

Figure 7-4. Statewide Wildfire Occurrence from 2005 to 2009



Source: TFS - Texas Wildfire Risk Assessment Summary Report Williamson County

7.6 AREAS OF HIGH WILDFIRE THREAT

Analysis of the document countywide wildfire characteristics and the overall wildfire threat in Williamson County indicate that typically, areas of the County that are at highest risk for wildfire are mostly west of Interstate-35 as well as just east of the Interstate. However, this does not preclude areas in the eastern portion of the County as having pockets of land with increased risk. More detailed information on wildfire characteristics and threat on the fire district level can be found in the appendices of this document.

8. COMMUNITY WILDFIRE PUBLIC INVOLVEMENT AND SURVEY

8.1 PUBLIC INVOLVEMENT

Broad public participation in the planning process helps ensure that diverse points of view about the planning area's needs are considered and addressed. The public must have opportunities to comment on wildfire mitigation plans during the drafting stages and prior to plan approval to ensure an implementable community-supported plan. The strategy for involving the public in this plan emphasized the following elements:

- Include members of the public on the Steering Committee
- Use a community survey/questionnaire to evaluate whether the public's perception of risk and support of hazard mitigation has changed since the initial planning process
- Attempt to reach as many planning area citizens as possible using multiple media
- Identify and involve planning area stakeholders
- Solicit public feedback at each stage of plan implementation, monitoring, and evaluation

8.1.1 Stakeholders and the Steering Committee

Stakeholders are the individuals, agencies, and jurisdictions that have a vested interest in the recommendations of the hazard mitigation plan, including planning partners. The effort to include stakeholders in this process included stakeholder participation on the Steering Committee. Stakeholders were encouraged to attend and participate in all committee meetings.

8.1.2 Survey/Questionnaire

As part of the planning process for the 2016 Williamson County Hazard Mitigation Plan a questionnaire (see associated figure was developed to gauge household preparedness for natural hazards; the level of knowledge of tools and techniques that assist in reducing risk and loss from natural hazards; and the perceived impact of natural hazards on Williamson County and participating cities' residents and businesses. This on-line questionnaire was designed to help identify areas vulnerable to one or more natural hazards. The answers to these 35 questions helped guide the Steering Committee in prioritizing hazards of impact and in selecting goals, objectives, and mitigation strategies. A total of 236 questionnaires were

The screenshot shows the 'Williamson County TX HMP Update Survey' introduction page. At the top is a header with the Williamson County Texas logo. Below it, the title 'Williamson County TX HMP Update Survey' is displayed. The page is titled '1. Survey Introduction' and shows a progress bar at 1/5. The text explains that the survey is a partnership of local governments and other stakeholders in Williamson County, created to update the Hazard Mitigation Plan. It states that the survey consists of 35 questions plus an opportunity for additional comments, and that the survey should take less than 5 minutes to complete and is anonymous. The page concludes with a thank you message from the Williamson County Hazard Mitigation Steering Committee. The first question, '1. Where in Williamson County do you live?', is displayed with a grid of radio button options for various locations: Andice, Austin, Bartlett, Cedar Park, Coupland, Hutto, Jarrell, Jonah, Leander, Liberty Hill, Schwertner, Serenada, Taylor, Thomdale, and Thrall.

completed during the course of this planning process.

The results of the survey and the information received from it should form a basis for implementing proactive actions including education and outreach efforts that address actual and perceived hazards of concern for a community. According to the survey:

- 58% of the respondents in the mitigation plan survey stated that they were concerned, very concerned or extremely concerned regarding the potential occurrence and impacts of wildfire in Williamson County.
- Additionally, 32% of the respondents stated that their property was located in an area at risk for wildfires.
- However, and possibly more importantly, 30% of the respondents stated that they were unsure as to whether their property was located in a high wildfire danger area.

Also of note are the types of projects that respondents prioritized for the county, state or federal government to undertake in order to reduce damage and disruption from hazard events within Williamson County. These numbers indicate education and outreach would be beneficial to the general population within Williamson County in order to better understand wildfire risk and actions to reduce the risk. The highest-ranking projects fell in the following three categories:

- Retrofit and strengthen essential facilities such as police, fire, schools and hospitals
- Provide better public information about risk, and the exposure to hazards within the operational area
- Perform projects that restore the natural environments capacity to absorb the impacts from natural hazards

Table 8-1. Survey Question Regarding Agency Roles

2015-2016 Hazard Mitigation Plan Survey What types of projects do you believe the county, state or federal government agencies should be doing in order to reduce damage and disruption from hazard events within Williamson County?				
	High	Medium	Low	Total
Retrofit and strengthen essential facilities such as police, fire, schools and hospitals.	59.38%	31.77%	8.85%	192
Strengthen codes and regulations to include higher regulatory standards in hazard areas.	39.90%	42.49%	17.62%	193
Acquire vulnerable properties and maintain as open space.	24.35%	51.30%	24.35%	193
Assist vulnerable property owners with securing funding for mitigation.	23.32%	50.78%	25.91%	193
Provide better public information about risk, and the exposure to hazards within the operational area.	59.28%	30.93%	9.79%	194
Perform projects that restore the natural environments capacity to absorb the impacts from natural hazards.	49.74%	40.93%	9.33%	193
Perform projects that mitigate the potential impacts from climate change.	38.54%	32.81%	28.65%	192

Source: 2016 Williamson County Hazard Mitigation Plan Community Survey

As part of the committee input process for the development of this CWPP, the plan leadership of the CWPP initiated a new survey to gather community input specifically on the perceived threat and impacts of wildfire in the County. The link to the survey was provided to all steering and stakeholder committee members and they were encouraged to promote survey participation within their jurisdiction(s). Respondents to the survey were received from across the County with a strong response from the Georgetown and Hutto areas. Of the respondents 74% stated that they were private landowners within the County. Of the respondents, 13% stated that they were fire safety agency staff while an equal percentage stated that they were homeowner association representatives.

The survey included a question regarding the respondent's experience and knowledge concerning wildfire. A snapshot of the response can be seen below:

What is your experience/knowledge level concerning wildfire? Check all that apply.

ANSWER CHOICES	RESPONSES
▼ Current or former professional wildland firefighter	12.50%
▼ Current or former volunteer firefighter	20.83%
▼ A wildland fire has threatened my home or community	25.00%
▼ A wildland fire has never threatened my home or community	16.67%
▼ I am very knowledgeable regarding wildland fire issues	20.83%
▼ I have some familiarity with wildland fire issues	41.67%
▼ I have little or no familiarity with wildland fire issues	29.17%
▼ Other (please specify)	Responses 8.33%

While the survey shows that 34% of the respondents were experienced in firefighting, it identifies that approximately 42% of the respondents state that they have some and 29% of the respondents state they have no familiarity with wildland fire issues. Additionally, 25% of the respondents state that a wildfire has threatened their home or community. These numbers show that there is a definite opportunity for a significant portion of the Williamson County population to benefit from wildfire education and outreach.

The survey also asked participants to identify their most pressing concerns regarding wildfire in their communities and Williamson County. Some of the comments received included:

- Increased actions regarding prevention and rehabilitation
- Education and outreach on the potential impacts of unattended trash fires
- Safety of livestock and buildings - What to do... try to evacuate? Open gates and let livestock flee? What can I do to help prevent?
- As residents of particular subdivisions abutting ranch land/open space that is not well maintained – what can be done to reduce wildfire risks from dead trees, tall grass and property that is not maintained
- Lack of resources and manpower in portions of the County including water and manpower
- Careless human behavior that could start wildfires
- Extended response and containment times
- Areas of the County are prone to high winds. What can be done at the property-owner level to build fire breaks to stop or slow down wildfires
- Concerns that the County could experience a significant wildfire event similar to wildfires that have occurred in Bastrop County

When responding to the question “Please list your thoughts or concerns regarding the impacts of vegetation reduction projects on the natural landscape” responses included:

- Adequate buffers must be established (through land development controls) between new development and riparian corridors and heavy vegetation areas

-
- Some fire breaks are necessary
 - No effort is being made to control vegetation
 - Many dead trees now exist due to last drought
 - Selective reduction in some areas is vital to lowering risk
 - Balance is a concern... we must keep the entire ecosystem balance in mind
 - Reduce vegetation around the home. Vegetation reduction around houses is the first step to protecting against wildfires
 - Homeowners in the subdivisions need to take better care of reducing excessive vegetation in their back yards especially when they have fires in their fire pits on windy days

The majority of the comments concerning vegetation could be summed up with the following comment that was received: "... fire destroys everything in its path. Unfortunately, a lot of it could be prevented by people taking care of their property. New vegetation beautiful a few years after the fire."

Survey participants' responses included the following:

- 58% of the survey respondents supported the statement "We can create landscapes that are more fire-safe while protecting/enhancing conservation values."
- 89% of the respondents agreed with the statement "The risk of damaging wildfire is increasing."
- 54% of the respondents expressed an interest in learning more so that they can better assist with protecting/enhancing conservation values.
- 95% of the survey respondents identified an interest in presentations by local agencies on firefighting techniques.
- While 73% of the survey respondents stated that they clear brush annually from the structures on their property, only 17% responded that they maintain a minimum of 100 feet around their property. 100 feet is the recommended distance for defensible space around structures

Survey participants were asked to list one or two ways the public can best help government agencies to achieve their roles and responsibilities. Responses included:

- Ask for and be provided with information
- Seek education and make sure access is probable
- Attend community meetings concerning the topic
- Become friends.... get to know the PEOPLE in the agencies... so the efforts are considered those of people helping people... shared community
- Be self-reliant and not dependent on government help, stay on top of the government agency and keep them less agency and more task force
- Listen to advice given and have a plan

Finally, many of the comments can be summarized with the following statement:

- Get involved

The Williamson County Steering Committee leadership reviewed and considered this input and information when developing the types of strategies and targeted projects for implementation in the County as outlined in the following sections.

9. WILDFIRE PREPAREDNESS STRATEGIES

9.1 WILDFIRE OBJECTIVES

The following strategies have been drafted for implementation on a countywide basis. Once each of the participating fire districts have completed their community assessments, more detailed strategies and implementation actions will be developed and included in this dynamic planning document.

Objective: Complete Wildfire Risk Assessments.

- Obtain training from the Texas Forest Service and Texas A&M on initiating and completing community assessments
- Based on the completed neighborhood assessments, prioritize subdivisions and neighborhoods within the County that present the highest risks from wildfire and implement education, outreach and mitigation activities within those areas first.
- Using GIS mapping of wildfire hazard areas to facilitate analysis and planning decisions through comparison with zoning, development, infrastructure, etc.
- Incorporate and maintain Williamson County's Wildland-Urban Interface Risk Assessment GIS data elements.
- Developing and maintaining a database to track community vulnerability to wildfire.
- Incorporate structural vulnerability assessments developed at the community level into the Williamson County Wildland-Urban Interface Risk Assessments.
- Establish and Maintain Community Protection Assessment Maps

Objective: Implement the National Cohesive strategy (a collaborative process with active involvement of all levels of government and non-governmental organizations, as well as the public, to seek national, all-lands solutions to wildland fire management issues).

- Create and maintain a website to promote Williamson County's CWPP.
- Establish and maintain maps that identify where hazard reduction efforts have been completed and where they should be pursued.
- Encourage governmental and non-governmental agencies to work together in undertaking education and outreach programs and the understanding that wildfire mitigation and prevention is a joint responsibility of residents, property owners and governmental agencies.
- Encourage the implementation of a Fuels Management Program to reduce hazardous vegetative fuels on public lands, near essential infrastructure, or on private lands by working with both public and landowners.
- Create heightened awareness of wildfire risk issues and work with communities to develop sound prevention and mitigation strategies to ensure safety. With rapid population growth into WUI areas and

trends showing an increasing frequency of elevated fire weather conditions, wildfire will continue to be a major concern moving forward. The TxWRAP is an electronic web-based resource to help address this growing concern.

- Encourage property owners to log into the TxWRAP to understand the wildfire threats for their particular area based on landscape characteristics, historical fire occurrence, weather conditions, terrain and potential fire behavior. Using the Public Viewer and the “What’s Your Risk?” tool, property owners will be able to find their risk level within a two-mile radius, plus information on how to reduce their risk.
- Initiate education and outreach programs that target citizens, businesses, developers, landscapers, and insurers among others to increase awareness of wildfire risk and strategies for protecting homes and infrastructure.
- Develop partnerships with neighborhood groups, homeowners’ associations, and others to conduct outreach activities.
- Educate and inform the public about proper evacuation procedures.
- Using local fire departments to conduct education programs.

Objective: Establish recommendations for minimizing the impacts of wildfire. Address treatment of structural ignitability.

- On larger lot parcels, encourage maintenance of 100-foot defensible space around all structures. For those smaller lot parcels, encourage property owners to maintain the defensible spaces within their own areas of influence.
- Encourage coordination of codes and regulations across all incorporated jurisdictions within the planning area to accomplish a balance between each respective entity’s mission and needed wildfire mitigation.
- Addressing density and quantity of development, as well emergency access, landscaping and water supply.
- Encourage the distribution of educational materials at the outset of the building permit review process. Educate residents on the concept that structures in wildfire hazard areas can be protected through the use of noncombustible building materials. Encourage the installation of roof coverings, sheathing, flashing, skylights, roof and attic vents, eaves, and gutters that conform to ignition-resistant construction standards and other combustible materials and building techniques.
- Ask local fire offices to provide outreach services with neighborhood organizations and special interest groups.
- Address fire mitigation through access, signage, fire hydrants, water availability, vegetation management, and special building construction standards.

Objective: Identify local capacity building and training needs.

- Maintain the Williamson County CWPP Steering Committee to oversee implementation, identify and coordinate funding opportunities, and sustain the Williamson County CWPP.

-
- Investigate opportunities for programs to cost share or provide tax incentives to assist landowners with mitigation activities like hazardous fuels removal and disposal.
 - Developing adequate local fire suppression capacity to meet community protection needs.
 - Objective: Promote wildfire awareness programs.
 - Implement Firewise principles to safeguard homes and “Ready, Set, Go!”
 - Create heightened awareness of wildfire risk issues and work with communities to develop sound prevention and mitigation strategies to ensure safety. With rapid population growth into WUI areas and trends showing an increasing frequency of elevated fire weather conditions, wildfire will continue to be a major concern moving forward.
 - Ask fire district representatives to develop and implement focused community meetings, programs, and wildfire safety education efforts directed at structure and property owners in the WUI areas.
 - Inform the public about the hazards of wildfire and their responsibility for emergency preparedness.

10. IMPLEMENTATION

10.1 ACCOMPLISHMENTS

Prioritization Worksheet Instructions

- ▲ Please complete one worksheet per action with as much detail as possible, using the instructions beginning on page 3 and examples provided by FEMA.

☐ **Name of Jurisdiction:** Williamson County ☐ **Mitigation Action #:** 5 (HMP #10)
Mitigation Action Title: Community Wildfire Protection Plan

Assessing the Risk	
Hazard(s) addressed: (check all that apply)	<input type="checkbox"/> All Hazards <input checked="" type="checkbox"/> Wildfire <input type="checkbox"/> Drought <input type="checkbox"/> Lightning <input type="checkbox"/> Thunderstorm <input type="checkbox"/> Tornado <input type="checkbox"/> Wind <input type="checkbox"/> Winter Weather
Specific problem being Mitigated (describe why action is needed)	Williamson County has a large areas with high population densities in the wildland urban interface. Many of these areas contain large amount of fuel, limited access/egress, limited water supplies, and terrain not conducive to use of mechanized fire equipment.
Evaluation of Potential Alternatives	
Alternatives Considered (name of project and reason for not selecting)	1. Develop a comprehensive County-wide, all jurisdictions, CWPP. 2. Create a stand-alone County specific CWPP. 3. Take no action.
Action/Project Intended for Implementation	
Describe how action will be implemented (main steps involved)	Collaborate with public safety professional, building associations, homeowner's associations, forest service, public information professionals to develop a comprehensive CWPP to include public education, fuels reduction, residential mitigation, and response recommendations.
Action/Project Type	<input checked="" type="checkbox"/> Local Plans and Regulations <input type="checkbox"/> Structure and Infrastructure Project <input checked="" type="checkbox"/> Natural Systems Protection <input checked="" type="checkbox"/> Education and Awareness Programs
Applicable Goals/Objectives (refer to list of goals/objectives)	<input checked="" type="checkbox"/> Goal #1 <input checked="" type="checkbox"/> Goal #2 <input checked="" type="checkbox"/> Goal #3 <input checked="" type="checkbox"/> Goal #4 Objective: 1, 2, 3, 4 and 5
Applies to existing or future development	<input type="checkbox"/> Existing Development <input type="checkbox"/> Future Development <input checked="" type="checkbox"/> Both Existing and Future Development <input type="checkbox"/> Not Applicable
Describe benefits (losses avoided)	<input checked="" type="checkbox"/> Life Safety <input checked="" type="checkbox"/> Damage Reduction <input type="checkbox"/> Other Describe: Lessing environmental impact.
Estimated Cost	<input type="checkbox"/> < \$10,000; <input type="checkbox"/> \$10,000 to \$100,000; <input checked="" type="checkbox"/> > \$100,000 Other Amount: \$
Plan for Implementation	
Responsible Department	Williamson County OEM, Williamson County Fire Chief's Association
Local Planning Mechanism (check all that apply)	<input type="checkbox"/> Capital Improvement Plan <input checked="" type="checkbox"/> Comprehensive Plan <input type="checkbox"/> Building Code <input type="checkbox"/> Ordinance <input type="checkbox"/> Other:
Potential Funding Sources	General Budget, FEMA Hazard Mitigation Funding, Donations/Sponsorship
Timeline for Completion	<input checked="" type="checkbox"/> Short Term (1-5 yrs.) <input type="checkbox"/> Long Term (>5 yrs.) <input checked="" type="checkbox"/> Ongoing
Reporting on Progress	
Status/Comment	<input type="checkbox"/> Not Started <input type="checkbox"/> In-progress <input type="checkbox"/> Delayed <input type="checkbox"/> Completed <input type="checkbox"/> No Longer Required Comment:
Completed by: (name, title, phone #)	Jarred Thomas, EMC 512.864.8269 Date: 07.14.15

Prioritization Worksheet Instructions

Mitigation Action #: 5 (HMP #10)

Mitigation Action Title: Community Wildfire Protection Plan

Criteria	Numeric Rank:		Provide brief rationale for numeric rank when appropriate
	Definitely Yes	= 4	
	Maybe Yes	= 3	
	Unknown/Neutral	= 2	
	Probably No	= 1	
	Definitely No	= 0	
1. Will the action result in <u>Life Safety</u> ?	4	x 2 = 8	This plan is designed to promote and preserve Life Safety as it relates to wildfires.
2. Will the action result in <u>Property Protection</u> ?	4	x 2 = 8	This plan is designed to increase defensible space and mitigate personal property against wildfire.
3. Will the action be <u>Cost-Effective</u> ? (future benefits exceed cost)		4	The development of plan is low cost and serve as the basis for wildfire mitigation for many years.
4. Is the action <u>Technically</u> feasible?		4	Technology exist to aid in the threat analysis and GIS mapping to aid in the prioritization of areas at risk.
5. Is the action <u>Politically</u> acceptable?		4	Yes, this plan has the support of the Court.
6. Does the jurisdiction have the <u>Legal</u> authority to implement?		4	Yes
7. Is <u>Funding</u> available for the action?		3	No direct funding allocated for the project, grant funding will be sought to complete the project.
8. Will the action have a positive impact on the natural <u>Environment</u> ?		4	Yes, this plan will lead to better land management, lowering risk thereby reducing the risk to environmentally sensitive areas.
9. Is the action <u>Socially</u> acceptable?		4	Yes
10. Does the jurisdiction have the <u>Administrative</u> capability to execute the action?		2	Additional staffing is needed to devote to the project.
11. Will the action reduce risk to more than one hazard (<u>Multi-Hazard</u>)?		2	Portions of the planning process should relate to additional hazards for future plans.
12. Can the action be implemented <u>Quickly</u> ?		3	No
13. Is there an Agency/Department <u>Champion</u> for the action?		4	Williamson County OEM and Williamson County Fire Chief's Association.
14. Will the action meet other <u>Community Objectives</u> ?		4	Yes, this project will aid in the protection of environmentally sensitive areas.
Total		58	
Priority: Low = <35 Medium = 35-49 High = >50	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High		

10.2 CHIPPING PROGRAM RESULTS

To be added as chipping programs and projects are completed.

10.3 WILDFIRE IMPLEMENTATION TO DATE

Project worksheets indicating the progress of projects and project implementation are provided in the following pages.

Prioritization Worksheet Instructions

Please complete one worksheet per action with as much detail as possible, using the instructions beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Williamson County Mitigation Action #: 7 (HMP #12)

Mitigation Action Title: All-Hazards Mapping



Assessing the Risk	
Hazard(s) addressed: (check all that apply)	<input checked="" type="checkbox"/> All Hazards <input type="checkbox"/> Wildfire <input type="checkbox"/> Drought <input type="checkbox"/> Lightning <input type="checkbox"/> Thunderstorm <input type="checkbox"/> Tornado <input type="checkbox"/> Wind <input type="checkbox"/> Winter Weather
Specific problem being Mitigated (describe why action is needed)	Williamson County is 1184 sq miles and tracking hazards, vulnerable populations, critical infrastructure and key resources is difficult to maintain operational awareness.
Evaluation of Potential Alternatives	
Alternatives Considered (name of project and reason for not selecting)	1. Create a County-wide All-Hazards mapping solution.
	2. Create a County specific All-Hazards mapping solution.
	3. Take no action.
Action/Project Intended for Implementation	
Describe how action will be implemented (main steps involved)	Collaborate with public safety professionals, GIS, hazard specific subject matter experts, private partners, and CIKR owner/operators to obtain data and create a comprehensive All-Hazards mapping solution. Additional GIS tools may be required to facilitate that use of the data.
Action/Project Type	<input checked="" type="checkbox"/> Local Plans and Regulations <input checked="" type="checkbox"/> Structure and Infrastructure Project <input type="checkbox"/> Natural Systems Protection <input type="checkbox"/> Education and Awareness Programs
Applicable Goals/Objectives (refer to list of goals/objectives)	<input checked="" type="checkbox"/> Goal #1 <input checked="" type="checkbox"/> Goal #2 <input checked="" type="checkbox"/> Goal #3 <input checked="" type="checkbox"/> Goal #4 Objective: 1, 2, 3, 4, and 5
Applies to existing or future development	<input type="checkbox"/> Existing Development <input type="checkbox"/> Future Development <input checked="" type="checkbox"/> Both Existing and Future Development <input type="checkbox"/> Not Applicable
Describe benefits (losses avoided)	<input checked="" type="checkbox"/> Life Safety <input checked="" type="checkbox"/> Damage Reduction <input type="checkbox"/> Other Describe: Lessening environmental impact.
Estimated Cost	<input type="checkbox"/> < \$10,000; <input checked="" type="checkbox"/> \$10,000 to \$100,000; <input type="checkbox"/> > \$100,000 Other Amount: \$
Plan for Implementation	
Responsible Department	Williamson County OEM
Local Planning Mechanism (check all that apply)	<input type="checkbox"/> Capital Improvement Plan <input checked="" type="checkbox"/> Comprehensive Plan <input type="checkbox"/> Building Code <input type="checkbox"/> Ordinance <input type="checkbox"/> Other:
Potential Funding Sources	General Budget, FEMA Hazard Mitigation Funding, Donations/Sponsorship
Timeline for Completion	<input type="checkbox"/> Short Term (1-5 yrs.) <input type="checkbox"/> Long Term (>5 yrs.) <input checked="" type="checkbox"/> Ongoing
Reporting on Progress	
Status/Comment	<input type="checkbox"/> Not Started <input type="checkbox"/> In-progress <input type="checkbox"/> Delayed <input type="checkbox"/> Completed <input type="checkbox"/> No Longer Required Comment:
Completed by: (name, title, phone #)	Jarred Thomas, EMC 512.864.8269 Date: 07.14.15



Prioritization Worksheet Instructions

Mitigation Action #: 7 (HMP #12)

Mitigation Action Title: All-Hazards Mapping

Criteria	Numeric Rank: Definitely Yes = 4 Maybe Yes = 3 Unknown/Neutral = 2 Probably No = 1 Definitely No = 0		Provide brief rationale for numeric rank when appropriate
1. Will the action result in <u>Life Safety</u> ?	4	x 2 = 8	This will greatly assist local planners and public safety officials better identify threats to the community and to businesses and develop plans to mitigate and respond to emergencies.
2. Will the action result in <u>Property Protection</u> ?	4	x 2 = 8	See above.
3. Will the action be <u>Cost-Effective</u> ? (future benefits exceed cost)		4	The project will be cost effective and serve as a basis for All-Hazard planning. Once completed the base map would only require periodic updating.
4. Is the action <u>Technically</u> feasible		4	The County currently possess the technology to develop and maintain the maps.
5. Is the action <u>Politically</u> acceptable?		4	Yes
6. Does the jurisdiction have the <u>Legal</u> authority to implement?		4	Yes
7. Is <u>Funding</u> available for the action?		3	No dedicated funding allocated, most likely completed through departmental budgeting and potential grant funding.
8. Will the action have a positive impact on the natural <u>Environment</u> ?		4	Yes, indirectly through additional planning processes.
9. Is the action <u>Socially</u> acceptable?		4	No known social issues.
10. Does the jurisdiction have the <u>Administrative</u> capability to execute the action?		4	Yes, the County maintains a robust GIS department.
11. Will the action reduce risk to more than one hazard (<u>Multi-Hazard</u>)?		4	Yes, this will aid in All-Hazards planning and risk assessments.
12. Can the action be implemented <u>Quickly</u> ?		3	The mapping process is under development and is being updated and modified as additional information is obtained.
13. Is there an Agency/Department <u>Champion</u> for the action?		4	Williamson County OEM, HAZMAT, 911, and GIS
14. Will the action meet other <u>Community Objectives</u> ?		4	This will play a significant role in future planning which will have an impact on other objectives.
Total		62	
Priority: Low = <35 Medium = 35-49 High = >50	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High		

10.1 WILDFIRE PROJECTS FUNDED TO DATE

Williamson County was awarded hazard mitigation funds following the 2011 Texas Fires to construct a shaded fuel break along sections of the Williamson County Southwest Regional Park perimeter. Funding was awarded in 2016 and the project was completed in February 2017. In total, a 50-foot-wide by 5-mile-long shaded fuel break was constructed. This project has greatly reduced the risk to adjacent homes and to environmentally sensitive areas within the park.

10.2 OTHER PRIORITIZED WILDFIRE PROJECTS

To be added as developed and prioritized

Prioritization Worksheet Instructions

Please complete one worksheet per action with as much detail as possible, using the instructions beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Williamson County Mitigation Action #: 1

Mitigation Action Title: Wildfire Fuels Reduction

Assessing the Risk	
Hazard(s) addressed: (check all that apply)	<input type="checkbox"/> All Hazards <input checked="" type="checkbox"/> Wildfire <input checked="" type="checkbox"/> Drought <input type="checkbox"/> Lightning <input type="checkbox"/> Thunderstorm <input type="checkbox"/> Tornado <input checked="" type="checkbox"/> Wind <input type="checkbox"/> Winter Weather
Specific problem being Mitigated (describe why action is needed)	Williamson County owns or maintains multiple parks and preserves, most are located in the Wildland Urban Interface. Many of the parks border residential subdivisions or commercial real estate.
Evaluation of Potential Alternatives	
Alternatives Considered (name of project and reason for not selecting)	1. Perform fuels reduction and create shaded fuel breaks on the property perimeter
	2. Create burn units on larger tracts to implement prescribe burning.
	3. Take no action.
Action/Project Intended for Implementation	
Describe how action will be implemented (main steps involved)	Perform a THIRA on each property and develop a priority list of properties requiring mitigation actions. Following EHP assessments perform the fuels reduction and create shaded fuel breaks. Upon completion, prescribed burning should take place where appropriate to lower fuel loads.
Action/Project Type	<input checked="" type="checkbox"/> Local Plans and Regulations <input type="checkbox"/> Structure and Infrastructure Project <input checked="" type="checkbox"/> Natural Systems Protection <input type="checkbox"/> Education and Awareness Programs
Applicable Goals/Objectives (refer to list of goals/objectives)	<input checked="" type="checkbox"/> Goal #1 <input checked="" type="checkbox"/> Goal #2 <input type="checkbox"/> Goal #3 <input type="checkbox"/> Goal #4 Objective: 2
Applies to existing or future development	<input type="checkbox"/> Existing Development <input type="checkbox"/> Future Development <input checked="" type="checkbox"/> Both Existing and Future Development <input type="checkbox"/> Not Applicable
Describe benefits (losses avoided)	<input checked="" type="checkbox"/> Life Safety <input checked="" type="checkbox"/> Damage Reduction <input type="checkbox"/> Other Describe:
Estimated Cost	<input type="checkbox"/> < \$10,000; <input type="checkbox"/> \$10,000 to \$100,000; <input checked="" type="checkbox"/> > \$100,000 Other Amount: \$
Plan for Implementation	
Responsible Department	Williamson Parks and OEM
Local Planning Mechanism (check all that apply)	<input type="checkbox"/> Capital Improvement Plan <input checked="" type="checkbox"/> Comprehensive Plan <input type="checkbox"/> Building Code <input type="checkbox"/> Ordinance <input type="checkbox"/> Other:
Potential Funding Sources	General Budget, FEMA Hazard Mitigation Funding, Private Donations, Volunteer Support
Timeline for Completion	<input type="checkbox"/> Short Term (1-5 yrs.) <input checked="" type="checkbox"/> Long Term (>5 yrs.) <input type="checkbox"/> Ongoing
Reporting on Progress	
Status/Comment	<input type="checkbox"/> Not Started <input type="checkbox"/> In-progress <input type="checkbox"/> Delayed <input type="checkbox"/> Completed <input type="checkbox"/> No Longer Required Comment:
Completed by: (name, title, phone #)	Jarred Thomas, EMC 512.864.8269 Date: 07.14.15

Prioritization Worksheet Instructions

Mitigation Action #: 1 _____

Mitigation Action Title: Wildfire Fuels Reduction

Criteria	Numeric Rank: Definitely Yes = 4 Maybe Yes = 3 Unknown/Neutral = 2 Probably No = 1 Definitely No = 0		Provide brief rationale for numeric rank when appropriate
1. Will the action result in <u>Life Safety</u> ?	4	$\times 2 = 8$	This greatly reduce the uncontrolled spread of wildfire that threatens large populations.
2. Will the action result in <u>Property Protection</u> ?	4	$\times 2 = 8$	This greatly reduce the uncontrolled spread of wildfire that threatens large numbers or structures.
3. Will the action be <u>Cost-Effective</u> ? (future benefits exceed cost)		4	The cost of these projects is minimal compared to the amount of property at risk to the adjacent parks.
4. Is the action <u>Technically</u> feasible		4	Yes
5. Is the action <u>Politically</u> acceptable?		4	Yes, first project is nearing the environmental assessment acceptance and subsequent grant funding.
6. Does the jurisdiction have the <u>Legal</u> authority to implement?		4	Yes
7. Is <u>Funding</u> available for the action?		3	No budget allocations, grant funding has been and will continue to be sought for these projects.
8. Will the action have a positive impact on the natural <u>Environment</u> ?		3	This will aid in protecting the environmentally sensitive areas that comprise the parks and preserves.
9. Is the action <u>Socially</u> acceptable?		4	There may be minimal local opposition to the creation of shades fuel breaks through the removal of vegetation immediately adjacent to a home owner's property.
10. Does the jurisdiction have the <u>Administrative</u> capability to execute the action?		4	Through the use of private contractors and volunteers the Parks Dept. can manage the project with minimal assistance from OEM.
11. Will the action reduce risk to more than one hazard (<u>Multi-Hazard</u>)?		3	This will aid in the reduction of large quantities of water to extinguish a wildfire, this critical during a drought.
12. Can the action be implemented <u>Quickly</u> ?		3	This is dependent on the size of the property and time of year. Many properties have environmental constraints on when work may be performed.
13. Is there an Agency/Department <u>Champion</u> for the action?		4	Williamson County Parks and OEM
14. Will the action meet other <u>Community Objectives</u> ?		4	
Total		54	
Priority: Low = <35 Medium = 35-49 High = >50	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High		

Prioritization Worksheet Instructions

Please complete one worksheet per action with as much detail as possible, using the instructions beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Williamson County Mitigation Action #: 2

Mitigation Action Title: Critical Infrastructure Threat Hazard Identification Risk Analysis (THIRA)

Assessing the Risk	
Hazard(s) addressed: (check all that apply)	<input checked="" type="checkbox"/> All Hazards <input type="checkbox"/> Wildfire <input type="checkbox"/> Drought <input type="checkbox"/> Lightning <input type="checkbox"/> Thunderstorm <input type="checkbox"/> Tornado <input type="checkbox"/> Wind <input type="checkbox"/> Winter Weather
Specific problem being Mitigated (describe why action is needed)	To determine the Threat Hazard for each of the County's facilities to identify and prioritize measures to mitigate against continuing or future damages incurred as a result from an All-Hazards related event.
Evaluation of Potential Alternatives	
Alternatives Considered (name of project and reason for not selecting)	1. Perform a comprehensive THIRA of each facility, create comprehensive map, and mitigation prioritization plan.
	2. Audit only facilities deemed at Critical Infrastructure.
	3. Take no action.
Action/Project Intended for Implementation	
Describe how action will be implemented (main steps involved)	As a part of the County COOP planning process audit and map each facility relating to the potential risk to natural hazards. Develop a prioritization list and strategies for mitigating potential risks and hazards.
Action/Project Type	<input checked="" type="checkbox"/> Local Plans and Regulations <input type="checkbox"/> Structure and Infrastructure Project <input type="checkbox"/> Natural Systems Protection <input type="checkbox"/> Education and Awareness Programs
Applicable Goals/Objectives (refer to list of goals/objectives)	<input checked="" type="checkbox"/> Goal #1 <input checked="" type="checkbox"/> Goal #2 <input checked="" type="checkbox"/> Goal #3 <input type="checkbox"/> Goal #4 Objective: 1, 2
Applies to existing or future development	<input type="checkbox"/> Existing Development <input type="checkbox"/> Future Development <input checked="" type="checkbox"/> Both Existing and Future Development <input type="checkbox"/> Not Applicable
Describe benefits (losses avoided)	<input checked="" type="checkbox"/> Life Safety <input checked="" type="checkbox"/> Damage Reduction <input type="checkbox"/> Other Describe
Estimated Cost	<input type="checkbox"/> < \$10,000; <input type="checkbox"/> \$10,000 to \$100,000; <input checked="" type="checkbox"/> > \$100,000 Other Amount: \$
Plan for Implementation	
Responsible Department	All Williamson County Departments
Local Planning Mechanism (check all that apply)	<input checked="" type="checkbox"/> Capital Improvement Plan <input checked="" type="checkbox"/> Comprehensive Plan <input type="checkbox"/> Building Code <input type="checkbox"/> Ordinance <input type="checkbox"/> Other:
Potential Funding Sources	General Budget, FEMA Hazard Mitigation Funding, Bond Packages
Timeline for Completion	<input type="checkbox"/> Short Term (1-5 yrs.) <input type="checkbox"/> Long Term (>5 yrs.) <input checked="" type="checkbox"/> Ongoing
Reporting on Progress	
Status/Comment	<input type="checkbox"/> Not Started <input type="checkbox"/> In-progress <input type="checkbox"/> Delayed <input type="checkbox"/> Completed <input type="checkbox"/> No Longer Required Comment:
Completed by: (name, title, phone #)	Jarred Thomas, EMC 512.864.8269 Date: 07.14.15

Prioritization Worksheet Instructions

Mitigation Action #: 2 _____

Mitigation Action Title: Critical Infrastructure THIRA

Criteria	Numeric Rank: Definitely Yes = 4 Maybe Yes = 3 Unknown/Neutral = 2 Probably No = 1 Definitely No = 0		Provide brief rationale for numeric rank when appropriate
1. Will the action result in <u>Life Safety</u> ?	4	x 2 = 8	Through the identification and mitigation of risks and hazards will render County facilities safer.
2. Will the action result in <u>Property Protection</u> ?	4	x 2 = 8	See above.
3. Will the action be <u>Cost-Effective</u> ? (future benefits exceed cost)		4	This will be a cost effective means to risk/hazard identification during the COOP planning process. Through COOP the facilities should continually be evaluated and updated as necessary.
4. Is the action <u>Technically</u> feasible?		4	Yes
5. Is the action <u>Politically</u> acceptable?		4	Yes
6. Does the jurisdiction have the <u>Legal</u> authority to implement?		4	Yes
7. Is <u>Funding</u> available for the action?		4	Yes, departmental budgets.
8. Will the action have a positive impact on the natural <u>Environment</u> ?		2	Unknown impact to environment, but will likely identify potential threats to be mitigated.
9. Is the action <u>Socially</u> acceptable?		4	Yes
10. Does the jurisdiction have the <u>Administrative</u> capability to execute the action?		4	Yes, as a County-wide effort.
11. Will the action reduce risk to more than one hazard (<u>Multi-Hazard</u>)?		3	Yes, this will be focused on All-Hazards.
12. Can the action be implemented <u>Quickly</u> ?		3	Yes, this will be a portion of the COOP planning process.
13. Is there an Agency/Department <u>Champion</u> for the action?		4	Williamson County OEM
14. Will the action meet other <u>Community Objectives</u> ?		4	Will aid in sustaining Continuity of Operations and Government.
Total		54	
Priority: Low = <35 Medium = 35-49 High = >50	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High		

Prioritization Worksheet Instructions

Please complete one worksheet per action with as much detail as possible, using the instructions beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Williamson County Mitigation Action #: 3 (HMP #7)
 Mitigation Action Title: Comprehensive Evacuation Planning

Assessing the Risk	
Hazard(s) addressed: (check all that apply)	<input type="checkbox"/> All Hazards <input checked="" type="checkbox"/> Wildfire <input type="checkbox"/> Drought <input type="checkbox"/> Lightning <input type="checkbox"/> Thunderstorm <input type="checkbox"/> Tornado <input type="checkbox"/> Wind <input type="checkbox"/> Winter Weather
Specific problem being Mitigated (describe why action is needed)	Williamson County's population continues to grow at rapid rate. With increasing road congestion, evacuating a large number of persons from an area may be difficult to achieve in a rapid manner.
Evaluation of Potential Alternatives	
Alternatives Considered (name of project and reason for not selecting)	1. Develop a county-wide comprehensive evacuation plan, with maps, messages, routing, pre-assigned rally points as a supplement to other operational plans.
	2. Establish evacuation routes and canned warning messages for high hazard areas.
	3. Take no action.
Action/Project Intended for Implementation	
Describe how action will be implemented (main steps involved)	Collaborate with public safety professional, traffic engineers, public information professionals and homeowner's association to develop comprehensive plans and messaging. Area specific plans based upon local THIRA.
Action/Project Type	<input checked="" type="checkbox"/> Local Plans and Regulations <input type="checkbox"/> Structure and Infrastructure Project <input type="checkbox"/> Natural Systems Protection <input checked="" type="checkbox"/> Education and Awareness Programs
Applicable Goals/Objectives (refer to list of goals/objectives)	<input checked="" type="checkbox"/> Goal #1 <input checked="" type="checkbox"/> Goal #2 <input checked="" type="checkbox"/> Goal #3 <input type="checkbox"/> Goal #4 Objective: 5
Applies to existing or future development	<input type="checkbox"/> Existing Development <input type="checkbox"/> Future Development <input checked="" type="checkbox"/> Both Existing and Future Development <input type="checkbox"/> Not Applicable
Describe benefits (losses avoided)	<input checked="" type="checkbox"/> Life Safety <input type="checkbox"/> Damage Reduction <input type="checkbox"/> Other Describe:
Estimated Cost	<input checked="" type="checkbox"/> < \$10,000; <input type="checkbox"/> \$10,000 to \$100,000; <input type="checkbox"/> > \$100,000 Other Amount: \$
Plan for Implementation	
Responsible Department	Williamson County OEM
Local Planning Mechanism (check all that apply)	<input type="checkbox"/> Capital Improvement Plan <input checked="" type="checkbox"/> Comprehensive Plan <input type="checkbox"/> Building Code <input type="checkbox"/> Ordinance <input type="checkbox"/> Other:
Potential Funding Sources	General Budget, FEMA Hazard Mitigation Funding, Donations/Sponsors
Timeline for Completion	<input type="checkbox"/> Short Term (1-5 yrs.) <input type="checkbox"/> Long Term (>5 yrs.) <input checked="" type="checkbox"/> Ongoing
Reporting on Progress	
Status/Comment	<input type="checkbox"/> Not Started <input type="checkbox"/> In-progress <input type="checkbox"/> Delayed <input type="checkbox"/> Completed <input type="checkbox"/> No Longer Required Comment:
Completed by: (name, title, phone #)	Jarred Thomas, EMC 512.864.8269 Date: 07.14.15

Mitigation Action #: 3 (HMP #7)

Mitigation Action Title: Comprehensive Evacuation Planning

Criteria	Numeric Rank:		Provide brief rationale for numeric rank when appropriate
	Definitely Yes	= 4	
	Maybe Yes	= 3	
	Unknown/Neutral	= 2	
	Probably No	= 1	
	Definitely No	= 0	
1. Will the action result in <u>Life Safety</u> ?	4	x 2 = 8	Preplanned and rapid evacuations will result in Life Safety.
2. Will the action result in <u>Property Protection</u> ?	2	x 2 = 4	This may result in personal property preservation through faster evacuation notices.
3. Will the action be <u>Cost-Effective</u> ? (future benefits exceed cost)		4	Plans are based upon populations and associated local risk. Once a plan has been established it should remain relatively unchanged. That allows for more rapid development of plans for new developments.
4. Is the action <u>Technically</u> feasible		4	The technology to create and maintain the maps is available at the County. The information may be able to be loaded additionally into the Computer Aided Dispatch system.
5. Is the action <u>Politically</u> acceptable?		4	Yes
6. Does the jurisdiction have the <u>Legal</u> authority to implement?		4	Yes
7. Is <u>Funding</u> available for the action?		3	Departmental budgeting is available to produce the mapping solution.
8. Will the action have a positive impact on the natural <u>Environment</u> ?		2	Unknown if this will have a positive impact on the environment.
9. Is the action <u>Socially</u> acceptable?		4	Yes
10. Does the jurisdiction have the <u>Administrative</u> capability to execute the action?		2	Yes
11. Will the action reduce risk to more than one hazard (<u>Multi-Hazard</u>)?		3	Yes, this will be developed for All-Hazards in conjunction with the All-Hazards Mapping project.
12. Can the action be implemented <u>Quickly</u> ?		3	
13. Is there an Agency/Department <u>Champion</u> for the action?		3	Williamson County OEM, Road and Bridge, SO, and GIS
14. Will the action meet other <u>Community Objectives</u> ?		3	This will aid in Community Resiliency.
Total		50	
Priority: Low = <35 Medium = 35-49 High = >50	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High		

Prioritization Worksheet Instructions

Please complete one worksheet per action with as much detail as possible, using the instructions beginning on page 3 and examples provided by FEMA.

Name of Jurisdiction: Williamson County Mitigation Action #: 6 (HMP #11)

Mitigation Action Title: Burn Ban Sign Installation



Assessing the Risk	
Hazard(s) addressed: (check all that apply)	<input type="checkbox"/> All Hazards <input checked="" type="checkbox"/> Wildfire <input checked="" type="checkbox"/> Drought <input type="checkbox"/> Lightning <input type="checkbox"/> Thunderstorm <input type="checkbox"/> Tornado <input type="checkbox"/> Wind <input type="checkbox"/> Winter Weather
Specific problem being Mitigated (describe why action is needed)	Williamson County has difficulty in conveying burn ban information to residents even through the use of social media outlets, media releases, and county websites. Signage along county roadways will provide additional messaging in the rural areas where burning is most prevalent.
Evaluation of Potential Alternatives	
Alternatives Considered (name of project and reason for not selecting)	1. Install road signage to existing poles that reads "Burn Ban in Effect".
	2. Provide media releases, social media releases, and update website.
	3. Take no action.
Action/Project Intended for Implementation	
Describe how action will be implemented (main steps involved)	Appropriate signage would be placed strategically through Williamson County, primarily in the rural areas, by County Road and Bridge personnel. During burn bans, the signs could be positioned to read the message by local fire departments and/or road and bridge personnel.
Action/Project Type	<input checked="" type="checkbox"/> Local Plans and Regulations <input checked="" type="checkbox"/> Structure and Infrastructure Project <input checked="" type="checkbox"/> Natural Systems Protection <input checked="" type="checkbox"/> Education and Awareness Programs
Applicable Goals/Objectives (refer to list of goals/objectives)	<input checked="" type="checkbox"/> Goal #1 <input checked="" type="checkbox"/> Goal #2 <input checked="" type="checkbox"/> Goal #3 <input type="checkbox"/> Goal #4 Objective: 5
Applies to existing or future development	<input type="checkbox"/> Existing Development <input checked="" type="checkbox"/> Future Development <input type="checkbox"/> Both Existing and Future Development <input type="checkbox"/> Not Applicable
Describe benefits (losses avoided)	<input checked="" type="checkbox"/> Life Safety <input checked="" type="checkbox"/> Damage Reduction <input type="checkbox"/> Other Describe: Lessing environmental impact.
Estimated Cost	<input checked="" type="checkbox"/> < \$10,000; <input type="checkbox"/> \$10,000 to \$100,000; <input type="checkbox"/> > \$100,000 Other Amount: \$
Plan for Implementation	
Responsible Department	Williamson County OEM and Williamson County Fire Chief's Association.
Local Planning Mechanism (check all that apply)	<input checked="" type="checkbox"/> Capital Improvement Plan <input checked="" type="checkbox"/> Comprehensive Plan <input type="checkbox"/> Building Code <input type="checkbox"/> Ordinance <input type="checkbox"/> Other:
Potential Funding Sources	General Budget, FEMA Hazard Mitigation Funding, Donations/Sponsorship
Timeline for Completion	<input checked="" type="checkbox"/> Short Term (1-5 yrs.) <input type="checkbox"/> Long Term (>5 yrs.) <input checked="" type="checkbox"/> Ongoing
Reporting on Progress	
Status/Comment	<input type="checkbox"/> Not Started <input type="checkbox"/> In-progress <input type="checkbox"/> Delayed <input type="checkbox"/> Completed <input type="checkbox"/> No Longer Required Comment:
Completed by: (name, title, phone #)	Jarred Thomas, EMC 512.864.8269 Date: 07.14.15

APPENDICES

Appendix A.

Williamson County Interjurisdictional Community Wildfire Protection Plan Steering and Stakeholder Committee
Meeting Agendas and Sign in Sheets



AGENDA


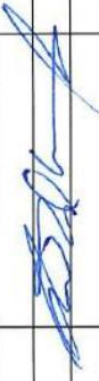

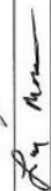




Williamson County Wildfire Protection Plan Steering Committee Meeting

Friday, March 3, 2017 | 9:00 a.m.

-
1. Welcome and Introductions
 2. What is a Community Wildfire Protection Plan and Why?
 3. What is Hazard Mitigation and Why?
 4. Drivers / Guidance for a CWPP
 5. Core Committee Purpose and Responsibilities
 6. Plan Partners
 - a. Fire Protection Districts
 7. Proposed Goals and Objectives of the CWPP
 8. DRAFT Structure of the Plan
 9. Mitigation Actions/Projects
 - a. Review Mitigation Actions from current Williamson County Hazard Mitigation Plan
 - b. Draft of the Mitigation Actions Catalog (Draft in packet)
 10. Critical Facilities discussion
 11. Next Steps
 - a. Property Assessment Process
 - i. Form / template previously used?
 - b. Capabilities Assessment
 - c. Hazard analysis review
 - d. Community / Municipal / Fire Protection District Information Worksheet
 - e. Community participation and survey (in packet)
 12. Adjournment


Williamson County Community Wildfire Protection Plan Kick Off Meeting					Kick Off Meeting - February 3, 2017, 11:00 AM Williamson County Jester Annex 1801 E. Old Settlers Blvd. Round Rock, TX 78664
Committee Member	Signature	Position/Agency	Phone Number	Email Address	
Allen, Jared		NOAA, National Weather Service	662-231-2491	jared.allen@noaa.gov	
Arthur PhD, John-David		University of Texas	512-771-1434	john.david.arthur@utexas.edu	
Belcher, Bobby		Jarrell Fire Chief	254-411-1563	bobby.belcher@wilco.org	
Bell, Randy		Wilco Parks Director	512-943-1922	randybell@wilco.org	
Berg, Chad		EMC, Georgetown	254-8975099	Chad.Berg@georgetown.org	
Blank, Scott		USACE		Scott.W.Blank@usace.army.mil	
Boyd, Gary		Wilco Environmental Program Director	512-913-1921	gboyd@wilco.org	
Bright, John		EMC, Cedar Park	512-791-1243	John.Bright@cedarparktx.gov	
Chody, Robert		Williamson County Sheriff		rchody@wilco.org	
Clarno PE, Jim		Lower Brushy Creek WCID, General Manager	512-943-0822	jim.clarno@att.net	
Collinsworth, David		Brazos River Authority's regional manager for the Central and Lower Basins		David.Collinsworth@bracos.org	
Dickson, John				john@bracos.org	
Doehbler, Jack		District Coordinator, Texas Division of Emergency Management		Jack.Doehbler@texas.gov	
Elkiss, Pat		Taylor Fire Chief		pat.elkiss@taylor.tx.gov	
Engelmann, Craig S.		USDA County Executive Director		craig.engelmann@usda.gov	
Evans, Harry				harry.evans@utexas.edu	
Evertson, Teron		Wilco Road and Bridge		tevertson@wilco.org	
Gardner, Bill		Leander Fire Chief	512-528-1564	bgardner@leander.tx.gov	
Gardner, Tracy		Coupland Volunteer Fire Department		bgardner@couplandfire.org	
Gattis, Dan		Williamson County Judge		dgattis@wilco.org	
Haberman, Ruth		Upper Brushy Creek WCID		ruth.haberman@upperbrushycreekwcid.org	
Halden, D		Round Rock		DHalden@roundrocktx.gov	
Hampshire, Nick		NOAA, National Weather Service	817-658-4676	nick.hampshire@noaa.gov	

Williamson County Community Wildfire Protection Plan Kick-Off Meeting				Position/Agency	Phone Number	Email Address
Committee Member	Signature					
Herrin, Marty			Williamson County Hazmat, Response Team Chief	512-864-8224	mherrin29@gmail.com	
Hughes, Billy					hughesb@msn.com	
Ittbell, Robert			Round Rock, Fire Chief		rittbell@roundrocktx.us	
Kerwood, Scott			Hutto Fire Rescue		skerwood@huttofire-rescue.org	
Kieschnick, David			San Bass Volunteer Fire Department		dkieschnick@sambassvfd.com	
Kiacofe, John			Jollyville Fire Department Chief		jkiacofe@vfd.org	
Lang, N			Texas A&M		nlange@texas.tamu.edu	
Lukon, Chris			Public Safety GIS Analyst		clukon@wilco.org	
Lincoln, Anthony			Liberty Hill Fire		alincoln@libertyhillfire.org	
Madsen, Larry			Commissioner Precinct 4		larry.madsen@wilco.org	
Mahaffey, Jeff			USACE		Jeffrey.L.Mahaffey@usace.army.mil	
Millinger, James			Cedar Park Fire Chief		james.millingier@cedarparktx.us	
Martin, Frank			W. Wilco County		fmartin@wilco.org	
McInnis, Justin			Assistant EM Coordinator, Hays County	512-393-7396	justin.mcinnis@co.hays.tx.us	
Miller, Dorothy			EMC, Round Rock		dmliller@roundrocktx.us	
Moellenberg, M			Williamson County and Cities Health District		mmoellenberg@gmail.com	
Moeller, Ryan			Director, Wilco Emergency Communications		rmoeller@wvchd.org	
Parker, Scott			USGS	512-727-3800	sparker@usgs.gov	
Pearson, Daniel			City of Austin	512-241-9061	daniel.pearson@austintexas.gov	
Portcher, Matt			USGS		mportcher@usgs.gov	
Rousel, Meghan			Texas Commission on Environmental Quality		W.Samuels@texas.state.tx.us	
Samuelson, Warren D.			Wilco Animal Services Director	512-943-3597	schneider@wilco.org	
Schneider, Cheryl						

Hines, Kave *TFS*

Williamson County Community Wildfire Protection Plan Kick Off Meeting				Kick Off Meeting - February 3, 2017, 11:00 AM Williamson County Jester Annex 1801 E. Old Settlers Blvd. Round Rock, TX 78664	
Committee Member	Signature	Position/Agency	Phone Number	Email Address	
Shelton, Robert (Bobby)		Florence Volunteer Fire Department	761-743-2591	shelton@florencefire.org	
Sneed, John		Wilco Emergency Services Senior Director	512-865-8216	jsneed@wilco.org	
Sparks, Leon		Cedar Park		Leon.Sparks@cedarparktx.gov	
Streibel, George		Wilco GIS Manager	512-943-1474	gstreibel@wilco.org	
Sullivan, John		Georgetown		john.sullivan@georgetown.org	
Terrill, Cooper		Texas A & M		Cooper.Terrill@ag.tamu.edu	
Thomas, Jarred		Williamson County Office of Emergency Management		Thomas@wilco.org	
Thompson, Roger		Police Chief, City of Jarrell	512-746-5333	R.thompson@cityofjarrell.com	
Vaughn, Steve		Bratis River Authority, Emergency Safety Comp. Officer	254-761-3136	Steve.Vaughn@bratis.org	
Viable, Steven				sviable@peoplepc.com	
Webb, Tom		USACE		Tom.R.Webb@usace.army.mil	
Welford, Michael		Williamson County Hazmat	512-764-8222	mwelford@wilco.org	
Zweriemann, David		Wilco Floodplain Manager		dzweriemann@wilco.org	
???		Bartlett Volunteer Fire Department		bartlettvd@bcsglobal.net	
Dan Dooson		Sw City Firewise	512-943-9514	dods911@suddenlink.net	
Bob Chlenbura		Sw City Firewise	512-655-0973	b167734@suddenlink.net	
Russell Summers		RM / LTSD	512-844-6322	Russell.Summers@roundrocktx.gov	
Charles Dittman		RRFD	512-888-0741	cdittman@roundrocktx.gov	
Cynthia Long					
Connie Watson		P10 Williamson County	512-943-1663	cwatson@wilco.org	
Adam Stern		Cedar Park Fire	512-470-9292	adam.stern@cedarparktx.gov	
John Dittman		RRFD	512-677-3820	JDHimes@roundrocktx.gov	
Kim Jones		RRGIS	512-218-5426	kjones@roundrocktx.gov	

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Williamson County Community Wildfire Protection Plan Kick Off Meeting		 WILLIAMSON COUNTY TEXAS	Position/Agency	Phone Number	Email Address
Committee Member	Signature				
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AGENDA



Williamson County Wildfire Protection Plan Core Group Meeting





Friday, March 10, 2017 | 9:00 a.m.

-
1. Welcome and Introductions
 2. What is a Community Wildfire Protection Plan and Why?
 3. What is Hazard Mitigation and Why?
 4. Drivers / Guidance for a CWPP
 5. Core Committee Purpose and Responsibilities
 6. Plan Partners
 - a. Fire Protection Districts
 7. Proposed Goals and Objectives of the CWPP
 8. DRAFT Structure of the Plan
 9. Mitigation Actions/Projects
 - a. Review Mitigation Actions from current Williamson County Hazard Mitigation Plan
 - b. Draft of the Mitigation Actions Catalog (Draft in packet)
 10. Critical Facilities discussion
 11. Next Steps
 - a. Property Assessment Process
 - i. Form / template previously used?
 - b. Capabilities Assessment
 - c. Hazard analysis review
 - d. Community / Municipal / Fire Protection District Information Worksheet
 - e. Community participation and survey (in packet)
 12. Adjournment



TETRA TECH

September 13, 2017 Core Group Meeting

Williamson County Community Wildfire Protection Plan CORE Committee Meeting				September 13, 2017 9:00 AM Williamson County EOC
Committee Member	Signature	Position/Agency	Phone Number	Email Address
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Williamson County Community Wildfire Protection Plan CORE Committee Meeting					September 13, 2017 9:00 AM Williamson County EOC
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Appendix B.

Wildfire Mitigation Actions Catalog

CATALOG OF WILDFIRE MITIGATION ACTIONS/PROJECTS

Wildfire hazard mitigation is defined as actions taken to lessen or reduce the effects of wildfire on the structure or area being protected. Mitigation does not guarantee that a wildfire will not affect a structure or area, only that an effort has been made to reduce the severity and intensity of the fire so that the area being protected will be able to survive the fire.

The following wildfire mitigation projects are a compilation of some of the best practices as well as successfully implemented projects in various communities. These projects have been developed as part of community assessments, public comments, interviews with local fire and emergency officials, etc.

This catalog is intended to provide ideas on a range of wildfire mitigation activities that might be appropriate for your community or fire district. This list is **not intended to be complete** but rather to stimulate thoughts and ideas. Finally, the list is divided into generalized subject areas. One action may fall under multiple action headings.

- **Map and Assess Vulnerability to Wildfire**

- The first step in local planning is to identify wildfire hazard areas and assess overall community vulnerability. Potential actions include:
 - Using GIS mapping of wildfire hazard areas to facilitate analysis and planning decisions through comparison with zoning, development, infrastructure, etc.
 - Developing and maintaining a database to track community vulnerability to wildfire.
 - Creating a wildfire scenario to estimate potential loss of life and injuries, the types of potential damage, and existing vulnerabilities within a community to develop wildfire mitigation priorities
 - Incorporate, maintain, and update Williamson County's Wildland-Urban Interface Risk Assessment GIS data elements.
 - Incorporate structural vulnerability assessments developed at the community level into the Williamson County Wildland-Urban Interface Risk Assessments.
 - Obtain LiDAR data for high risk areas to enhance the County's Wildland-Urban Interface Risk Assessment.

- **Hazardous Fuels Reduction Projects**

- Based on information documented in the Williamson County Community Wildfire Protection Plan prioritize subdivisions and neighborhoods within the County that

present the highest risks from wildfire and implement education, outreach and mitigation activities within those areas first.

- While any wildfire protection project is important, the realities of funding constraints require priorities to be established among types of projects. Given the information within the CWPP that is specific to our community, the highest priority are:
 - Vegetation management projects where a potential wildfire threatens life, property, agricultural assets, critical infrastructure, and/or emergency ingress/egress routes in and around communities at risk and unincorporated areas of the city.
 - Vegetation management projects where a potential wildfire threatens watersheds, riparian areas, or other sensitive ecosystems; or high-traffic recreation areas.
 - Monitor for spread of Eastern Red Cedars (*Juniperus virginiana*) into areas where they may present a wildfire threat, as these trees carry fire readily from grassland into developed areas, and often grow prolifically in areas where regular fires do not occur such as adjacent to developments (example from the City of Dallas).
- **Incorporate Wildfire Mitigation in the Comprehensive Plan**
 - Communities/fire departments/fire protection districts can review comprehensive plans to ensure wildfire mitigation has been addressed. The comprehensive plan may include the following:
 - Recognizing the existence of wildfire fuel hazards and identifying areas of risk based on a wildfire vulnerability assessment.
 - Describing policies and recommendation for addressing wildfire risk and discouraging expansion in the wildland-urban interface and intermix.
 - Including considerations of wildfire fuel hazards in land use, public safety, and other elements of the comprehensive plan.
- **Reduce Risk through Land Use Planning**
 - Evaluation of Restrictive Covenants and Ordinances and make revisions as warranted
 - Most organized subdivisions in the county have property owners' regulations, deed restrictions, or covenants that provide direction for homeowners. These regulations generally address structure size and placement, building materials, property usage, livestock, and rights of way, and other topics which are associated with construction aesthetics, safety, health, and sanitation. Develop subdivision regulations which would encourage future developers to design residential communities in

the WUI to be more wildfire prepared. These conservation subdivision regulations may include requirements addressing road widths, turnaround spaces, defensible space and nonflammable construction materials. (ex from Bastrop County)

- Local governments can mitigate future losses by regulating development in wildfire hazard areas through land use planning, including:
 - Coordinating codes and regulations across all jurisdictions within the planning area to accomplish a balance between each respective entity's mission and needed wildfire mitigation
 - Using zoning and/or a special wildfire overlay district to designate high-risk areas and specify the conditions for the use and development of specific areas.
 - Addressing density and quantity of development, as well emergency access, landscaping and water supply.
 - Promoting conservation of open space or wildland-urban boundary zones to separate developed areas from high-hazard areas.
 - Setting guidelines for annexation and service extensions in high-risk areas.
 - Obtain local building codes and weed abatement ordinances for buildings near wooded areas.
 - Review and enhance the County and community building permit process within the wildland-urban interface
 - Review and develop recommendations to the County and Community leadership for revisions to land use regulations, such as: Implementation of fire safety standards within rural residential zoning districts; Distribution of educational materials at the outset of the building permit review process; and Outreach services with neighborhood organizations and special interest groups.

- **Develop a Wildland Urban Interface (WUI) Code**

- Communities can develop regulations for safer construction and incorporate mitigation considerations into the permitting process. Potential actions include:
 - Developing specific design guidelines and development review procedures for new construction, replacement, relocation, and substantial improvement in wildfire hazard areas.
 - Addressing fire mitigation through access, signage, fire hydrants, water availability, vegetation management, and special building construction standards.
 - Involving fire protection agencies in determining guidelines and standards and in development and site plan review procedures.
 - Establishing wildfire mitigation planning requirements for large scale developments or planned unit developments.

- **Require or Encourage Fire-Resistant Construction Techniques**
 - A local government can encourage fire-resistant construction or may choose to require it through local regulations. Examples include:
 - Encouraging the use of non-combustible materials (i.e., stone, brick, and stucco) for new construction in wildfire hazard areas.
 - Use fire-resistant materials when building, renovating, or retrofitting structures. Avoid using wooden shakes and shingles for roofing.
 - Use only thick, tempered safety glass in large windows and doors.
 - Using fire resistant roofing and building materials in remodels, upgrades, and new construction.
 - Enclosing the foundations of homes and other buildings in wildfire-prone areas, rather than leaving them open and potentially exposing undersides to blown embers or other materials.
 - Prohibiting wooden shingles/wood shake roofs on any new development in areas prone to wildfires.
 - Encouraging the use of functional shutters on windows
 - Install electrical lines underground, if possible.
 - Installation of roof coverings, roof sheathing, roof flashing, roof skylights, roof and attic vents, and roof eaves and gutters that conform to any of the following ignition-resistant construction standards: 1) construction materials are fire-resistant in accordance with nationally recognized testing standards, 2) construction materials are non-combustible, and 3) construction materials constitute an assembly that has a minimum 1- hour-fire resistant rating;
 - Installation of wall components such as the fascia, windows, window glazing, doors, window frames, and insulation that conform to any of the following ignition-resistant construction standards: 1) construction materials are fire-resistant in accordance with nationally recognized testing standards, 2) construction materials are non-combustible, and 3) construction materials constitute an assembly that has a minimum 1- hour-fire resistant rating;
 - Protection of propane tanks or other external fuel sources;
 - Purchase and installation of external, structure-specific water hydration systems (sprinklers), a dedicated power source, and a dedicated cistern if no water source (e.g., lake, river, or swimming pool) is available. FEMA will only consider the project when assurances are provided in the operations and maintenance plan that a GIS system will be maintained to identify property addresses with wildfire sprinkler systems and that this information will be made available to the fire department.

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- **Retrofit At-Risk Structures with Ignition-Resistant Materials**
 - Existing structures in wildfire hazard areas can be protected through the use of non-combustible materials and technologies, including:
 - Installing roof coverings, sheathing, flashing, skylights, roof and attic vents, eaves, and gutters that conform to ignition-resistant construction standards. ▪
 - Installing wall components that conform to ignition-resistant construction standards. ▪
 - Protecting propane tanks or other external fuel sources. ▪
 - Purchasing and installing external, structure-specific water hydration systems (sprinklers); dedicated power sources; and dedicated cisterns if no water source (e.g., lake, river, or swimming pool) is available
 - **Create Defensible Space Around Structures, Infrastructure and Roadways**
 - Local governments can implement defensible space programs to reduce risk to structures and infrastructure, including
 - Creating buffers around residential and non-residential structures through the removal or reduction of flammable vegetation, including vertical clearance of tree branches.
 - Replacing flammable vegetation with less flammable species.
 - Creating defensible zones around power lines, oil and gas lines, and other infrastructure systems.
 - Create a safety zone to separate home from combustible plants and vegetables.
 - Prune all branches around residence to a height of 8-10 feet.
 - Keep trees adjacent to buildings free of dead or dying wood and moss.
 - Remove all dead limbs, needles, and debris from rain gutters.
 - Mechanical thinning process that uses skid steers, (low-impact machines with a mulching head on the front with teeth). Operators grind up the understory and remove undesirable species growing under the tree canopy. (Bastrop County example)
 - Adopt and Implement the **Home Ignition Program** (HIZ). The program includes the house and its immediate surroundings (within 200 ft.) nor to the property boundary. The vegetation surrounding the home determines the home's susceptibility to ignition during wildfire. To minimize the chance of a home ignition, homeowners should eliminate a wildfire's potential relationship with their house. This can be accomplished by interrupting the natural path a fire takes. HIZ is broken down into 3 zones:
 - **Zone 1: The Foundation—30 feet:** This area should have plants that are low to the ground, green and healthy. Homeowners should avoid large

clumps of plants that can generate high heat. Noncombustible material such as rock or stone should be used instead of mulch around the home's foundation to create a buffer between the grass and foundation. The best choices of trees are deciduous species with wide, broad leaves.

Shrubby and bushes should be placed away from trees and planted in islands or groupings; this prevents fire from climbing through the lower vegetation into the canopy.

- **Zone 2: 30—100 feet:** More plants can be present in this area. Firewood, small brush piles, or stacks of building materials should be moved to this zone or further away. 30 feet spacing between clusters of 2-3 trees should be maintained along with fuel breaks such as, driveways, gravel walkways, and lawns. Trees in this zone need to be pruned to height of 6-10 feet from ground.
 - **Zone 3: 100—200 feet:** Trees in this zone should be thinned to eliminate overlapping canopies, although less space is required than in zone 2. Smaller conifers growing between taller trees should be removed along with heavy accumulations of woody debris.
-
- **Conduct Maintenance to Reduce Risk**
 - The debris or slash created from fuel reduction activities will create an increase fire risk and must be eliminated throughout the duration of the treatment. Debris reduction methods include:
 - Physical removal of all debris or slash from the treatment site
 - Chip all slash on site and leave the remaining chips in piles not to exceed 6-feet in diameter and 3-feet in height;
 - Chip all slash on site and leave the remaining chips in contour rows not to exceed 1 foot wide and 1 foot in height
 - Implement a Weed Abatement program that will be incorporated into the CWPP document. This program will address fuel reduction and include standards applied to all weeds, grass, or other vegetation that is normally dry during the year, as well as combustible rubbish.
 - Local governments can implement maintenance procedures to reduce wildfire risk, including
 - Performing arson prevention cleanup activities in areas of abandoned or collapsed structures, accumulated trash or debris, and with a history of storing flammable materials where spills or dumping may have occurred.
 - Preventing or alleviating wildfires by proper maintenance and separation of power lines as well as efficient response to fallen power lines.

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- Routinely inspecting the functionality of fire hydrants.
 - Requiring and maintaining safe access for fire apparatus to wildland-urban interface neighborhoods and properties.
 - Store combustible/flammable materials in approved safety containers and keep away from home.
 - Keep chimney clean.
- **Implement a Fuels Management Program**
 - Utilize the Williamson County Wildland-Urban Interface Risk Assessment as a tool for prioritizing proposed fuel reduction projects.
 - Continue proactive fuels mitigation through all management techniques, including prescribed burning where smoke can be effectively managed to allow for maintenance of ecosystem function and to reduce fire hazard.
 - A fuels management program may be implemented to reduce hazardous vegetative fuels on public lands, near essential infrastructure, or on private lands by working with landowners. The program can include the following:
 - Performing maintenance including fuel management techniques such as pruning and clearing dead vegetation, selective logging, cutting high grass, planting fire-resistant vegetation, and creating fuel/fire breaks (i.e., areas where the spread of wildfires will be slowed or stopped by the removal of fuels).
 - Using prescribed burning to reduce fuel loads that threaten public safety and property.
 - Identifying and clearing fuel loads created by downed trees.
 - Cutting firebreaks into public wooded areas in the wildland-urban interface.
 - Sponsoring local “slash and clean-up days” to reduce fuel loads along the wildland-urban interface.
 - Encourage volunteer groups to conduct maintenance activities for vulnerable needs homeowners.
 - Linking wildfire safety with environmental protection strategies (i.e., improving forest ecology, wildlife habitat, etc.).
 - Developing a vegetation management plan.
 - Facilitate a limbing and chipping program to assist the community.
- **Participate in Firewise Program**
 - Implement Firewise principles to safeguard homes and “Ready, Set, Go!”
 - principles to prepare for fire and evacuation;
 - The Firewise program provides a series of steps that individual residents and their neighbors can take to keep their homes and neighborhoods safer from fire. Consider actions such as:

- Joining the “Firewise Communities/USA” recognition program sponsored by the National Wildlife Coordinating Group (firewise.org).
 - Sponsoring Firewise workshops for local officials, developers, civic groups, and neighborhood/homeowners’ associations.
 - Consulting Firewise guidance and encouraging or requiring best practices in your community.
- **Increase Wildfire Risk Awareness**
 - Develop and implement focused community meetings, programs, and wildfire safety education efforts directed at structure and property owners in the WUI areas. Focus of topics will include:
 - Prevention of accidental starts
 - Creation and maintenance of defensible space
 - Fire-safe landscaping
 - Reduction of structural ignitability, and
 - Strategies for safety in a wildfire incident
 - With rapid population growth into Wildland Urban Interface areas and trends showing an increasing frequency of elevated fire weather conditions, wildfire will continue to be a major concern moving forward. Creating heightened awareness of wildfire risk issues and working with communities to develop sound prevention and mitigation strategies are becoming increasingly important to ensure safety. The Texas Wildfire Risk Assessment Portal is an electronic web based resource to help address this growing concern.
 - Promote and property owners to log into the TxWRAP Portal to understand their need to identify wildfire threats for a particular area based on landscape characteristics, historical fire occurrence, weather conditions, terrain and potential fire behavior. Using the Public Viewer - Users can zoom to any place in Texas to ask “What's Your Risk?” They will be able to find their risk level within a two-mile radius, plus information on how to reduce their risk.
 - Education and outreach programs can target citizens, businesses, developers, landscapers, and insurers among others to increase awareness of wildfire risk and strategies for protecting homes and infrastructure. Consider actions such as:
 - Offering GIS hazard mapping online for residents, developers, and design professionals.
 - Organizing a local fire department tour to show local elected officials and planners the most vulnerable areas of the community’s wildland-urban interface and increase their understanding of risks.
 - Working with insurance companies, utility providers, and others to include wildfire safety information in materials provided to area residents.

-
- Developing partnerships with neighborhood groups, homeowners' associations, and others to conduct outreach activities.
 - Using local fire departments to conduct education programs in schools.
 - Informing the public about proper evacuation procedures.
 - Forming a citizen plan implementation steering committee to monitor progress of local mitigation actions. Include a mix of representatives from neighborhoods, local businesses, and local government.

- **Educate Property Owners about Wildfire Mitigation Techniques**

- Raise property owner's awareness of and creating incentives for growth planning and management that reduces, rather than increases, fire-prone development;
- Raise property owner's awareness of proper spacing, sequencing, and maintaining fuel treatments across the landscape;
- Educate property owners on actions that they can take to reduce risk to property, such as the following:
 - Installing fire mitigation systems such as interior and exterior sprinkler systems.
 - Performing safe disposal of yard and household waste rather than open burning.
 - Removing dead or dry leaves, needles, twigs, and combustibles from roofs, decks, eaves, porches, and yards.
 - Creating a defensible space or buffer zone cleared of combustible materials
 - Develop and coordinate a seasonal outreach campaign that promotes effective risk reduction practices in the wildland/urban interface around property.
 - Educate homeowners and conduct a defensible space inspection with recommendations for fuels reduction for all interested homeowners in the community.
 - Implementation of defensible space on all homes is necessary if a Protect in Place strategy is used.
 - Installing and maintaining smoke detectors and fire extinguishers on each floor of their homes or other buildings.
 - Safely using and storing necessary flammable materials, including machine fuels. Approved safety cans should be used for storing gasoline, oily rags, and other flammable materials. Firewood should be stacked at least 100 feet away and uphill from homes.
 - Keeping flammables, such as curtains, secured away from windows or using heavy fire-resistant drapes.

- Utilize neighborhood public meetings to determine common mitigation requirements for the community.
- Facilitate neighborhood fuels reduction projects through:
 - Cost share grants,
 - Utilization of BLM fire mitigation specialist,
 - It is often possible to obtain discounts for volume efforts.
- **Educate Property Owners**
 - Educate individual property owners, residents and visitors on roles and responsibilities in and in preparation re emergency event:
 - Techniques to increase individual's knowledge about the emergency warning signals and alert notifications used in their community.
 - Instruct family members how to shut off water, gas and electricity to your house.
 - Make the necessary property preparations to reduce the damage from the hazard.
 - Acquire a backup generator in case of a prolonged power failure.
 - Check into insurance (property, health, life, and hazard type).
 - Make the necessary financial arrangements in case of a sudden evacuation and power outage that shuts down local ATMs and banks.
 - Organize important documents and records and store them in a portable lock box or safe-deposit box.
 - Perform home inventory videotaping and store tape in a portable lock box or safe-deposit box.
 - Develop an Emergency Communication Plan with evacuation plan and ask an out-of-state person to serve as the "family contact".
 - Assemble a shelter-in-place Emergency Supplies Kit.
 - Assemble a mobile Emergency Supplies Kit that can serve as a "grab and go" bag?
 - Get a family member trained in first aid and CPR.
 - Make the necessary preparations and arrangements for pets, seniors, and the disabled.
 - Develop, implement and practice emergency plans within family member's employment building, school, day care center, or nursing home.
 - Learn and teach safe fire practices - build fires away from nearby trees or bushes, always have a way to extinguish a fire, never leave a fire unattended.
 - Avoid open burning, especially during dry season Install smoke detectors on every level of your home.
 - Designating internal safety zones or areas of temporary refuge.

- **Funding for Wildfire Mitigation Activities**

- Create and maintain the Williamson County CWPP Advisory Committee to oversee implementation, identify and coordinate funding opportunities, and sustain the Williamson County Community Wildfire Protection Plan
- Implement cost-share programs or tax incentives to assist landowners with hazardous fuels removal and disposal.

- **Miscellaneous Wildfire Activities**

- Enhance collaboration, training, and capacity building across agencies to increase firefighter safety, wildfire response, and management effectiveness.
- Develop formal agreements with municipalities and special districts for fire response and management.
- Establish and exercise a consistent communication strategy among intergovernmental partners using appropriate conduits and delivery mechanisms
- Complete rural addressing data collection project for county.
- Create and maintain a website to promote Williamson County's Community Wildfire Protection Plan.
- Collaborate with homeowner insurance companies to promote incentives that reward structural ignition risk reduction and fuels reduction activities in the wildland-urban interface.
- Developing adequate local fire suppression capacity to meet community protection needs.

GLOSSARY OF TERMS

ACRONYMS

°F	Degrees Fahrenheit
BLM	Bureau of Land Management
CPZ	Community Protection Zone
CWPP	Community Wildfire Protection Plan
FEMA	Federal Emergency Management Agency
HFI	Healthy Forests Initiative
HFRA	Healthy Forests Restoration Act
NFS	National Forest System
TFS	Texas A&M Forest Service
TWPP	Texas Wildfire Protection Plan
TxWRAP	Texas Wildfire Risk Assessment Portal
VRI	Values Response Index
WFSI	Wildland Fire Susceptibility Index
WHP	Wildfire Hazard Potential
WUI	Wildland Urban Interface

DEFINITIONS

Brush - Shrubs and scrub vegetation or other vegetative growth heavier than grass but not a full tree size.

Characteristic Flame Length - Represents the distance between the tip and base of the flame

Combustible - Any material that, in the form in which it occurs or is used, and under the conditions anticipated, will ignite and burn.

Community Protection Zones - Represents those areas designated as primary and secondary priorities for community protection planning.

Defensible Space - A natural or man-made area, where vegetation capable of carrying a fire has been sufficiently treated, modified, or removed to slow the rate of spread and reduce the intensity of a fire; provide a safe area for fire suppression operations; and slow or prevent a fire from traveling – in either direction – between a structure and the vegetation.

Fire Break – An area, usually a long strip of undetermined width, wherein all flammable fuels have been removed to the mineral soil layer for the purpose of stopping a fire's spread.

Fuel Break - An area, usually a long strip strategically located, wherein vegetative fuels are reduced in volume and maintained to cause a reduction of fire intensity if ignited by a wildland fire.

Fire Type – Extreme - Represents the potential fire type (surface or canopy) under the extreme percentile weather category

Surface Fuels - Contains the parameters needed to compute surface fire behavior characteristics

Thinning - The use of chainsaws and manpower to remove fuels from the prescribed area. Hand thinning has a low impact on soils, erosion and accidental removal of vegetation not involved in the prescription. This type of treatment is often used in steep terrain, valuable or fragile ecosystems.

National Cohesive Strategy – A collaborative process with active involvement of all levels of government and non-governmental organizations, as well as the public, to seek national, all-lands solutions to wildland fire management issues.

Pine Plantations - Pine stands that are planted and actively managed for financial gain or other economic reasons

Pine Plantation Index - Represents a rating of the potential impact of a wildfire on pine plantations

Prescription – A detailed plan that reduces the threat of wildfire in a specified area. Prescriptions may include mechanical thinning, prescribed burn, lop and scatter, fuel breaks, pile burning, chipping, etc.

Prescribed Burning - A type of prescription to reintroduce fire as a natural means of fuel reduction and creating a fire resilient landscape.

Values Response Index - Represents a rating of the potential impact of a wildfire on values and assets

Vegetation - General vegetation and landcover types

Wildland - An undeveloped area in its natural state containing vegetation characteristic of the region and undisturbed topographical conditions.

Wildland Urban Interface - Depicts where humans and their structures meet or intermix with wildland fuel.

WUI Response Index - Represents a rating of the potential impact of a wildfire on people and their homes

Wildfire - An unplanned and unwanted fire requiring suppressive action; an uncontrolled fire, usually spreading through vegetative fuels but often threatening structures.

Wildfire Hazard - The condition of the natural and built environment creating a wildfire opportunity that is so adverse to past, current, or foreseeable construction or land use as to constitute a significant hazard to public health, safety or property. The term incorporates the combined effects of slope, aspect, topography, climatic conditions, weather, wildfire behavior, existing vegetation, and state of the vegetation, and may also incorporate additional factors such as evacuation conditions, density of structures, history of fire occurrence, and local emergency service availability.

Wildfire Threat - Likelihood of a wildfire occurring or burning into an area.

Wildfire Ignition Density –Likelihood of a wildfire starting based on historical ignition patterns.

Wildfire Mitigation Plan - A plan prepared by a professional forester that describes the current condition of the subject site and the proposed management activities to be conducted by the applicant. The plan shall describe how these activities reduce wildfire hazard levels

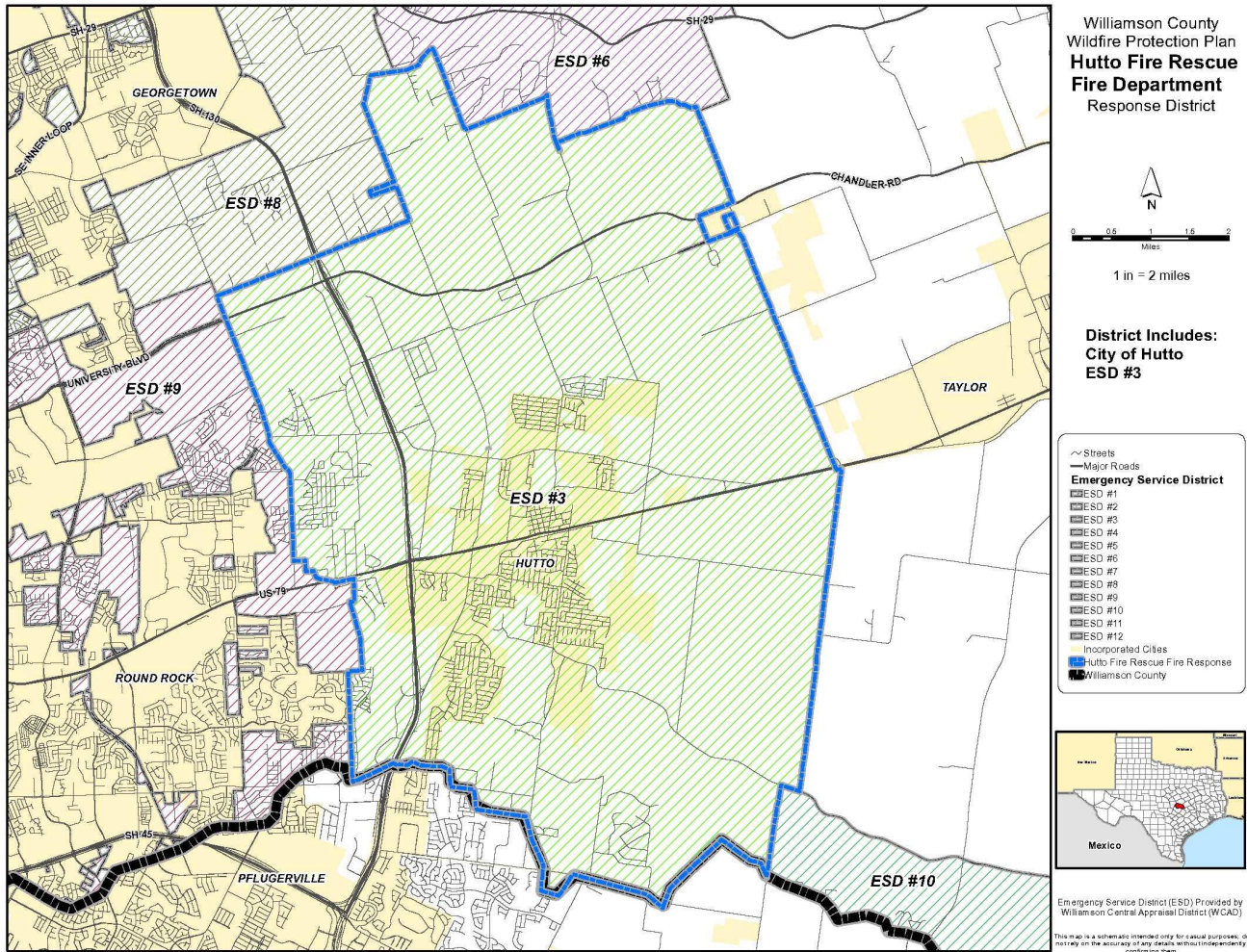
Williamson County Interjurisdictional CWPP

Annex 8: Hutto Fire Rescue

ANNEX 8: WILLIAMSON COUNTY ESD #3 / HUTTO FIRE RESCUE

INTRODUCTION

Organization and Jurisdiction



Hutto Fire Rescue responds to all fire, motor vehicle collisions, and emergency medical situations throughout the Hutto community. Emergency Medical Services (EMS) is provided by Williamson County EMS. There is an ambulance staffed full-time in Hutto (housed in the fire station) by Williamson County Paramedics. All Hutto Fire Rescue full-time and part-time firefighters, as well as some volunteer firefighters, are trained to at least the Emergency Medical Technician – Basic level.

Name:	Williamson County ESD #3 / Hutto Fire Rescue
Address:	501 Exchange Blvd., Hutto, TX 78634
Department Type (volunteer or paid):	Combination
Number of Stations (please provide address of each station):	1
Municipalities covered:	City of Hutto (7.5 sq. miles) and surrounding 58 square miles
Types of Services Provided (Firefighting, EMS, emergency response, HAZMAT, dispatch, training, etc.):	All
Firefighting Personnel:	
Full-Time Paid Firefighters	24
Part-Time Paid Firefighters	6
Volunteer Firefighters	5
Non-Firefighting Support Personnel:	
Non-Firefighting Paid Staff	1
Non-Firefighting Volunteers	0
Firefighting Equipment List quantity, type, etc.):	2 Class A Engines 2000 gallon tender 2 400-gallon brush trucks Hand tools, wildland packs, etc.
Other Firefighting Resources (Mutual aid, state resources, etc.):	Auto aid agreements with Taylor and Round Rock Mutual aid agreements with all surrounding municipalities in Williamson (Pflugerville and County)

CURRENT /HISTORICAL MITIGATION ACTIONS AND PROGRAMS

Hutto Fire Rescue identified the following activities and programs the department has regarding wildfires:

In-house training for all firefighters

Literature available to hand out to public

Currently working on a wildfire program (FireWise; Ready Set Go) – but the Department does have information available if residents ask

PUBLIC EDUCATION AND OUTREACH PROGRAMS

Hutto Fire Rescue provides the following public education and outreach programs to the community:

- Literature available to hand out to public
- Currently working on a wildfire program (FireWise; Ready Set Go) – but the Department does have information available if residents ask
- Provide programs for schools – fire prevention week but conduct year round due to the size of school system and only one station
- Bounce house for community events

Hutto Fire Rescue maintains a Facebook page to use as an effective tool to communicate with residents. They use their Facebook page to post updates on fires, accidents, and rescue incidents; share public service announcements; and inform people of upcoming events. Additionally, Hutto Fire Rescue maintains a website (<http://www.huttofirerescue.org/>) that provides information about the Department, services they provide, and public education information.

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	2 (city) 8B (ESD #3)	2012
Storm Ready certification	Yes	Williamson County	
Firewise Communities classification	No		
Natural Disaster/Safety Programs in/for Schools	Yes		
Public Education Program/Outreach (through website, social media)	Yes		

CAPABILITIES ASSESSMENT

Emergency Response Capabilities

The department and City of Hutto follow the Williamson County Emergency Operations Plan. Hutto Fire Rescue has the following emergency response capabilities:

- The department participates in search and rescue; however, they only start the process and need the specialty team from Williamson County
- Wildfire-specific training and equipment
- Mutual aid
- Training and certifications – all firefighters are trained to Texas State wildfire courses
- Flood response / rescue – the department has participated; however, Williamson County has specialty teams for this
- Recently purchased two brush trucks specially for wildland fire fighting
- Two Type VI engines (brush trucks) and Tactical Tender specially designed for wildland fire fighting
- Department has special equipment (hoses, etc.) to start fighting wildfires until the forest service takes over

Policies

Hutto Fire Rescue has specific policies for wildfire and all hazards response.

Regulations

Hutto Fire Rescue has specific regulations for wildfire and all hazards response.

Ordinances and Codes

Hutto Fire Rescue follows the 2009 International Fire Code with amendments.

Plans, Reports and Studies

At the time of this planning process, Hutto Fire Rescue does not have plans, reports or studies pertaining to wildfire or other natural hazards.

Resources

None identified

IDENTIFY CRITICAL INFRASTRUCTURE AND COMMUNITY VALUES AT RISK

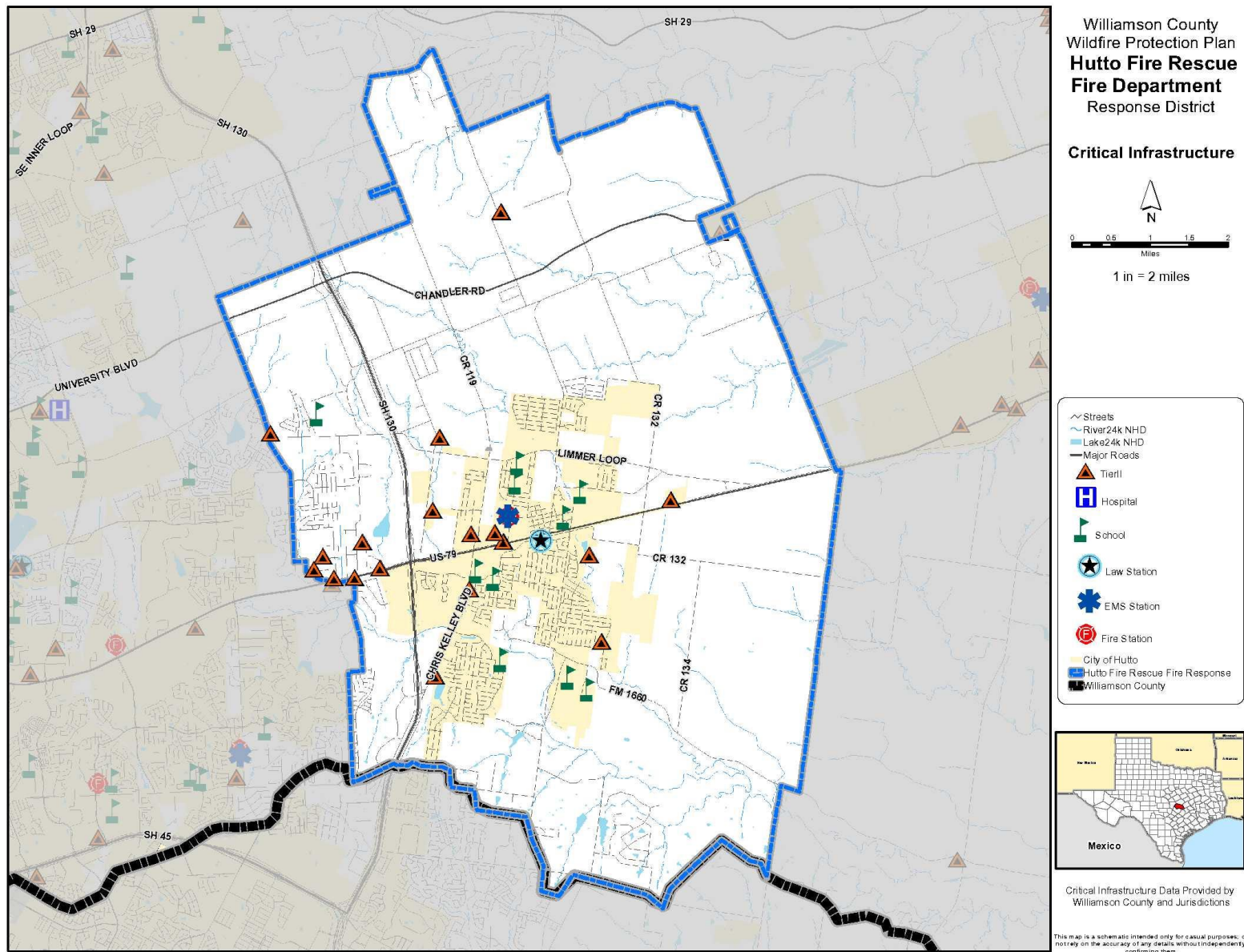
Critical Infrastructure within the Hutto Fire Rescue

One of the critical elements of the Community Wildfire Protection Plan is to analyze where the critical infrastructure within the district is located in comparison to the highest risk areas for wildfire. Critical facilities typically fall within the following categories: Hospitals, Schools, Law Enforcement, Fire, EMS and Tier II facilities. Within the Hutto Volunteer Fire Department. The following summarizes the general types of critical infrastructure located within the District.

Hutto Fire Rescue Critical Infrastructure Summary	
Facility Type	Number of Facilities
Hospitals	0
Schools	10
Law Enforcement	1
Fire	1
Emergency Medical Services (EMS)	1
Tier II Facilities	18

As mentioned above, once the critical facilities are identified, the next step is to assess where and which facilities may be located in high risk areas and to then determine whether these facilities are candidates for special actions / measures like hardening, increased fire proofing, wildfire mitigation or relocation, etc. This plan analyzed impacts based in five wildfire factors: Wildland Urban Interface, Flame Length, Surface Fuels, Vegetation and Wildfire Threat as mapped and defined by the Texas State Forest Service and Texas A&M. More detail is provided later in this annex as to the level and possible impacts of these five characteristics.

Figure 1. Hutto Critical Infrastructure



Wildland Urban Interface Fire Hazard and Environment

As mentioned previously in the Williamson County Community Wildfire Protection Plan (CWPP) on the national level, following the establishment of the National Fire Plan via Executive Order due to the 2000 national wildfire season, work throughout the country was undertaken to identify areas at high risk from wildfire; this work would be used to identify the location of hazardous fuel reduction projects designed to reduce this risk. Communities across the nation that are considered to have a WUI have been identified; this list was subsequently published in the Federal Register.

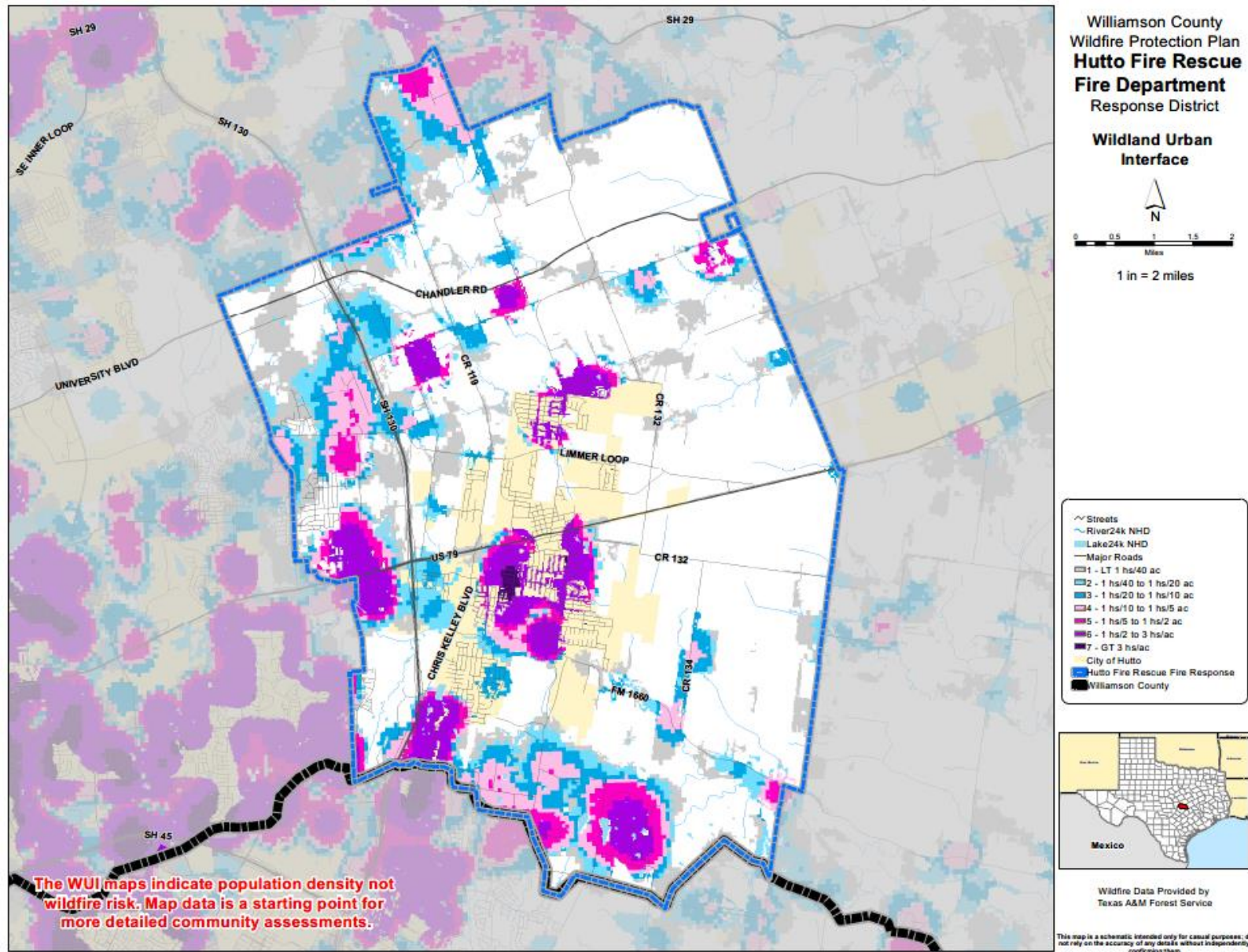
Loss of structures due to wildland fires has been attributed to many factors, one of which is the proximity of hazardous fuels to homes and communities. During periods of hot, dry weather, the buildup of vegetation that has occurred on some Federal, State, and private lands in the vicinity of communities poses a potentially high risk of damage to homes and other structures, disruption to the local economy, or loss of life.

Other factors—including weather conditions and patterns, and the hazardous fuels conditions in the immediate vicinity of homes, businesses, and other structures—play important roles in the spread of wildland fire. Reducing hazardous fuel near communities may reduce, but not eliminate, wildfire risks to these communities. Some risk is inherent to communities that exist in fire-dependent ecosystems. Private landowners may help reduce this risk by creating defensible space around their homes and businesses, and by using fire-resistant materials in building those structures. Without such precautionary measures, fuel reduction on Federal land in the vicinity may be ineffective in significantly reducing community risk.

Per the Texas A&M Forest Service “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% of wildfires occur within two miles of a community.” 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).

For the Hutto Fire Rescue project area, it is estimated that 9,177 people or 67% of the total project area population (13,756) live within the WUI. The Texas A&M Forest Service WUI dataset is derived using advanced modeling techniques based on the Where People Live dataset and LandScan USA population count data available from the Department of Homeland Security, HSIP Freedom Data Set. WUI is simply a subset of the Where People Live dataset. The primary difference is populated areas surrounded by sufficient non-burnable areas (i.e. interior urban areas) are removed from the Where People Live data set, as these areas are not expected to be directly impacted by a wildfire.

Figure 2. Wildland Urban Interface



	Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
	LT 1hs/40ac	101	1.1 %	3,707	28.6 %
	1hs/40ac to 1hs/20ac	138	1.5 %	1,867	14.4 %
	1hs/20ac to 1hs/10ac	427	4.7 %	2,338	18.0 %
	1hs/10ac to 1hs/5ac	623	6.8 %	1,837	14.2 %
	1hs/5ac to 1hs/2ac	833	9.1 %	1,293	10.0 %
	1hs/2ac to 3hs/1ac	6,307	68.7 %	1,850	14.3 %
	GT 3hs/1ac	748	8.2 %	67	0.5 %
	Total:	9,117	100.0 %	12,958	100.0 %

Surface Fuels

Surface fuels are important to categorize for they account for the surface fire potential. Canopy fire potential is computed through a separate but linked process. The Texas Wildfire Risk Assessment (TWRA) Summary Report for Williamson County accounts for both surface and canopy fire potential in the fire behavior outputs.

Surface fuels are typically categorized into one of four primary fuel types based on the primary carrier of the surface fire:

- Grass
- Shrub/brush
- Timber litter
- Slash

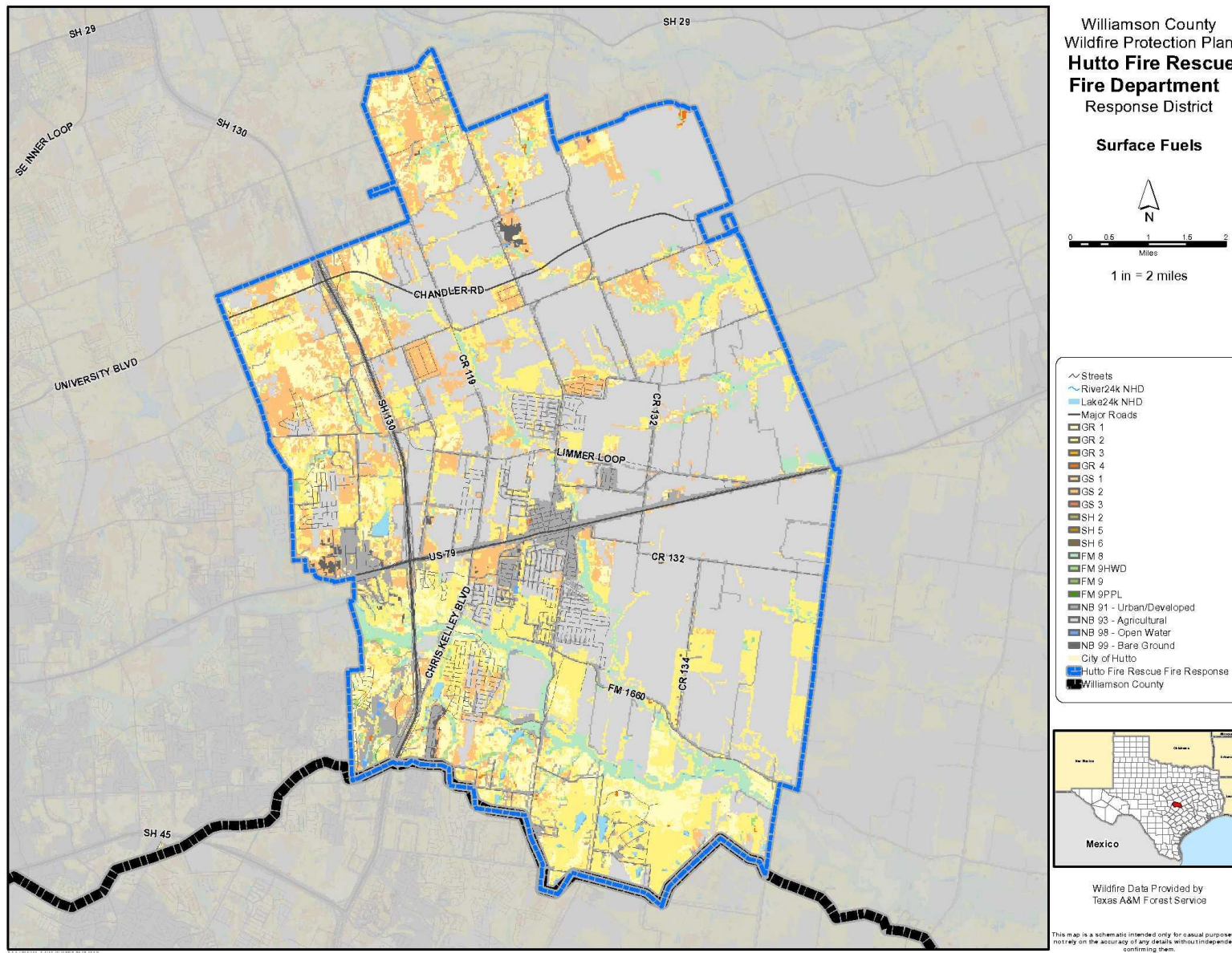
There are two standard fire behavior fuel model sets published for use. The Fire Behavior Prediction System 1982 Fuel Model Set (Anderson 1982) contains 13 fuel models and the Fire Behavior Prediction System 2005 Fuel Model Set (Scott and Burgan 2005) contains 40 fuel models. The TWRA uses fuel models from both sets, as well as two additional custom fuel models devised by Texas A&M Forest Service.

DEFINITIONS

Surface fuels—Surface fuels, or fire behavior fuel models as they are technically referred to, contain the parameters needed by the Rothermel (1972) surface fire spread model to compute surface fire behavior characteristics, such as rate of spread, flame length, fireline intensity, and other fire behavior metrics.

Figure 3 and the associated table shows that the county primarily consists predominantly of Agricultural Land (46.1%), followed by Low Load, Dry Climate Grass at 18.1%, Urban Developed Land at 11.1%, Moderate Load, Dry Climate Grass-Shrub at 10.0% and Short, Sparse Dry Climate Grass (Dynamic) at 9.4%. Figure 3 is a Hutto area map showing all the surface fuel types.

Figure 3. Hutto- Surface Fuels by type

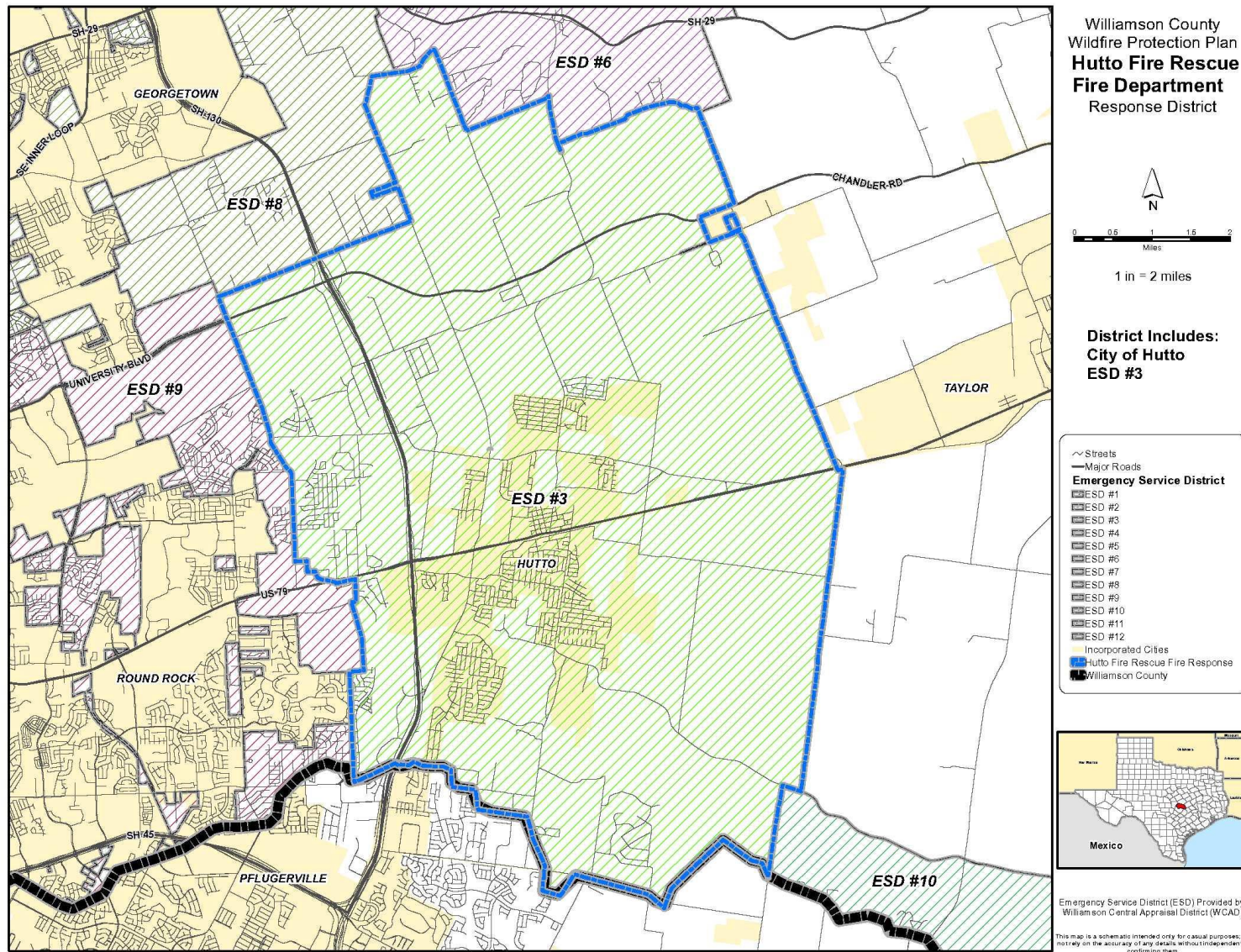


	Surface Fuels	Description	FBPS Fuel Model Set	Acres	Percent
	GR 1	Short, Sparse Dry Climate Grass (Dynamic)	2005	3,392	9.4 %
	GR 2	Low Load, Dry Climate Grass (Dynamic)	2005	6,494	18.1 %
	GR 4	Moderate Load, Dry Climate Grass (Dynamic)	2005	30	0.1 %
	GS 2	Moderate Load, Dry Climate Grass-Shrub (Dynamic)	2005	3,591	10.0 %
	FM 8	Closed timber litter (compact)	1982	1,435	4.0 %
	FM 9 HWD	Hardwood litter (fluffy) - Low Load for Texas	Custom	190	0.5 %
	NB 91	Urban/Developed	2005	3,981	11.1 %
	NB 93	Agricultural	2005	16,574	46.1 %
	NB 98	Open Water	2005	148	0.4 %
	NB 99	Bare Ground	2005	119	0.3 %
Total:				35,954	100.0%

Vegetation

The Vegetation map describes the land cover and vegetation types across the Hutto area. In the Texas Wildfire Risk Assessment (TWRA), the Vegetation dataset is used to support the development of the Surface Fuels, Canopy Cover, Canopy Stand Height, Canopy Base Height, and Canopy Bulk Density datasets. The vegetation classes with descriptions are shown in the following table. It should be noted that the area is dominated by Cultivated Crops (46.4%), Grassland/Herbaceous lands (36.4%), followed by Developed Open Space (5.8%), Developed Land at a Low Intensity (4.8%) and Pasture/Hay (2.3%).

Figure 4. Hutto Vegetation



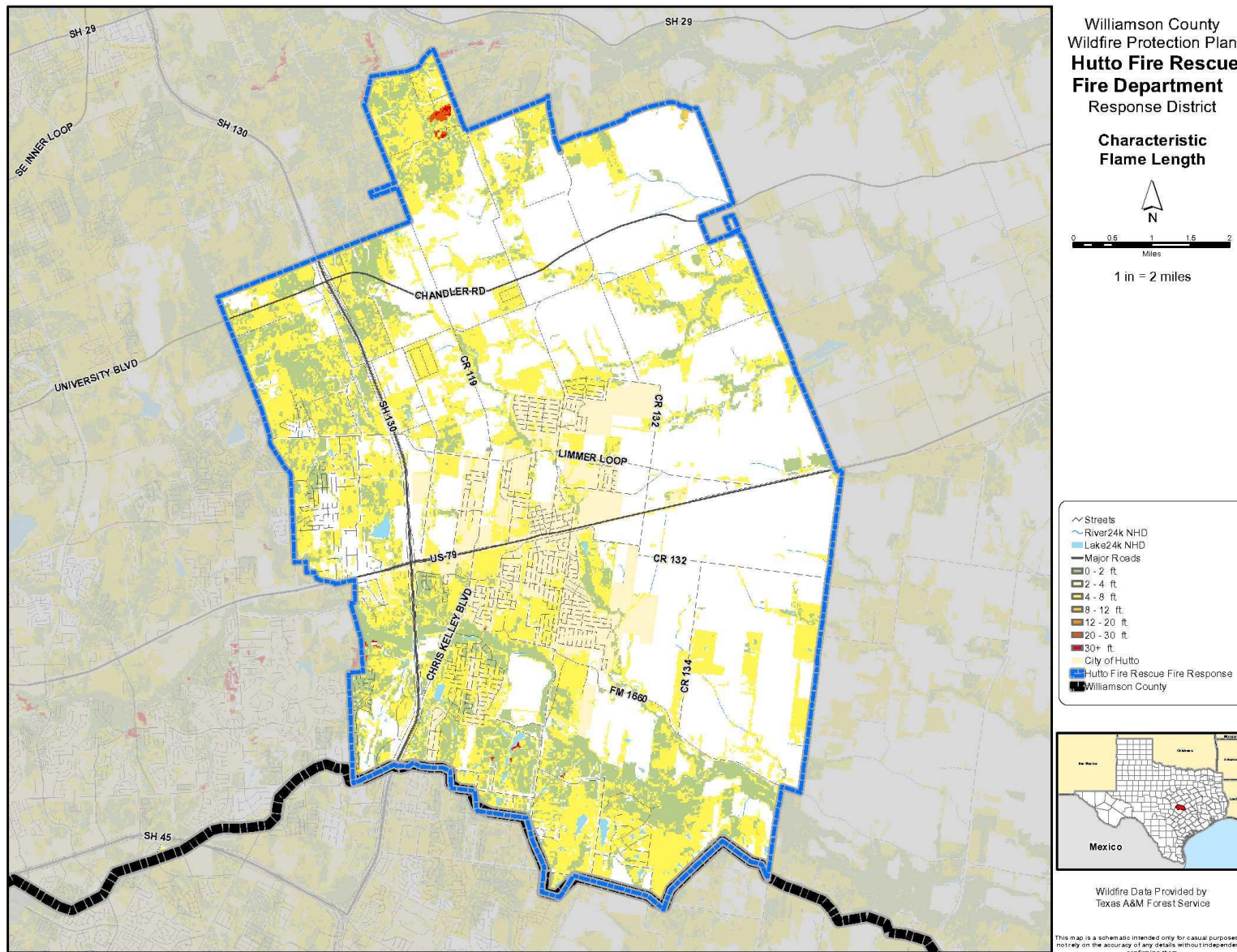
	Class	Description	Acres	Percent
	Open Water	All areas of open water, generally with < 25% cover of vegetation or soil	99	0.3 %
	Developed Open Space	Impervious surfaces account for < 20% of total cover (i.e. golf courses,	2,072	5.8 %
	Developed Low	Impervious surfaces account for 20-49% of total cover	1,738	4.8 %
	Developed Medium	Impervious surfaces account for 50-79% of total cover	136	0.4 %
	Developed High	Impervious surfaces account for 80-100% of total cover	48	0.1 %
	Barren Land (Rock/Sand/Clay)	Vegetation generally accounts for <15% of total cover	92	0.3 %
	Cultivated Crops	Areas used for the production of annual crops, includes land being	16,695	46.4 %
	Pasture/Hay	Areas of grasses and/or legumes planted for livestock grazing or hay	809	2.3 %
	Grassland/Herbaceous	Areas dominated (> 80%) by grammanoid or herbaceous vegetation,	13,094	36.4 %
	Floodplain Forest	> 20% tree cover, the soil is periodically covered or saturated with water	796	2.2 %
	Deciduous Forest	> 20% tree cover, >75% of tree species shed leaves in response to	266	0.7 %
	Live Oak Forest	> 20% tree cover, live oak species represent >75% of the total tree	6	0.0 %
	Juniper or Juniper/Live Oak Forest	> 20% tree cover, juniper or juniper/live oak species represent > 75% of the total tree cover	2	0.0 %
	Juniper/Deciduous Forest	> 20% tree cover, neither juniper or deciduous species represent > 75% of the total tree cover	101	0.3 %
Total:			35,954	100.0 %

Flame Length

Characteristic Flame Length is the typical or representative flame length of a potential fire based on a weighted average of four percentile weather categories. Flame Length is defined as the distance between the flame tip and the midpoint of the flame depth at the base of the flame, which is generally the ground surface. It is an indicator of fire intensity and is often used to estimate how much heat the fire is generating. Flame length is typically measured in feet. Flame length is the measure of fire intensity used to generate the response index outputs for the TWRA. Flame length characteristics are varied in the Hutto area but is dominated by 57.9% of the area is designated as non-burnable, 27.1% of the area having a projected flame length of 4-8 feet, followed by 0-2 feet at 13.9%, and 2-4 feet flame lengths are estimated at only 0.8% of the total area.

Flame length is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in Texas. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 22 weather influence zones in the State of Texas.

Figure 5. Hutto Flame Length



	Flame Length	Acres	Percent
	Non-Burnable	20,821	57.9 %
	0 - 2 ft	5,005	13.9 %
	2 - 4 ft	301	0.8 %
	4 - 8 ft	9,743	27.1 %
	8 - 12 ft	30	0.1 %
	20 - 30 ft	39	0.1 %
	30 + ft	14	0.0 %
Total:		35,954	100.0 %

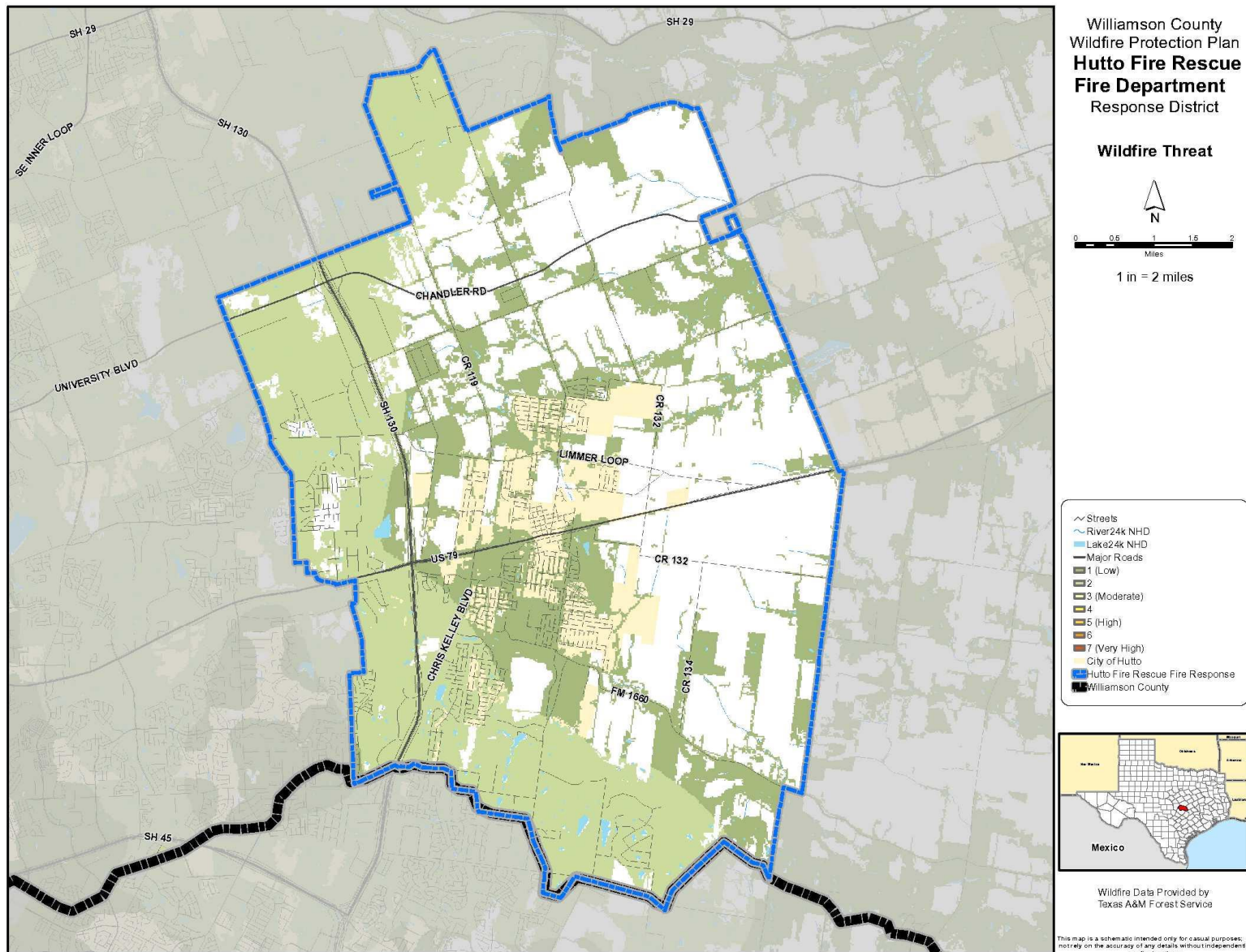
Wildfire Threat

Per the Texas A&M Forest Service Wildfire Threat is the likelihood of a wildfire occurring or burning into an area. Threat is derived by combining a number of landscape characteristics including surface fuels and canopy fuels, resultant fire behavior, historical fire occurrence, percentile weather derived from historical weather observations, and terrain conditions. These inputs are combined using analysis techniques based on established fire science.

The measure of wildfire threat used in the Texas Wildfire Risk Assessment (TWRA) is called Wildland Fire Susceptibility Index, or WFSI. WFSI combines the probability of an acre igniting (Wildfire Ignition Density) and the expected final fire size based on rate of spread in four weather percentile categories. WFSI is defined as the likelihood of an acre burning. Since all areas in Texas have WFSI calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high threat area in East Texas is equivalent to a high threat area in West Texas.

To aid in the use of Wildfire Threat for planning activities, the output values are categorized into seven (7) classes. These are given general descriptions from Low to Very High threat. It should be noted that a significant area of Hutto (49.5%) is designated as non-burnable. The balance of the area or more than 50% as low (categories 1 and 2). Overall, Hutto has a lower threat of wildfire than other areas of Williamson County.

Figure 6. Hutto Wildfire Threat



	Class	Acres	Percent
	Non-Burnable	17,787	49.5 %
	1 (Low)	7,787	21.7 %
	2	10,380	28.9 %
Total:		35,954	100.0 %

WILDFIRE ASSESSMENTS

Community Wildfire Risk Hazard Analysis (CWRHA) were conducted on select communities or subdivisions within this fire district. The CWRHA's are essential in identifying areas that are at risk for catastrophic wildfires leading to the destruction of private and commercial property along with environmentally sensitive areas. Assessments were performed overall of the community and not on individual home sites, which may not indicate increased totals for small or site-specific hazards.

Assessments were performed locally developed assessment criteria that addresses specific criteria and assigned a numerical value indicating the potential risk to the identified assessment area. Assessment areas include:

- Community Access / Egress
 - Access / Egress Points
 - Primary Road Width
 - Secondary Road Terminus
 - Accessibility (surface grade)
 - Subdivision Bridges
 - Roadway Fuels
 - Street Signs
- Home Site Hazards
 - Driveway Characteristics
 - Dominant Trees
 - Ladder Fuels
 - Vegetation
 - Slope of Property
 - Defensible Space
 - Lot Size
- Building Construction Hazards
 - Roofing Materials
 - Siding
 - Soffits
 - Foundation Type
 - Fencing
- Additional Factor Hazards
 - Fire Control Water Supply
 - Utilities
 - Surrounding Environment
 - Undeveloped Lots / Areas

Note: Assessments did not include local firefighting capabilities as Williamson County maintains strong auto-aid and mutual-aid agreements amongst the local fire departments which greatly enhances the capabilities of each fire district.

The CWRHA's were conducted utilizing the Crisistrack software and mobile application, which provides a comprehensive report for each selected assessment area. (available upon request)

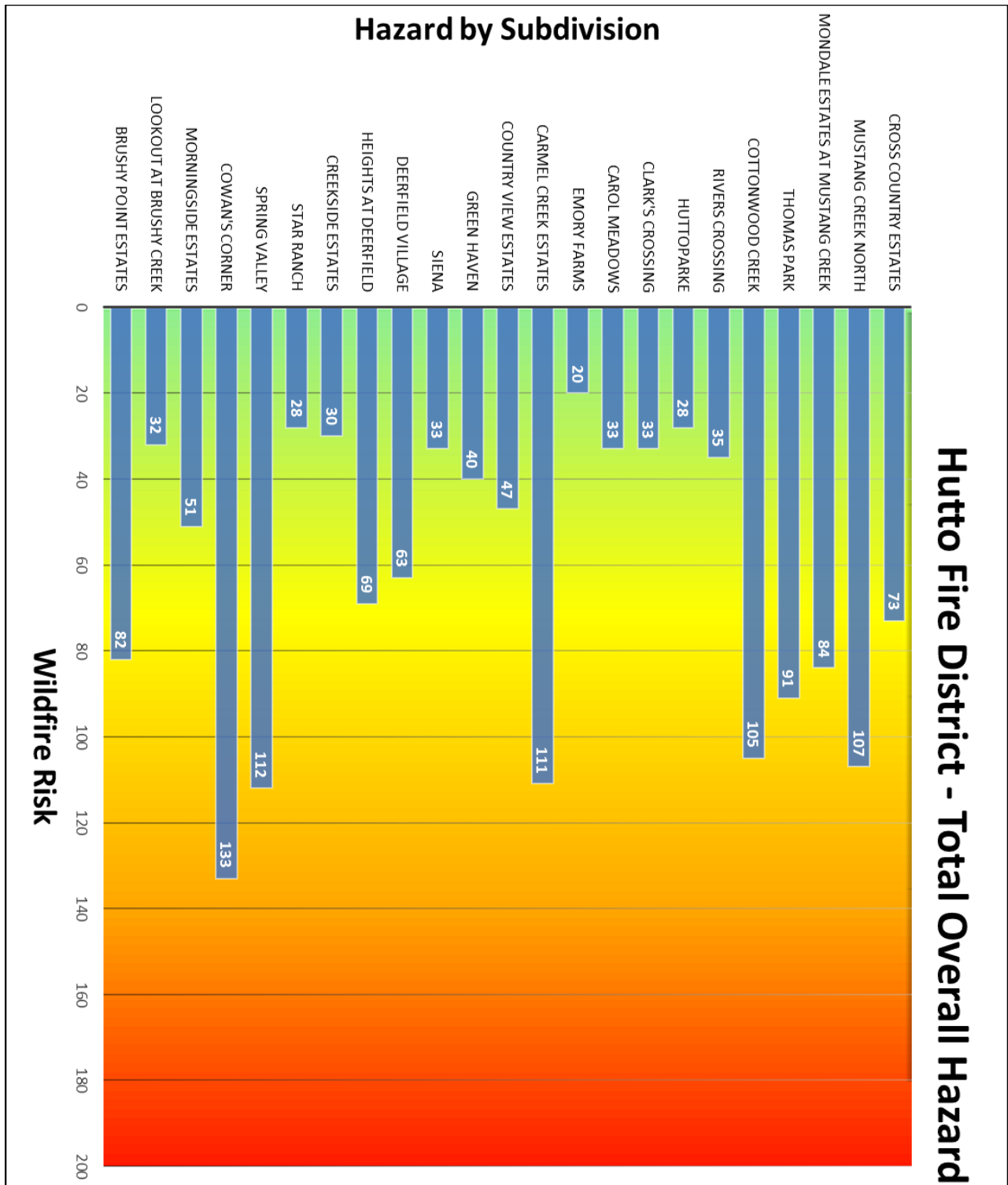
Assessment Scoring

Section	Min	Mid	Max
Community Access/Egress Rating	0	19	38
Site Hazard Rating	5	62	119
Building Construction Hazard Rating	10	35	60
Additional Hazard Factors	0	25	50
Total Hazard Factors	15	141	267

Community Assessment by Category

NAME	Total Community	Total Site Hazard	Total Construction Hazard	Total Additional Hazard	Total Overall Hazard
Brushy Point Estates	7	45	20	10	82
Lookout At Brushy Creek	4	33	10	5	32
Morningside Estates	0	26	10	15	51
Cowan's Corner	0	73	30	30	133
Spring Valley	9	48	10	45	112
Star Ranch	2	16	10	0	28
Creekside Estates	2	16	10	2	30
Heights at Deerfield	11	16	30	12	69
Deerfield Village	2	16	30	15	63
Siena	2	21	10	0	33
Green Haven	2	21	10	7	40
Country View Estates	4	21	10	12	47
Carmel Creek Estates	4	39	30	38	111
Emory Farms	2	6	10	2	20
Carol Meadows	2	16	10	5	33
Clark's Crossing	2	16	10	5	33
Huttoparke	2	16	10	0	28
Rivers Crossing	2	16	10	7	35
Cottonwood Creek	7	36	40	22	105
Thomas Park	4	30	40	17	91
Mondale Estates at Mustang Creek	9	38	10	27	84
Mustang Creek North	11	26	40	30	107
Cross Country Estates	11	30	10	22	73

Community Wildfire Hazard Rating



WILDFIRE MITIGATION AND FUELS REDUCTION

A. MITIGATION

Mitigation efforts for communities and subdivisions within the Hutto Fire District should focus on wildfire public education and the benefits of Firewise Programs. Education consisting of Ready-Set-Go and private property fuels reduction should be the primary focus of education.

B. FUELS REDUCTION PROJECTS

No publicly owned properties requiring fuels reduction have been identified in the Hutto Fire District.

The Hutto Fire District is comprised primarily of developed communities, subdivisions, neighborhoods on lots less than one acre in size and large tracts of cultivated crop land. Limited green space or undeveloped areas are noted which reduces the opportunity for large fuels reductions programs.