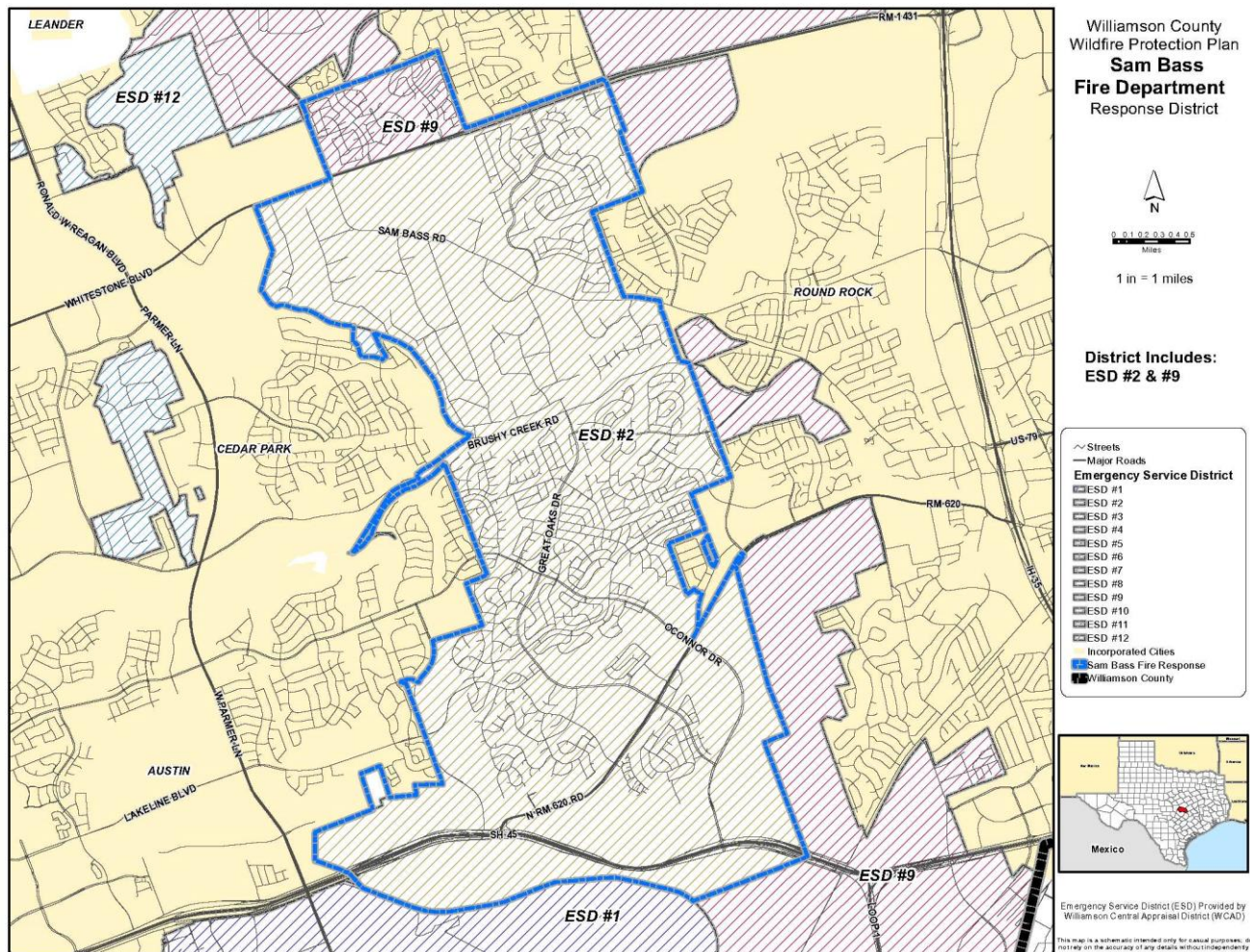

Williamson County Interjurisdictional CWPP

Annex 14: Sam Bass Volunteer Fire Department

ANNEX 14: SAM BASS FIRE DEPARTMENT

INTRODUCTION

Organization and Jurisdiction



CURRENT /HISTORICAL MITIGATION ACTIONS AND PROGRAMS

No information received.

PUBLIC EDUCATION AND OUTREACH PROGRAMS

No information received.

CAPABILITIES ASSESSMENT

Emergency Response Capabilities

No information received.

Policies

No specific policies regarding wildfire exists.

Regulations

No wildfire regulations exist outside the requirement to report controlled burns and to comply with county burn-bans.

Ordinances and Codes

No ordinances or codes pertaining to wildfire exist.

IDENTIFY CRITICAL INFRASTRUCTURE AND COMMUNITY VALUES AT RISK

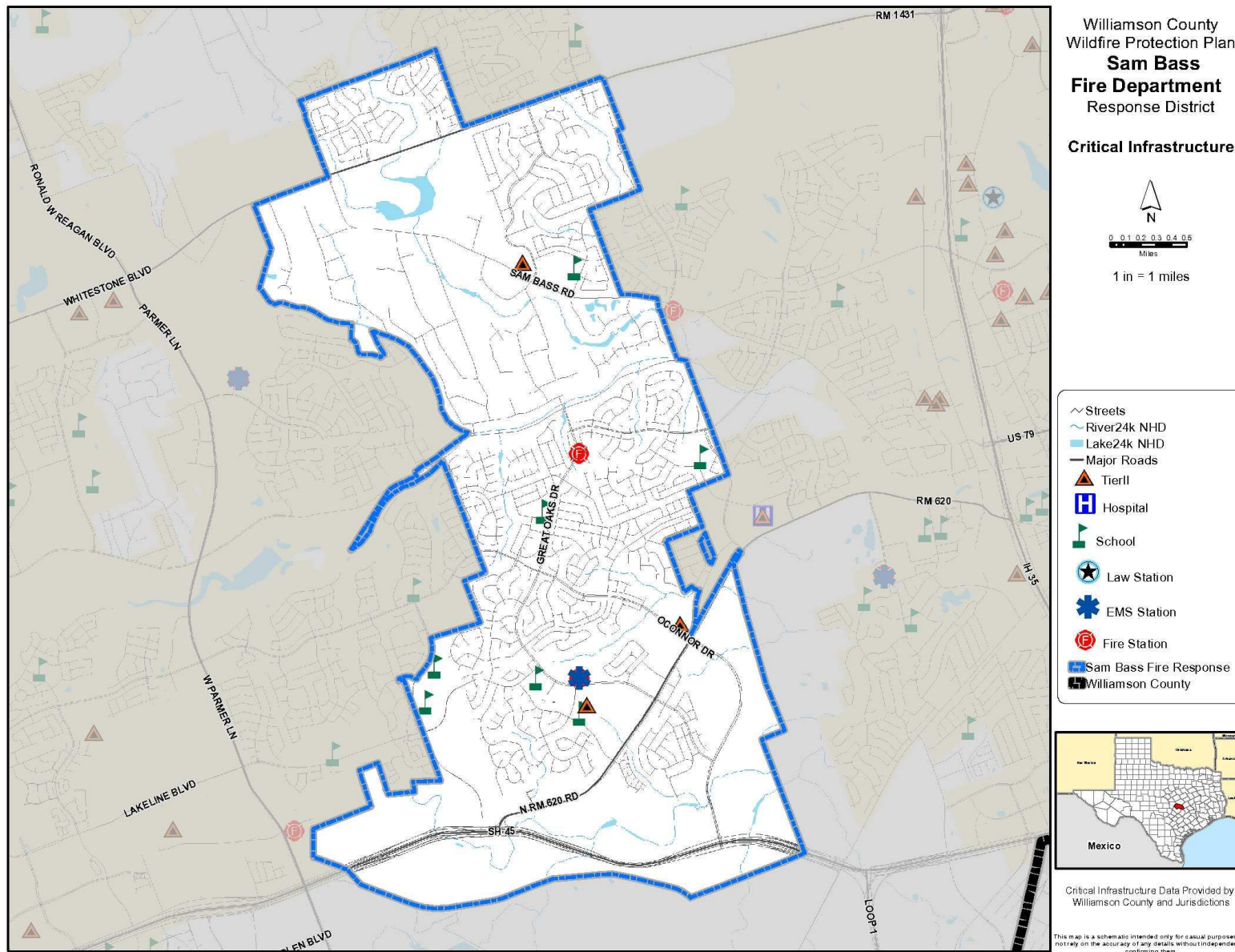
Critical Infrastructure within the Sam Bass Fire Department

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 Sam Bass Fire Department there are 13 facilities designated as critical. The following summarizes the general types of critical facilities located within the District.

Sam Bass Fire Department Critical Infrastructure Summary	
Facility Type	Number of Facilities
Hospitals	0
Schools	7
Law Enforcement	0
Fire	2
Emergency Medical Services (EMS)	1
Tier II Facilities	3

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. Sam Bass 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.

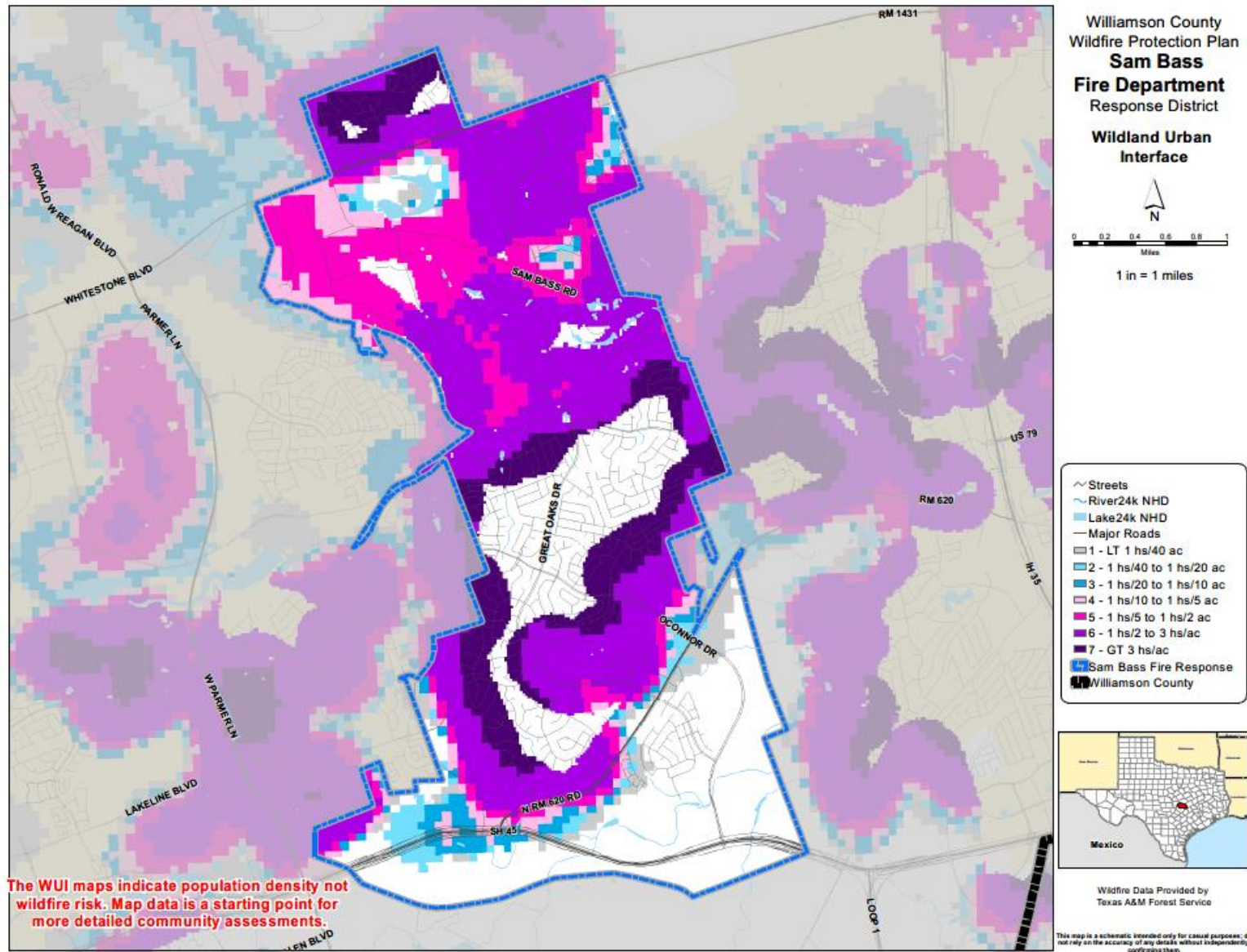
Loss of structures due to wildland fires has been attributed to many factors, one of which is the proximity of hazardous fuels to homes and communities. During periods of hot, dry weather, the buildup of vegetation that has occurred on some Federal, State, and private lands in the vicinity of communities 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 Sam Bass VFD project area, it is estimated that 17,101 people or 64% of the total project area population (26,781) 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	3	0.0 %	192	4.0 %
	1hs/40ac to 1hs/20ac	10	0.1 %	177	3.7 %
	1hs/20ac to 1hs/10ac	28	0.2 %	186	3.9 %
	1hs/10ac to 1hs/5ac	79	0.5 %	331	7.0 %
	1hs/5ac to 1hs/2ac	600	3.5 %	858	18.1 %
	1hs/2ac to 3hs/1ac	7,099	41.5 %	2,240	47.3 %
	GT 3hs/1ac	9,282	54.3 %	756	16.0 %
	Total:	17,101	100.0 %	4,741	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

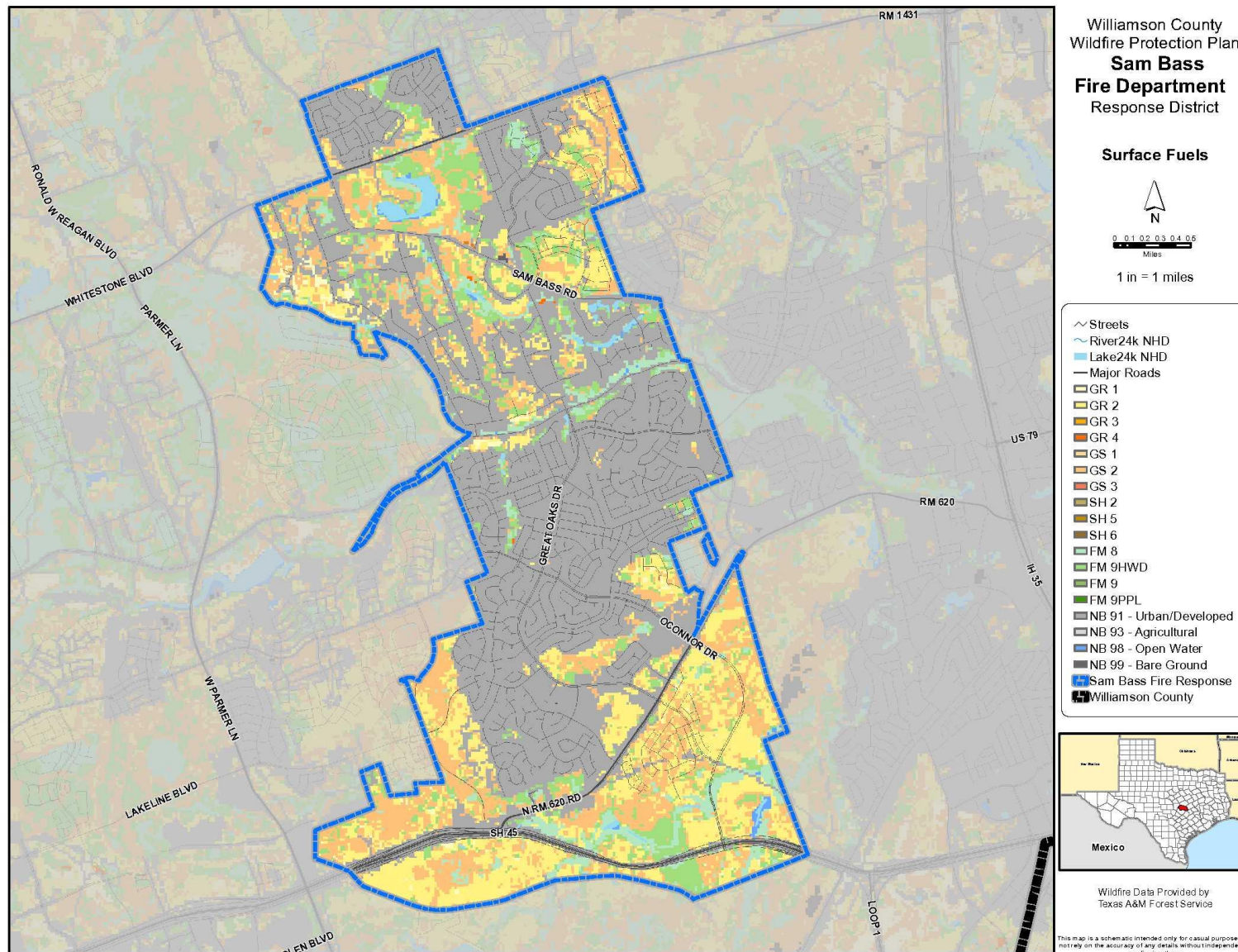
DEFINITIONS

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.

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.

Figure 3 and its associated table show that the 50.9% of the project area is designated as Urban/Developed. The balance of the Sam Bass VFD area primarily consists of Low Load, Dry Climate Grass at 17.0% and Moderate Load Dry Climate Grass (17.0%), followed by Timber Litter at 13.7%. Table 77 is a Georgetown map showing all the surface fuel types.

Figure 3. Sam Bass- Surface Fuels by type

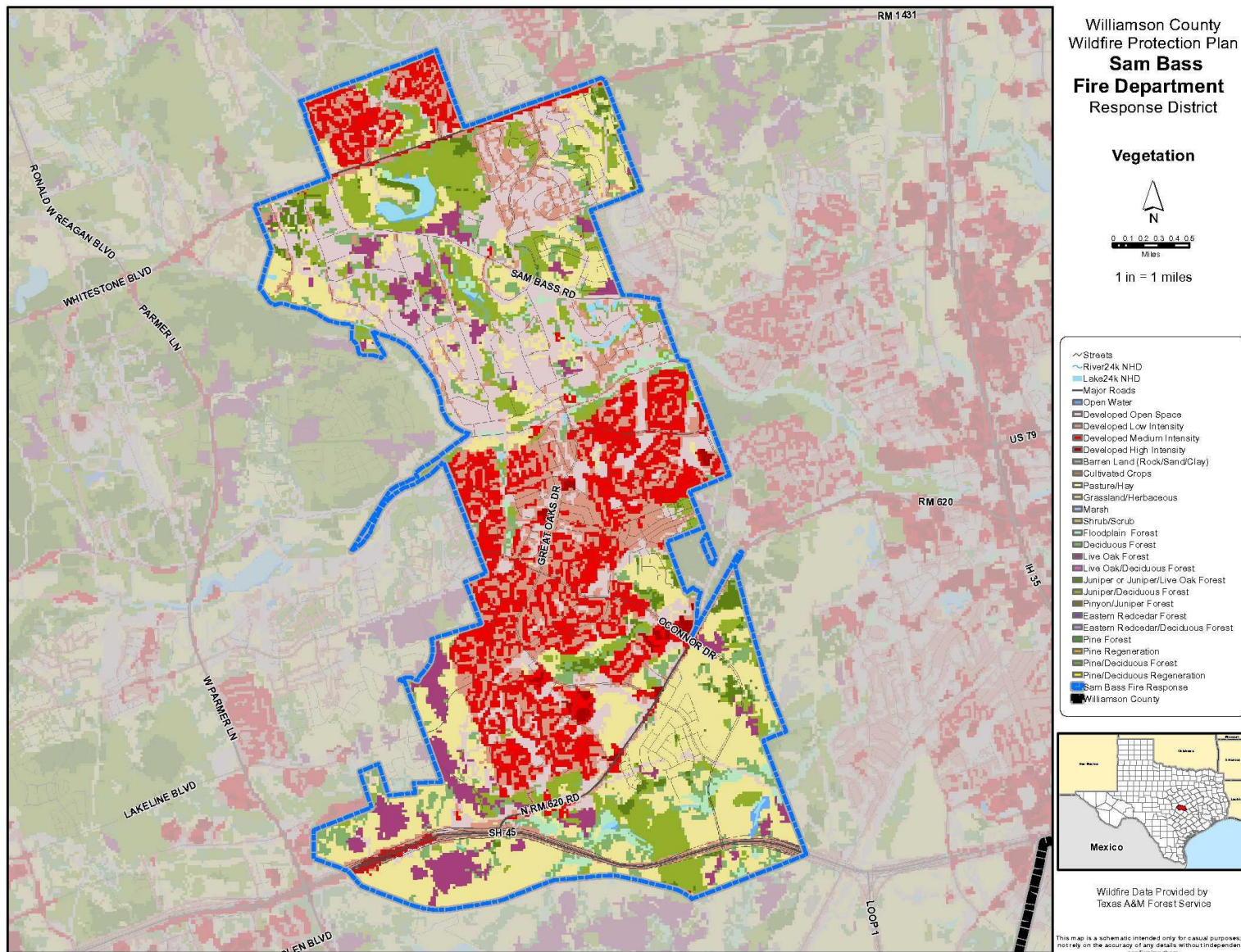


	Surface Fuels	Description	FBPS Fuel Model Set	Acres	Percent
	GR 1	Short, Sparse Dry Climate Grass (Dynamic)	2005	47	0.7 %
	GR 2	Low Load, Dry Climate Grass (Dynamic)	2005	1,194	17.0 %
	GS 2	Moderate Load, Dry Climate Grass-Shrub (Dynamic)	2005	1,197	17.0 %
	FM 8	Closed timber litter (compact)	1982	347	4.9 %
	FM 9 HWD	Hardwood litter (fluffy) - Low Load for Texas	Custom	619	8.8 %
	NB 91	Urban/Developed	2005	3,581	50.9 %
	NB 98	Open Water	2005	51	0.7 %
Total:				7,041	100.0%

Vegetation

The Vegetation map describes the land cover and vegetation types across the Sam Bass 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 more than on half of the Sam Bass VFP area is classified as Developed at some level. The balance of area is dominated by Grassland/Herbaceous vegetation that can be grazed (23.1%), Juniper/Deciduous Forest (10.2%), and Deciduous Forest (6.5%).

Figure 4. Sam Bass Vegetation



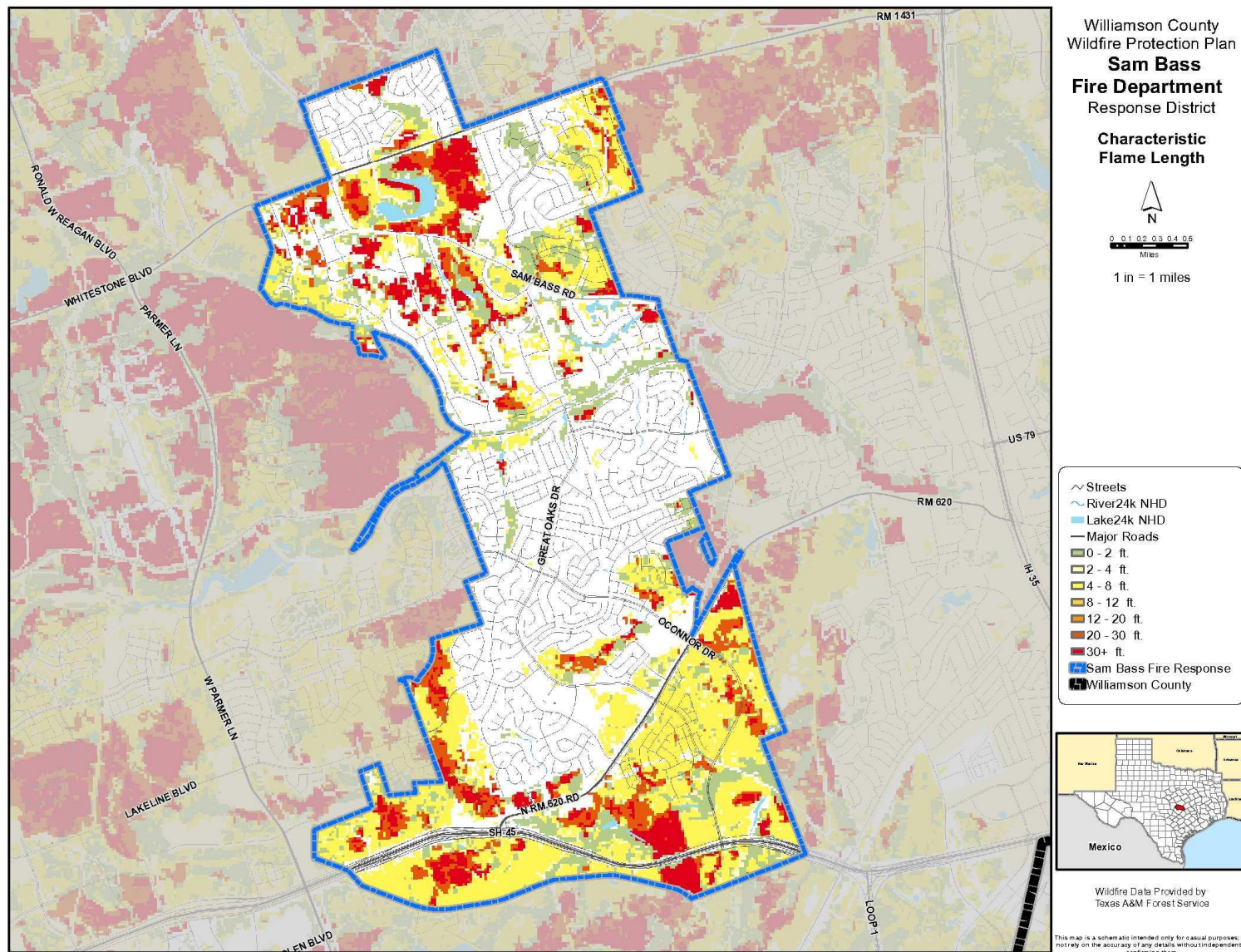
	Class	Description	Acres	Percent
	Open Water	All areas of open water, generally with < 25% cover of vegetation or soil	40	0.6 %
	Developed Open Space	Impervious surfaces account for < 20% of total cover (i.e. golf courses, parks, etc...)	1,357	19.3 %
	Developed Low Intensity	Impervious surfaces account for 20-49% of total cover	1,122	15.9 %
	Developed Medium Intensity	Impervious surfaces account for 50-79% of total cover	1,057	15.0 %
	Developed High Intensity	Impervious surfaces account for 80-100% of total cover	45	0.6 %
	Grassland/Herbaceous	Areas dominated (> 80%) by graminoid or herbaceous vegetation, can be grazed	1,623	23.1 %
	Floodplain Forest	> 20% tree cover, the soil is periodically covered or saturated with water	125	1.8 %
	Deciduous Forest	> 20% tree cover, >75% of tree species shed leaves in response to seasonal change	457	6.5 %
	Live Oak Forest	> 20% tree cover, live oak species represent >75% of the total tree cover	348	4.9 %
	Juniper or Juniper/Live Oak Forest	> 20% tree cover, juniper or juniper/live oak species represent > 75% of the total tree cover	143	2.0 %
	Juniper/Deciduous Forest	> 20% tree cover, neither juniper or deciduous species represent > 75% of the total tree cover	718	10.2 %
Total:			7,041	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 Sam Bass VFD area. 51.6% of the area is designated as Non-Burnable. The balance of the area predominately has a projected flame length of 4-8 feet (21.9%), followed by 0-2 feet at 10.6%, and 2-4 feet flame lengths are estimated at only 2.7% 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. Sam Bass Flame Length



	Flame Length	Acres	Percent
	Non-Burnable	3,634	51.6 %
	0 - 2 ft.	746	10.6 %
	2 - 4 ft.	187	2.7 %
	4 - 8 ft.	1,542	21.9 %
	20 - 30 ft.	467	6.6 %
	30 + ft.	460	6.5 %
Total:		7,041	100.0 %

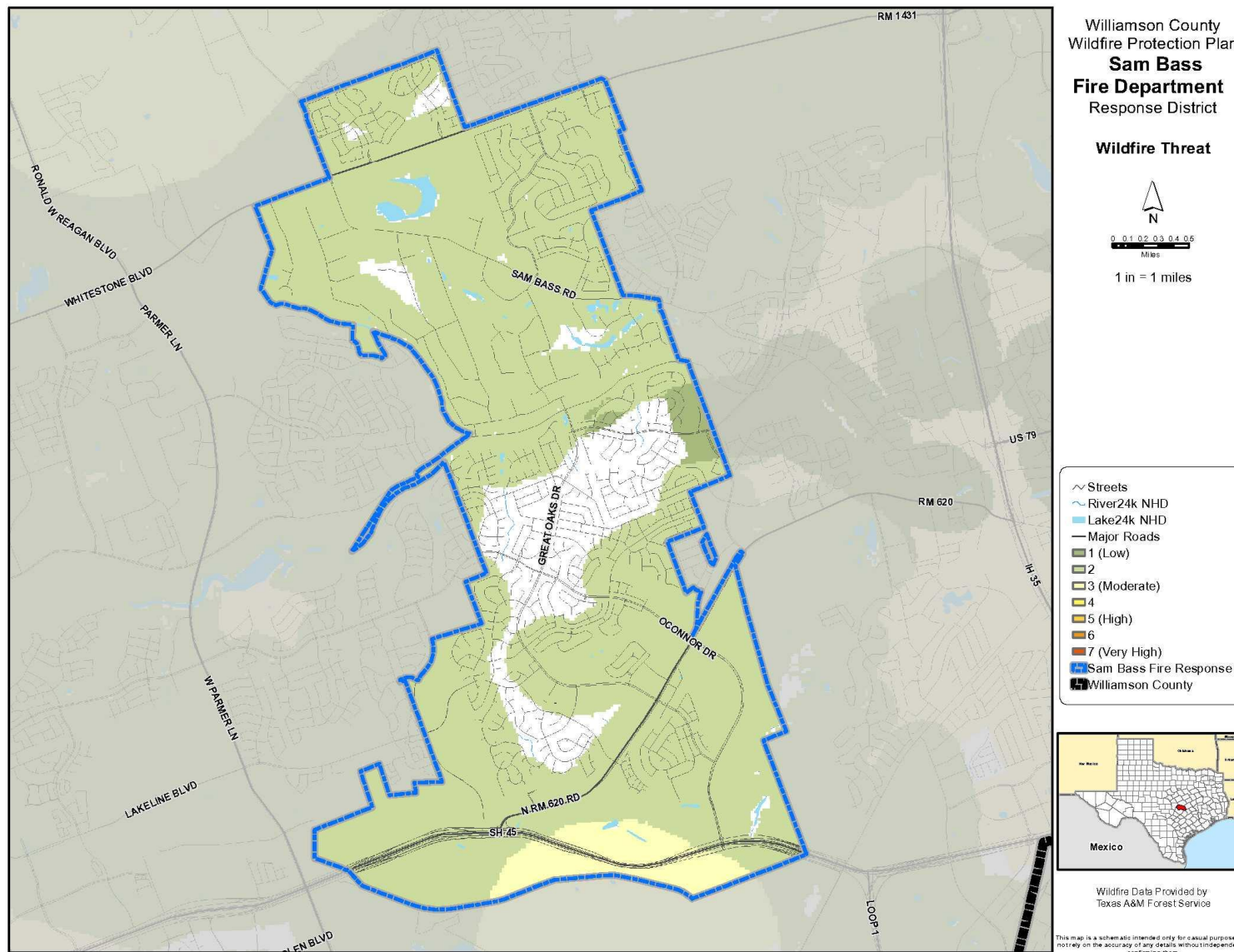
Wildfire Threat

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. Only 13.4% of the area within the Sam Bass Fire Department area is designated as non-burnable. The balance of the area or 81.8% is designated as low (categories 1 and 2), and 4.7% as moderate (categories 3 and 4). As such, wildfire threat in the Sam Bass VFD is considerably lower than many other areas of the County.

Figure 6. Sam Bass Wildfire Threat



	Class	Acres	Percent
	Non-Burnable	945	13.4 %
	1 (Low)	91	1.3 %
	2	5,670	80.5 %
	3 (Moderate)	333	4.7 %
	4	0	0.0 %
	5 (High)	0	0.0 %
	6	0	0.0 %
	7 (Very High)	0	0.0 %
Total:		7,041	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.

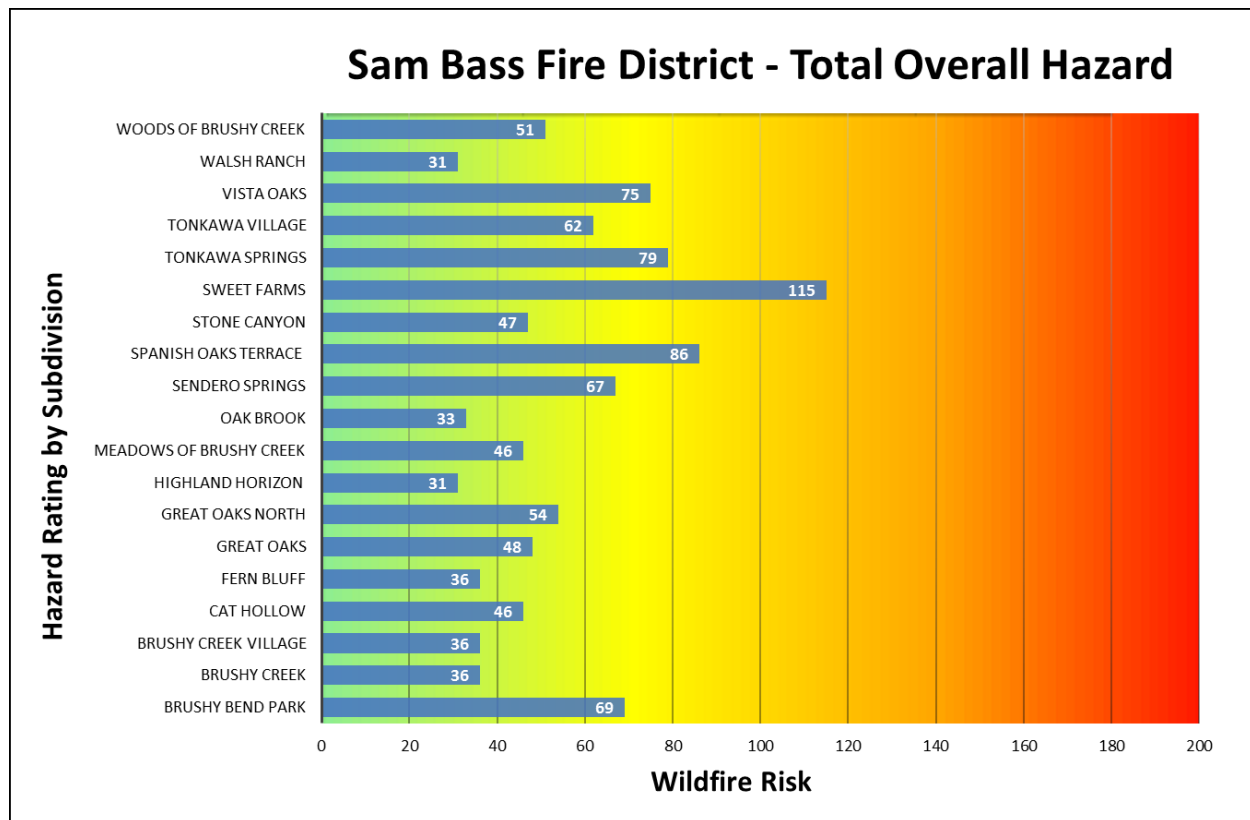
The CWRHA's were conducted utilizing the Crisistrack software and mobile application, which provides a comprehensive report for each selected assessment area. (available upon request)

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 Assessments

NAME	TOTAL COMMUNITY	TOTAL SITE HAZARD	TOTAL CONSTRUCTION HAZARD	TOTAL ADDITIONAL HAZARD	TOTAL OVERALL HAZARD
Brushy Bend Park	4	35	10	20	69
Brushy Creek	0	16	20	0	36
Brushy Creek Village	0	16	20	0	36
Cat Hollow	0	16	20	10	46
Fern Bluff	0	16	20	0	36
Great Oaks	0	21	10	17	48
Great Oaks North	2	30	20	2	54
Highland Horizon	0	6	10	15	31
Meadows of Brushy Creek	0	16	20	10	46
Oak Brook	2	16	10	5	33
Sendero Springs	2	30	20	15	67
Spanish Oaks Terrace	9	45	10	22	86
Stone Canyon	4	18	20	5	47
Sweet Farms	20	60	10	25	115
Tonkawa Springs	2	45	20	12	79
Tonkawa Village	9	16	20	17	62
Vista Oaks	0	40	20	15	75
Walsh Ranch	0	16	10	5	31
Woods of Brushy Creek	0	21	20	10	51



MITIGATION AND FUELS REDUCTION

A. MITIGATION

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

Mitigation efforts for communities and subdivisions within the Sam Bass 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.

Additionally, a partnership with the Brushy Creek Municipal Utility District should be developed to focus on potential fuels reductions programs in green spaces and parks.

B. FUELS REDUCTION PROJECTS

Listed below

Beck Preserve Project

The Beck Preserve is a 41 acre tract of land that contains environmentally sensitive features located on the northside of RM 620 and between Great Oaks Drive and Cornerwood Drive. Commercial real estate borders several areas of the preserve, but no residential dwellings.

Project Description: To construct 50-foot-wide shaded fuel break, along the perimeter of the preserve that adjoins the commercial spaces and remove dead fuels.

Estimated Cost: \$10,000

Possible Funding Sources: FEMA Hazard Mitigation Grants, Texas A&M Forest Service Fuel Mitigation Grant, and Williamson County General Fund (matching funds).



BECK PRESERVE