
Williamson County Interjurisdictional CWPP

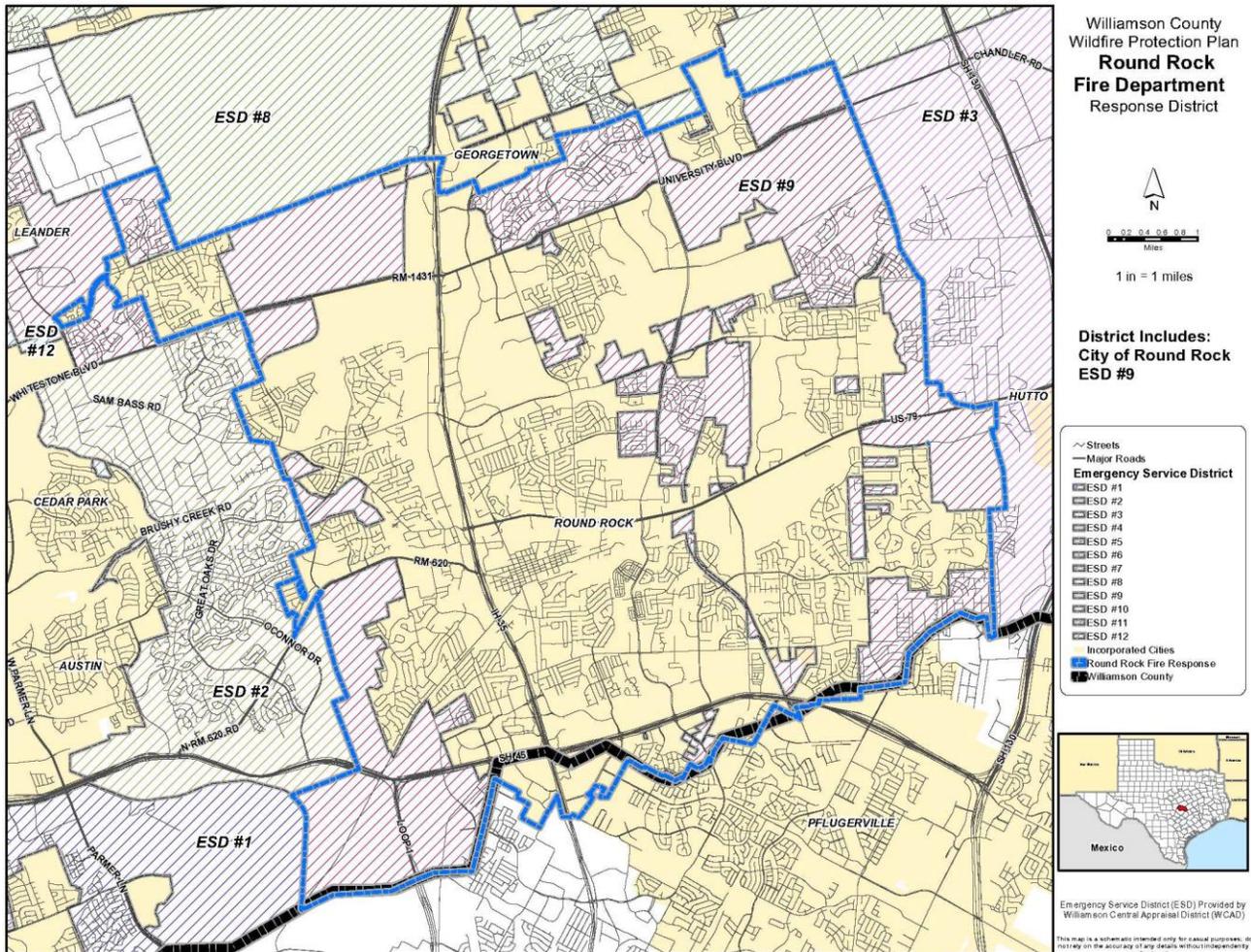
Annex 13: Round Rock Fire Department

Note: The Round Rock Fire Department continues to work towards a completed CWPP either within this document or as a stand-alone plan. The information provided in this plan is to provide a comprehensive view of the wildfire risk within Williamson County.

ANNEX 13: ROUND ROCK FIRE DEPARTMENT

INTRODUCTION

Organization and Jurisdiction



The Round Rock Fire Department is made up of four divisions:

- Fire Prevention – this division is responsible for public education, fire safety inspections, fire and arson investigations
- Fire Support Services – this division is responsible for asset management within the department
- Safety and Training – this division coordinates and directs all departmental safety and training programs
- Emergency Management – this division is responsible for the overall preparedness of the city, emergency operations planning, coordination of departments during emergencies, and all hazards exercises.

The Round Rock Fire Department has seven stations used for response across the city.

Station	Location	Services
Station 1 – Central Station	203 Commerce Blvd.	<ul style="list-style-type: none"> Covers the northern district of the city Administration offices Fire Marshal's office Wild Land Firefighting
Station 2	200 W. Bagdad Ave.	<ul style="list-style-type: none"> Covers the downtown district and central Round Rock and is backup for most all other districts. Technical rescue – high angle, swift water and heavy rescue
Station 3	1991 Rawhide Drive	<ul style="list-style-type: none"> Covers the southwestern area of Round Rock including La Frontera. Williamson County EMS Medic 14 operates from the station
Station 4	1301 Double Creek Drive	<ul style="list-style-type: none"> Covers the southwestern area of Round Rock Battalion Chief is located here Fire engine
Station 5	350 Deepwood Drive	<ul style="list-style-type: none"> Covers western and central Round Rock Williamson County EMS Medic 13 operates from the station
Station 6	2919 Joe DiMaggio Blvd.	<ul style="list-style-type: none"> Covers the eastern and northeastern areas of Round Rock Training division Hazardous Material Team
Station 7	2811 Oakmont Blvd.	<ul style="list-style-type: none"> Covers the north, northwest, and northeast Round Rock area
Station 8	1612 Red Bud Lane	<ul style="list-style-type: none"> Covers the southeastern area of Round Rock Equipped with a ladder truck Williamson County Medical Service unit operates from the station

CURRENT /HISTORICAL MITIGATION ACTIONS AND PROGRAMS

No information received.

PUBLIC EDUCATION AND OUTREACH PROGRAMS

Public education and outreach programs include the following:

- National Wildfire Community Preparedness Day/Cornyval Parade** - The Round Rocks Fire Department provides recognition of Wildfire Preparedness during the Helotes Cornyval Parade. Utilizing their Type 3 Wildland Engine, they had Smokey Bear and Logan Scherschel of the Texas A&M Forest Service riding on the engine. In addition, banners were placed on the apparatus announcing National Wildfire Community Preparedness Day. It is estimated that 3,000 people attended the parade.

- **City of Round Rock Newsletter** - The City of Round Rock newsletter is frequently utilized to send out fire safety message. This newsletter has provided a series of Wildfire Preparedness articles including defensible space, hardscaping homes, landscape, and general preparedness and safety.
- **Fire Department Website** – The City of Round Rock Fire Department maintains a website that provides information relating to the department and its various divisions. The website can be found at: <https://www.roundrocktexas.gov/departments/fire/>
- **Fire Department Facebook Page** - The City of Round Rock Fire Department maintains a Facebook page to use as an effective tool to communicate with residents. The department uses their Facebook page to post updates on fires, accidents, and rescue incidents; share public service announcements; and inform people of upcoming events. The Facebook page has provided information on wildfires and wildfire preparedness. The page can be found here: <https://www.facebook.com/RoundRockFireDept/>

CAPABILITIES ASSESSMENT

Emergency Response Capabilities

There are seven fire stations in the City of Round Rock fire department. The stations are responsible for fire suppression for all structural, vehicle, grass, dumpster, and other fires within the city. The department has 30 full-time Wildland Firefighters II (FFT2) and 4 Wildland Firefighter I (FFT1/ICTS). The department has the following equipment available for emergency response:

- 5 – Type 1 Engines
- 2 – 75’ Quints
- 1 – 100’ Platform
- 1 – 85’ platform
- 4 – Type 6 Brush Truck Engines
- 1 – Tactical Tender
- 3 – 4X4 Command Pick Up
- 1 Firefighting UTV
- 1 Type 7 with rehab trailer

Policies

No information received.

Regulations

No information received.

Ordinances and Codes

The City of Round Rock has adopted the following codes:

- International Residential Code, 2015 edition
- International Building Code, 2015 edition
- National Electric Code, 2014 edition
- International Plumbing Code, 2015 edition
- Various amendments to these codes and City Ordinances

Plans, Studies, and Reports

The City of Round Rock developed a Community Wildfire Protection Plan (CWPP) with the purpose to “protect human life and reduce property loss due to wildland fire in the Round Rock area. Although reducing the threat of wildland fire is a primary motivation, managing area wildlands for hazardous fuel reduction and fire resilience is only one part of the overall CWPP plan. Residents and visitors alike want healthy, fire resilient wildlands that provide habitat for wildlife, recreation, and scenic beauty. These wildland areas are a critical part of the community’s value and economy. The CWPP outlines a strategy for long-term success by identifying priorities for action and suggests immediate steps that can be taken to protect the community from wildland fire while simultaneously protecting other important social and ecological values”.

IDENTIFY CRITICAL INFRASTRUCTURE AND COMMUNITY VALUES AT RISK

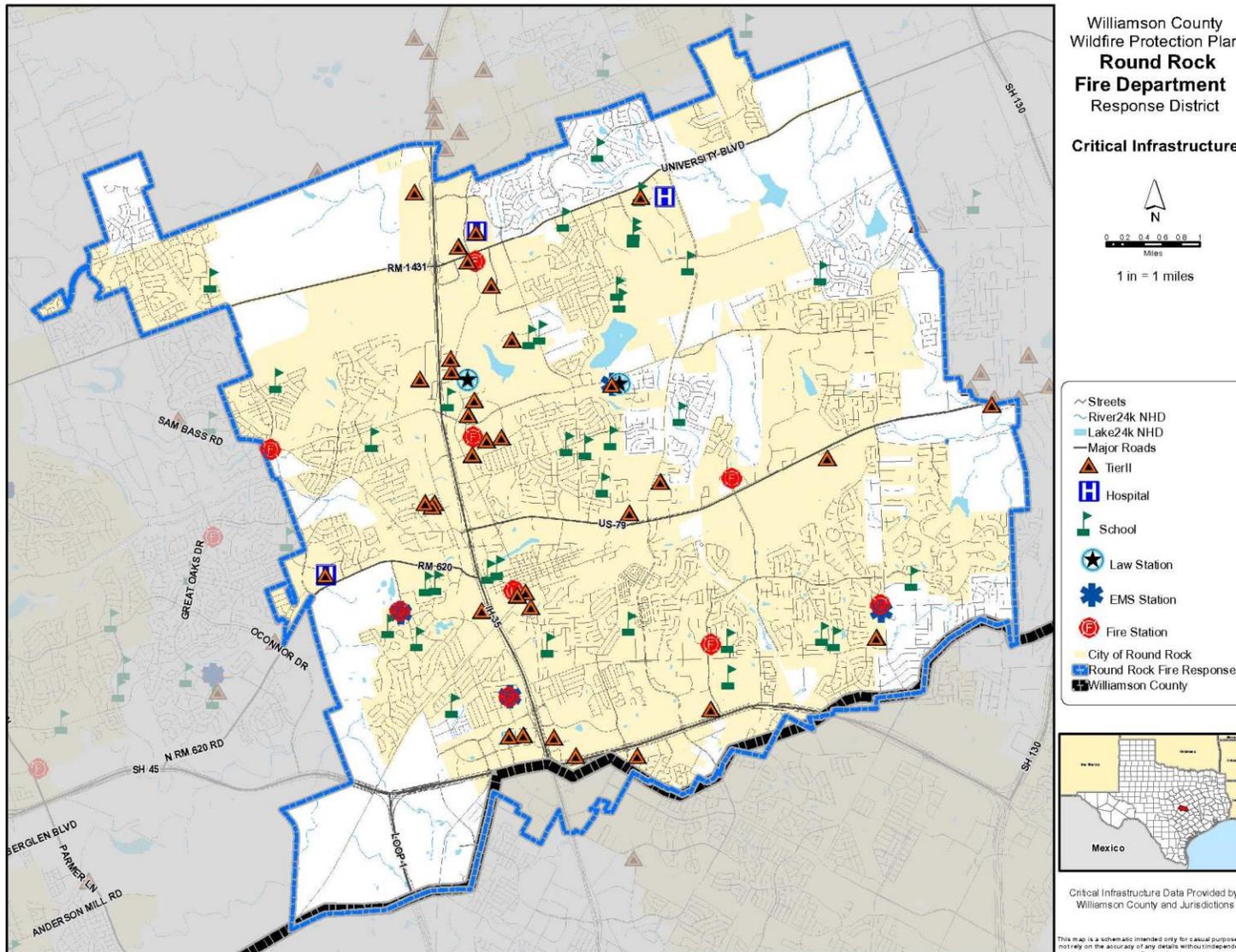
Critical Infrastructure within the Round Rock Fire Department

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 Round Rock Fire Department there are XXX facilities that have been designated as critical. The following summarizes the general types of critical facilities located within the District.

Round Rock Fire Department Critical Facilities Summary	
Facility Type	Number of Facilities
Hospitals	3
Schools	37
Law Enforcement	2
Fire	9
Emergency Medical Services (EMS)	4
Tier II Facilities	35

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. Round Rock Fire Department 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.

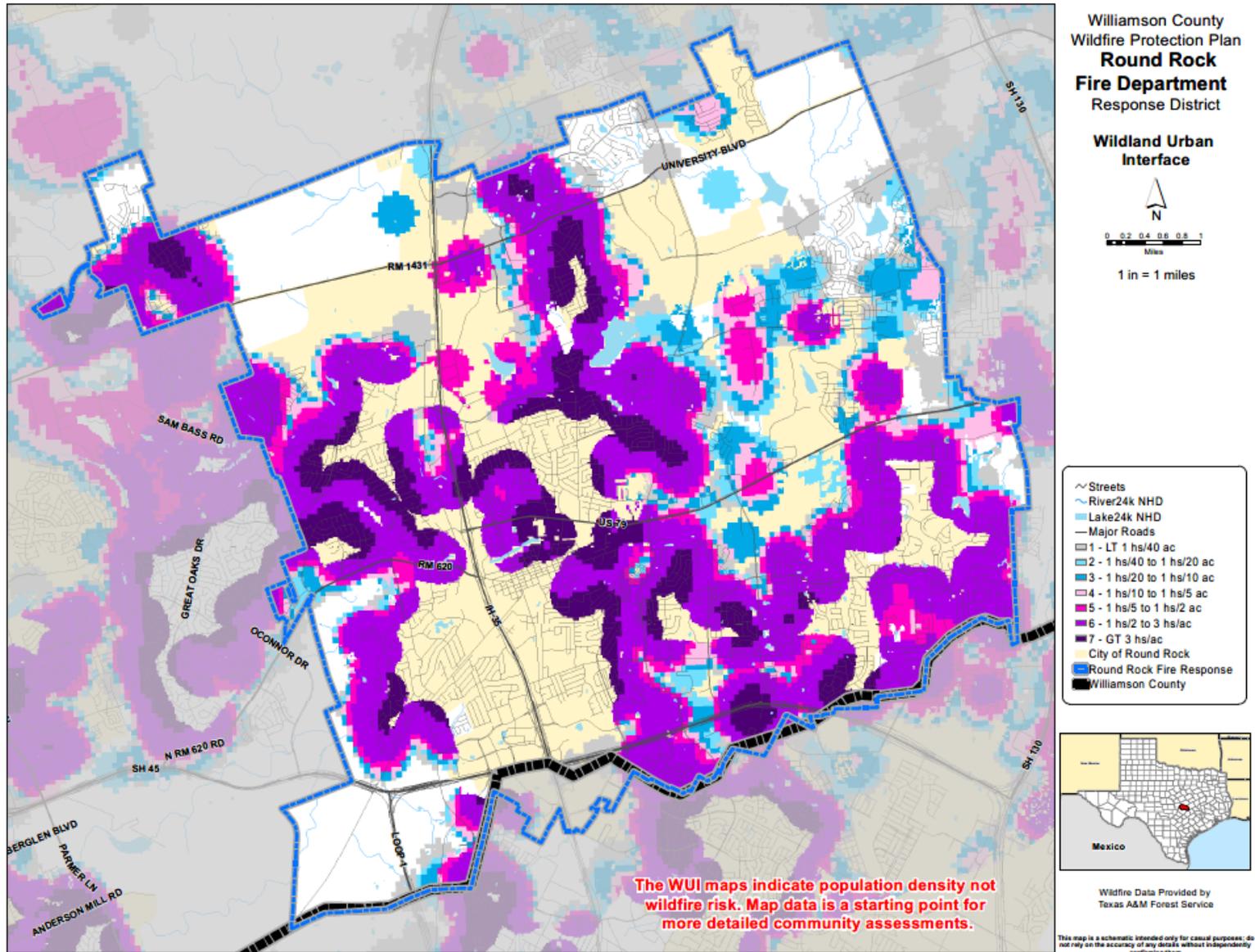
Loss of structures due to wildland fires has been attributed to many factors, one of which is the proximity of hazardous fuels to homes and communities. During periods of hot, dry weather, the buildup of vegetation that has occurred on some Federal, State, and private lands in the vicinity of communities 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 Round Rock FD project area, it is estimated that 66,486 people or 62% of the total project area population (107,085) 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. According to the City’s CWPP, there are three communities identified as being high risk to wildfires, 25 communities at moderate risk, and five communities at low risk. The communities in Round Rock at high risk include: Bent Tree / Creek Bend Blvd., Blessing, and North Ridge Acres.

Figure 2. Wildland Urban Interface



	Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
	LT 1hs/40ac	35	0.1 %	1,827	9.3 %
	1hs/40ac to 1hs/20ac	51	0.1 %	1,231	6.3 %
	1hs/20ac to 1hs/10ac	199	0.3 %	1,673	8.5 %
	1hs/10ac to 1hs/5ac	377	0.6 %	1,343	6.8 %
	1hs/5ac to 1hs/2ac	869	1.3 %	2,306	11.7 %
	1hs/2ac to 3hs/1ac	29,966	45.1 %	8,589	43.7 %
	GT 3hs/1ac	34,989	52.6 %	2,704	13.7 %
	Total:	66,486	100.0 %	19,673	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

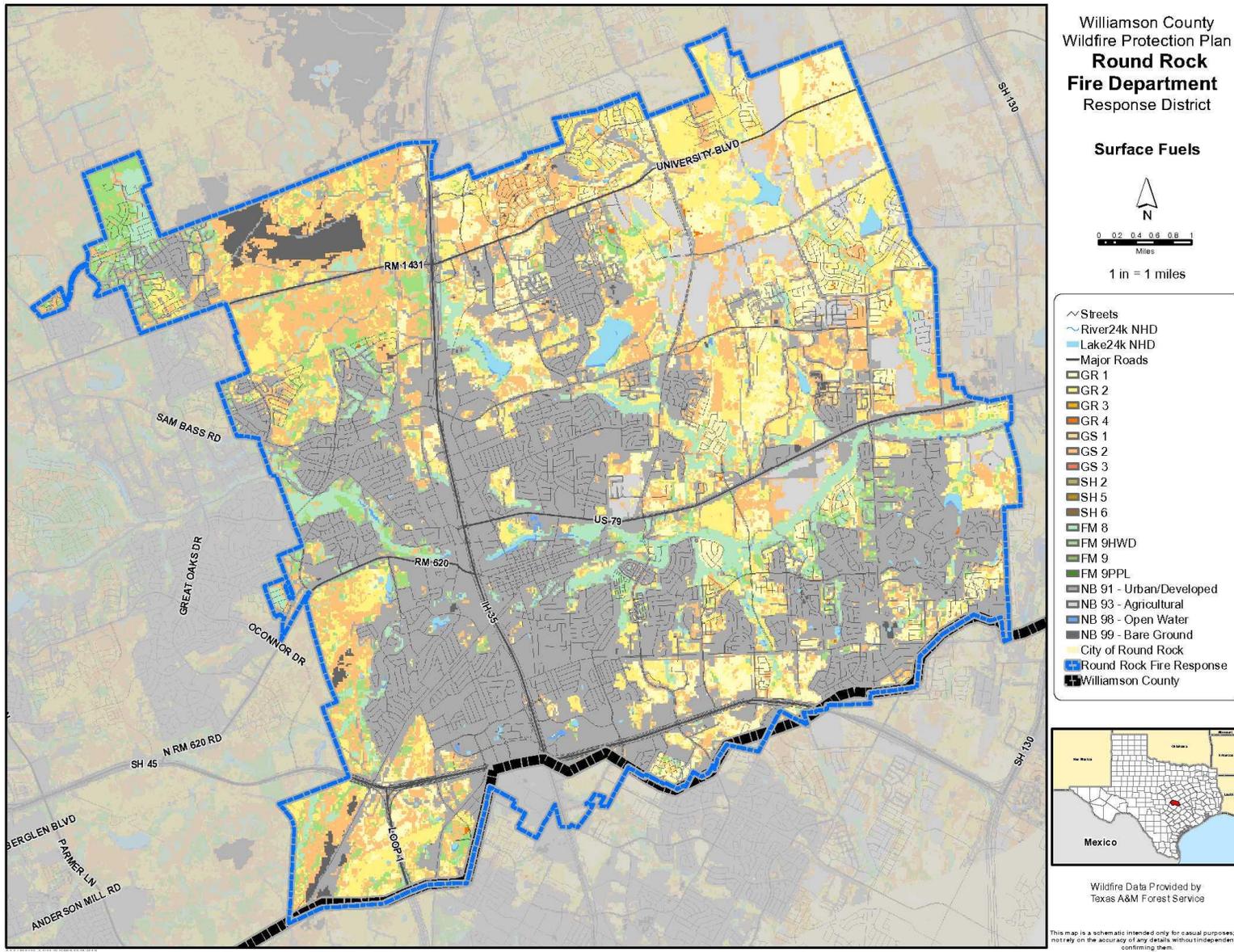
DEFINITIONS

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 Round Rock area is primarily Urban/Developed at 42.6%, followed by Moderate Load, Dry Climate Grass - Shrub at 15.5%, Low Load, Dry Climate Grass at 13.8%, and Short, Sparse Dry Climate Grasses at 10.3%. Figure 3 is a Round Rock map showing all the surface fuel types.

Figure 3. Round Rock- Surface Fuels by type

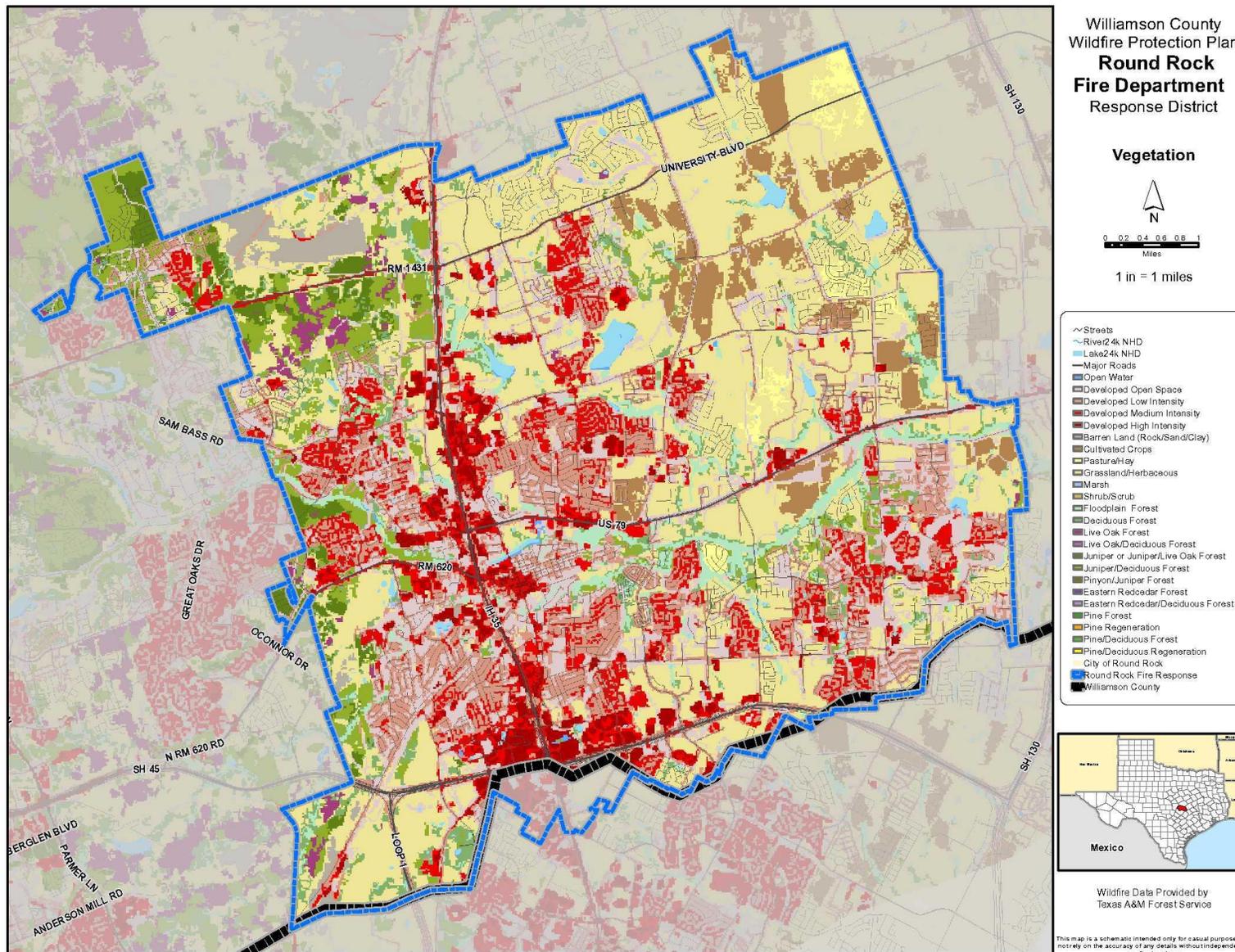


	Surface Fuels	Description	FBPS Fuel Model Set	Acres	Percent
	GR 1	Short, Sparse Dry Climate Grass (Dynamic)	2005	3,800	10.8 %
	GR 2	Low Load, Dry Climate Grass (Dynamic)	2005	4,866	13.8 %
	GR 4	Moderate Load, Dry Climate Grass (Dynamic)	2005	24	0.1 %
	GS 2	Moderate Load, Dry Climate Grass-Shrub (Dynamic)	2005	5,455	15.5 %
	FM 8	Closed timber litter (compact)	1982	2,181	6.2 %
	FM 9 HWD	Hardwood litter (fluffy) - Low Load for Texas	Custom	1,593	4.5 %
	NB 91	Urban/Developed	2005	14,996	42.6 %
	NB 93	Agricultural	2005	1,452	4.1 %
	NB 98	Open Water	2005	311	0.9 %
	NB 99	Bare Ground	2005	511	1.5 %
Total:				35,190	100.0%

Vegetation

The Vegetation map describes the land cover and vegetation types across the Round Rock 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 varying levels of developed land (42.8%) followed by Grassland/Herbaceous vegetation that can be grazed (35.4%), Juniper/Deciduous Forest (4.7%).

Figure 4. Round Rock Vegetation



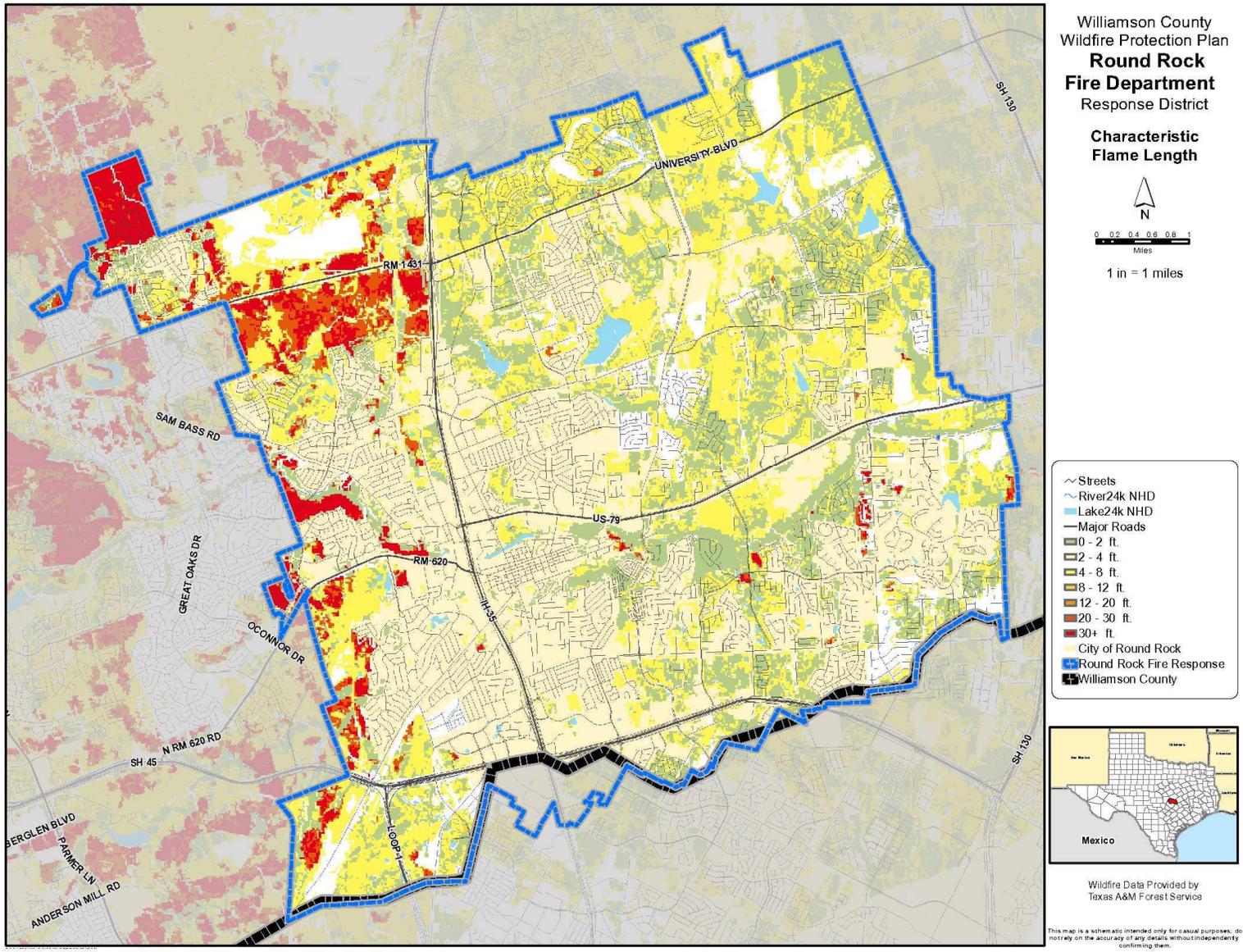
	Class	Description	Acres	Percent
	Open Water	All areas of open water, generally with < 25% cover of vegetation or soil	234	0.7 %
	Developed Open Space	Impervious surfaces account for < 20% of total cover (i.e. golf courses, parks, etc...)	4,740	13.5 %
	Developed Low Intensity	Impervious surfaces account for 20-49% of total cover	5,773	16.4 %
	Developed Medium Intensity	Impervious surfaces account for 50-79% of total cover	3,239	9.2 %
	Developed High Intensity	Impervious surfaces account for 80-100% of total cover	1,285	3.7 %
	Barren Land (Rock/Sand/Clay)	Vegetation generally accounts for <15% of total cover	466	1.3 %
	Cultivated Crops	Areas used for the production of annual crops, includes land being actively tilled	1,469	4.2 %
	Pasture/Hay	Areas of grasses and/or legumes planted for livestock grazing or hay production	336	1.0 %
	Grassland/Herbaceous	Areas dominated (> 80%) by grammanoid or herbaceous vegetation, can be grazed	12,455	35.4 %
	Marsh	Low wet areas dominated (>80%) by herbaceous vegetation	5	0.0 %
	Shrub/Scrub	Areas dominated by shrubs/trees < 5 meters tall, shrub canopy > than 20% of total vegetation	2	0.0 %
	Floodplain Forest	> 20% tree cover, the soil is periodically covered or saturated with water	1,085	3.1 %
	Deciduous Forest	> 20% tree cover, >75% of tree species shed leaves in response to seasonal change	1,393	4.0 %
	Live Oak Forest	> 20% tree cover, live oak species represent >75% of the total tree cover	310	0.9 %
	Juniper or Juniper/Live Oak Forest	> 20% tree cover, juniper or juniper/live oak species represent > 75% of the total tree cover	725	2.1 %
	Juniper/Deciduous Forest	> 20% tree cover, neither juniper or deciduous species represent > 75% of the total tree cover	1,671	4.7 %
Total:			35,190	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. Of note is the fact that 49.1% of the Round Rock area is considered to be Non-Burnable. Flame length characteristics are varied for the balance of the Round Rock area but is dominated by 24.0% of the area having a projected flame length of 4-8 feet, followed by 0-2 feet at 19.0%, and 6.2% of the area being projected as having feet flame lengths at 20 feet and greater.

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. Round Rock Flame Length



	Flame Length	Acres	Percent
	Non-Burnable	17,270	49.1 %
	0 - 2 ft.	6,673	19.0 %
	2 - 4 ft.	573	1.6 %
	4 - 8 ft.	8,462	24.0 %
	8 - 12 ft.	24	0.1 %
	20 - 30 ft.	944	2.7 %
	30 + ft.	1,242	3.5 %
Total:		35,190	100.0 %

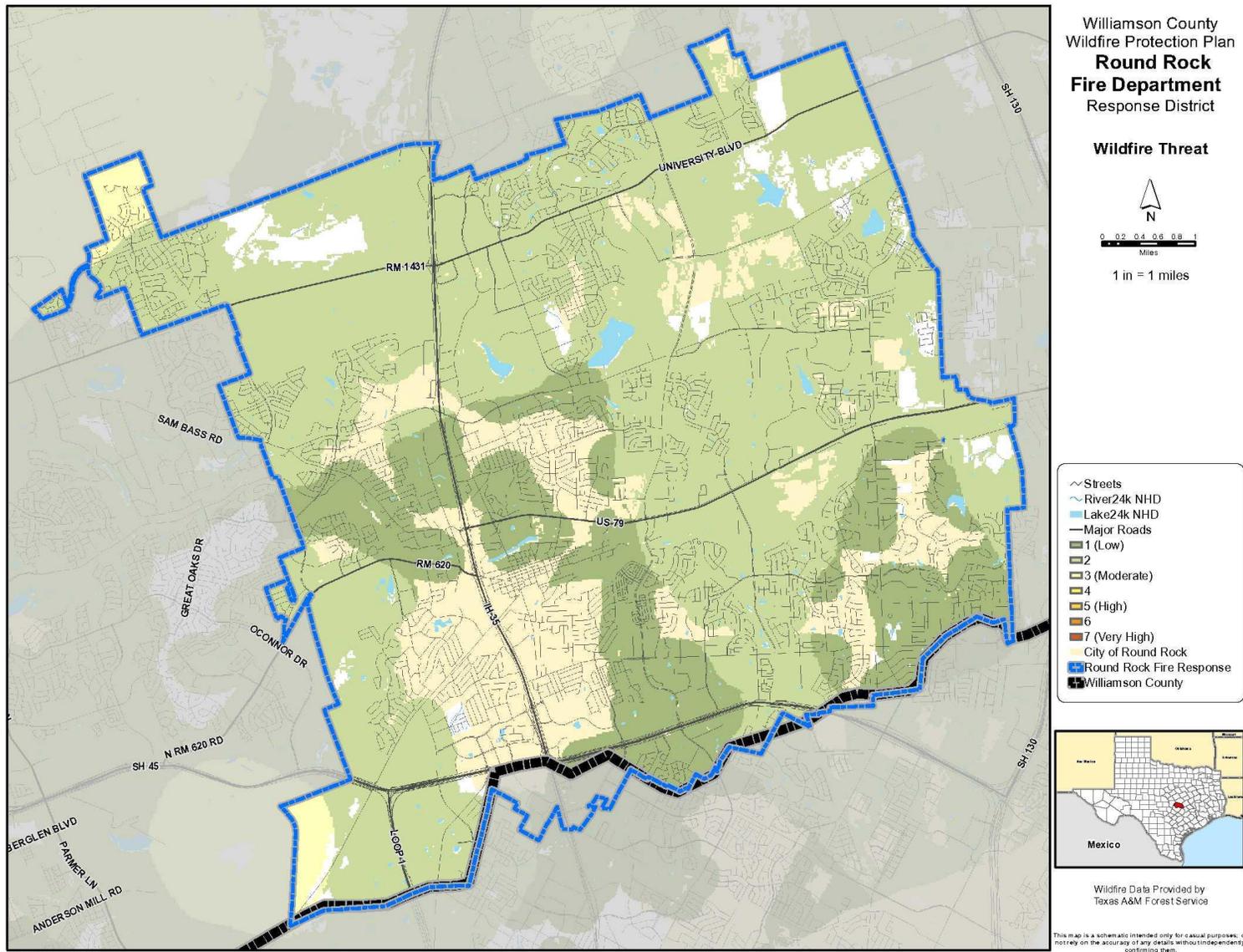
Wildfire Threat

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 20.8% of the area within the Round Rock Fire Department area is designated as non-burnable. The balance of the area or 77.5 % is designated as low (categories 1), and 1.7% as moderate (categories 3 and 4). These numbers suggest a lower wildfire threat than average for the County as well as some other communities within Williamson County.

Figure 6. Round Rock Wildfire Threat



	Class	Acres	Percent
	Non-Burnable	7,309	20.8 %
	1 (Low)	6,303	17.9 %
	2	20,977	59.6 %
	3 (Moderate)	601	1.7 %
Total:		35,190	100.0 %

WILDFIRE MITIGATION ACTIONS

No information received.