City of Bryan Community Wildfire Protection Plan

2013

A collaborative approach to protecting lives, property and natural resources in the City of Bryan

This plan is dedicated to the memory of Lt. Eric Wallace, a member of the Community Wildfire Protection Plan working group, and Lt. Greg Pickard. The men valiantly gave their lives in the line of duty in February 2013.

In accordance with Title I of the Healthy Forest Restoration Act of 2003

This document was prepared by the Bryan Fire Department
and Texas A&M Forest Service
and was completed on May 1, 2013.

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Mayor
Bryan, Texas

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Introduction

Eighty percent of wildfires in Texas occur within two miles of a community. That means 80 percent of Texas wildfires pose a threat to life and property. A Community Wildfire Protection Plan (CWPP) can help protect against the threats of wildfire and reduce losses. By developing a CWPP, the City of Bryan is outlining a strategic plan to mitigate, prepare, respond and recover.

Statement of Intent

The intent of the City of Bryan CWPP is to reduce the risk of wildfire and promote ecosystem health. The plan also is intended to reduce home losses and provide for the safety of residents and firefighters during wildfires.

Goals

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

Objectives

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

Working Group

Bryan Fire Department

- Fire Chief Randy McGregor
- Emergency Management Coordinator Jerry Henry
- Fire Marshal Marc McFeron
- Deputy Fire Marshal Fred Taylor
- Assistant Fire Chief Terry Barnett
- Assistant Fire Chief Ricky Van
- Assistant Fire Chief Cory Matthews
- Battalion Chief Joe Dan Ondrasek
- Battalion Chief Jordan Gallagher
- Battalion Chief Jimmy Davis
- Lt. Eric Wallace
- Lt. Larry Jordy
- Lt. Jimmy Zanek
- Lt. Dan Wall
- Acting Lt. Jimmie Rosier

City of Bryan

- Assistant Director of Development Services Martin Zimmermann
- Bryan Texas Utilities General Manager Gary Miller
- GIS Coordinator Dale Kubenka

Texas A&M Forest Service

- Wildland Urban Interface Specialist Jared Karns
- Wildland Urban Interface Specialist Luke Kanclerz
- Communications Specialist April Saginor

Additional Partners

- Bryan Independent School District
- Texas Division of Emergency Management

Planning Process

The CWPP Working Group reviews potential wildfire hazards and mitigation strategies.

Meeting Date	Topics Covered	Attendees	Action Items
12/10/12	Review CWPP process	* Bryan Fire Chief Randy McGregor * Bryan EMC Jerry Henry * Bryan FD representatives * College Station EMC Brian Hilton * Brazos County EMC Chuck Frazier * Texas A&M University Office of Safety and Security representative Monica Weintraub * TFS Mitigation and Prevention Department Head Bruce Woods * TFS State WUI Coordinator Justice Jones * TFS WUI Specialist Jared Karns * TFS WUI Specialist Luke Kanclerz * TFS Communications Specialist April Saginor	Each entity was tasked with determining whether it wants to pursue a CWPP and, if so, contacting Texas A&M Forest Service to begin the process
1/31/12	Risk assessment training for Bryan Fire Department Pre-attack strategy	* Fire Chief Randy McGregor * Emergency Management Coordinator Jerry Henry * Assistant Fire Chief Terry Barnett * Assistant Fire Chief Ricky Van * Assistant Fire Chief Cory Matthews * Fire Marshal Marc McFeron * Deputy Fire Marshal Fred Taylor * Battalion Chief Joe Dan Ondrasek * Battalion Chief Jordan Gallagher * Battalion Chief Jimmy Davis * Lt. Eric Wallace * Lt. Larry Jordy * GIS Coordinator Dale Kubenka * TFS WUI Specialist Jared Karns * TFS Communications Specialist April Saginor	Schedule risk assessments

2/6/13	Risk assessments – Station 2 response zone	* Lt. Larry Jordy * EMC Jerry Henry * Deputy Fire Marshal Fred Taylor * WUI Specialist Jared Karns * Communications Specialist April Saginor	Add collected data to CWPP, Pre-Attack Plan
2/7/13	Risk assessments – Station 3 response zone	* Lt. Jimmy Zanek * EMC Jerry Henry * Deputy Fire Marshal Fred Taylor * WUI Specialist Jared Karns * Communications Specialist April Saginor	Add collected data to CWPP, Pre-Attack Plan
2/8/13	Risk assessments – Station 1 response zone	* Lt. Eric Wallace * EMC Jerry Henry * Deputy Fire Marshal Fred Taylor * WUI Specialist Jared Karns * Communications Specialist April Saginor	Add collected data to CWPP, Pre-Attack Plan
2/11/13	Risk assessments – Station 4 response zone	* Lt. Dan Wall * Deputy Fire Marshal Fred Taylor * WUI Specialist Jared Karns * WUI Specialist Luke Kanclerz * Communications Specialist April Saginor	Add collected data to CWPP, Pre-Attack Plan
2/12/13	Risk assessments – Station 5 response zone	* Acting Lt. Jimmie Rosier * Deputy Fire Marshal Fred Taylor * WUI Specialist Jared Karns * WUI Specialist Luke Kanclerz * Communications Specialist April Saginor	Add collected data to CWPP, Pre-Attack Plan
3/4/12	Meeting to discuss Pre-Attack Plan, evacuation strategies	* Emergency Management Coordinator Jerry Henry * Communications Specialist April Saginor	Add collected data to CWPP
3/11/12	Meeting to discuss code enforcement strategies	* Fire Marshal Marc McFeron * Emergency Management Coordinator Jerry Henry * WUI Specialist Jared Karns * Communications Specialist April Saginor	Add collected data to CWPP
3/12/13	Meeting to discuss role of Texas Division of Emergency Management	* Texas Department of Public Safety District Coordinator Al Guarino * WUI Specialist Jared Karns * Communications Specialist April Saginor	Add collected data to CWPP

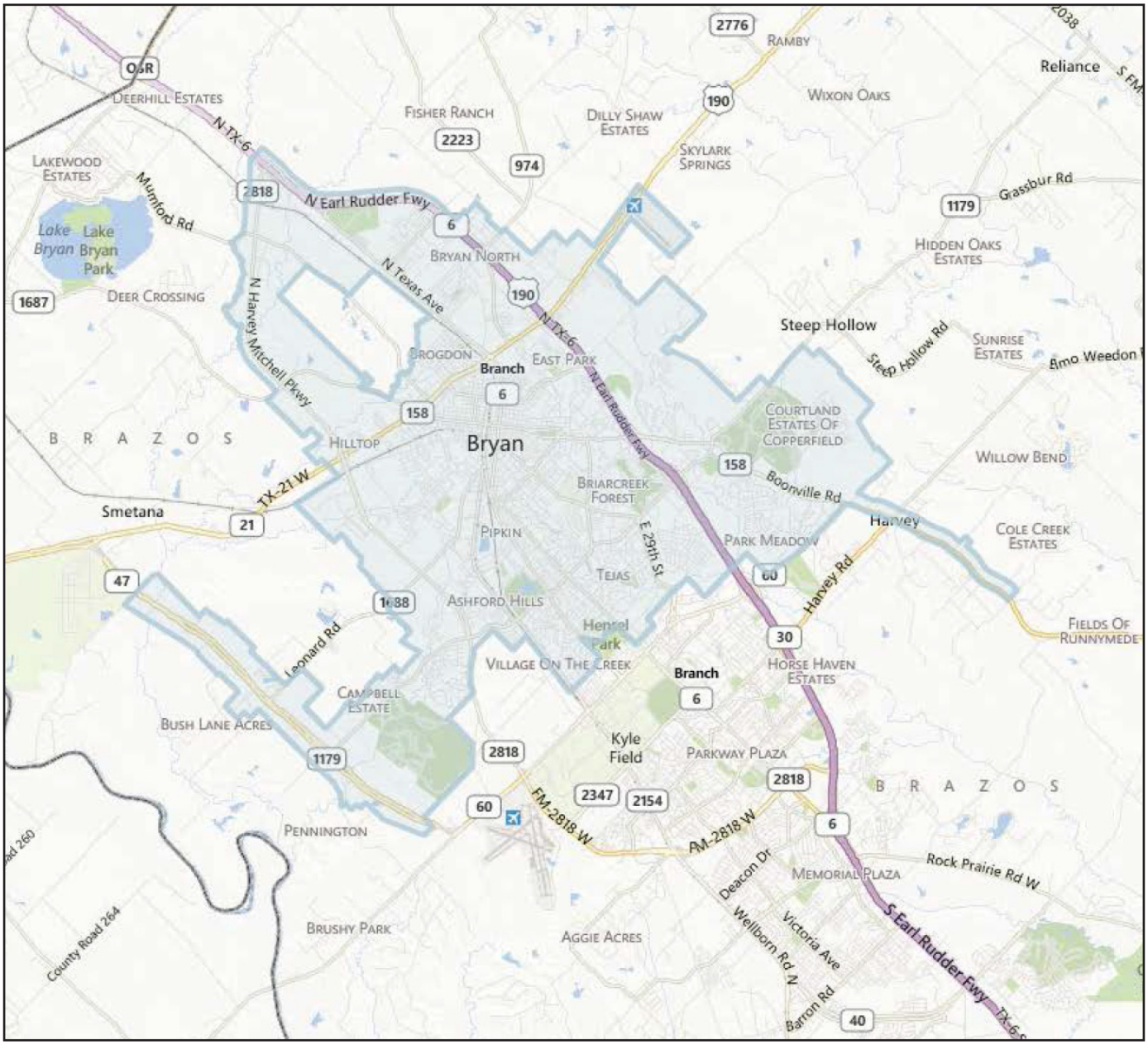
3/12/13	Working group meeting	* Fire Chief Randy McGregor * Emergency Management Coordinator Jerry Henry * Fire Marshal Marc McFeron * Battalion Chief Joe Dan Ondrasek * WUI Specialist Jared Karns * Communications Specialist April Saginor	BFD to provide feedback on draft Pre-Attack Plan and draft CWPP at next meeting, TFS to add collected data to CWPP
3/21/13	Meeting to discuss code enforcement, planning and zoning	* Assistant Director of Development Services Martin Zimmermann * WUI Specialist Jared Karns * WUI Specialist Luke Kanclerz * Communications Specialist April Saginor	Add collected data to CWPP
3/21/13	Meeting to discuss utilities, rights-of-way, training opportunities	* Bryan Texas Utilities General Manager Gary Miller * BTU Group Manager Randy Trimble * Emergency Management Coordinator Jerry Henry * WUI Specialist Jared Karns * WUI Specialist Luke Kanclerz * Communications Specialist April Saginor	Add collected data to CWPP
3/21/13	Working group meeting	* Fire Chief Randy McGregor * Emergency Management Coordinator Jerry Henry * Assistant Fire Chief Terry Barnett * Assistant Fire Chief Cory Matthews * WUI Specialist Jared Karns * WUI Specialist Luke Kanclerz * Communications Specialist April Saginor	TFS to make revisions to Pre-Attack Plan and CWPP and provide final version to working group

Community Background

Location

Bryan, Texas
Brazos County
N 30° 39’ 05”
W 96° 23’ 22”

Bryan is the county seat of Brazos County. It encompasses more than 43.4 square miles and has a population of about 76,000 residents. The city shares a border with College Station to its south. Together, the communities are referred to as Bryan-College Station, the 16th largest metropolitan area in Texas. Bryan is 92 miles north-northwest of Houston, 166 miles northeast of San Antonio and 169 miles south of Dallas. It is 104 miles east of Austin, the state capital of Texas.



General Landscape

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 within the wildland urban interface (WUI). The topography within the city limits is primarily flat plains and smooth plains. About 1,915 acres of land in the city is zoned for agricultural use.

Predictive Service Areas (PSA) represent regions where the weather reporting stations tend to react similarly to daily weather regimes and exhibit similar fluctuations in fire danger and climate. Seven PSA are delineated in Texas. Fire weather thresholds, fuel moisture thresholds and National Fire Danger Rating System thresholds have been developed for each PSA and are unique to the designated PSA.

Critical fire weather thresholds for the PSA in which Bryan is located are:
Relative humidity: 30 percent or less
20-foot windspeed (meaning windspeeds that are calculated at 20 feet above the forest canopy): 15 mph or more
Temperature: 10 percent above average

In the tables below, at the low end of the scale in the greens and blues we see normal to below-normal conditions. Initial attack should be successful with few complexities. At the upper end of the scale in the oranges and reds we see unusual or rare conditions and we would expect to see complex fires where initial attack may often fail. So the difficult category to describe and thus maybe the most important category for initial attack is the middle or transition zone in the yellow. Somewhere in the yellow, fires transition from normal to problematic.

NFDRS - National Fire Danger Rating System
ERC - Energy Release Component
BI - Burning Index
KBDI - Keetch-Byram Drought Index

Dead Fuel Moisture Thresholds

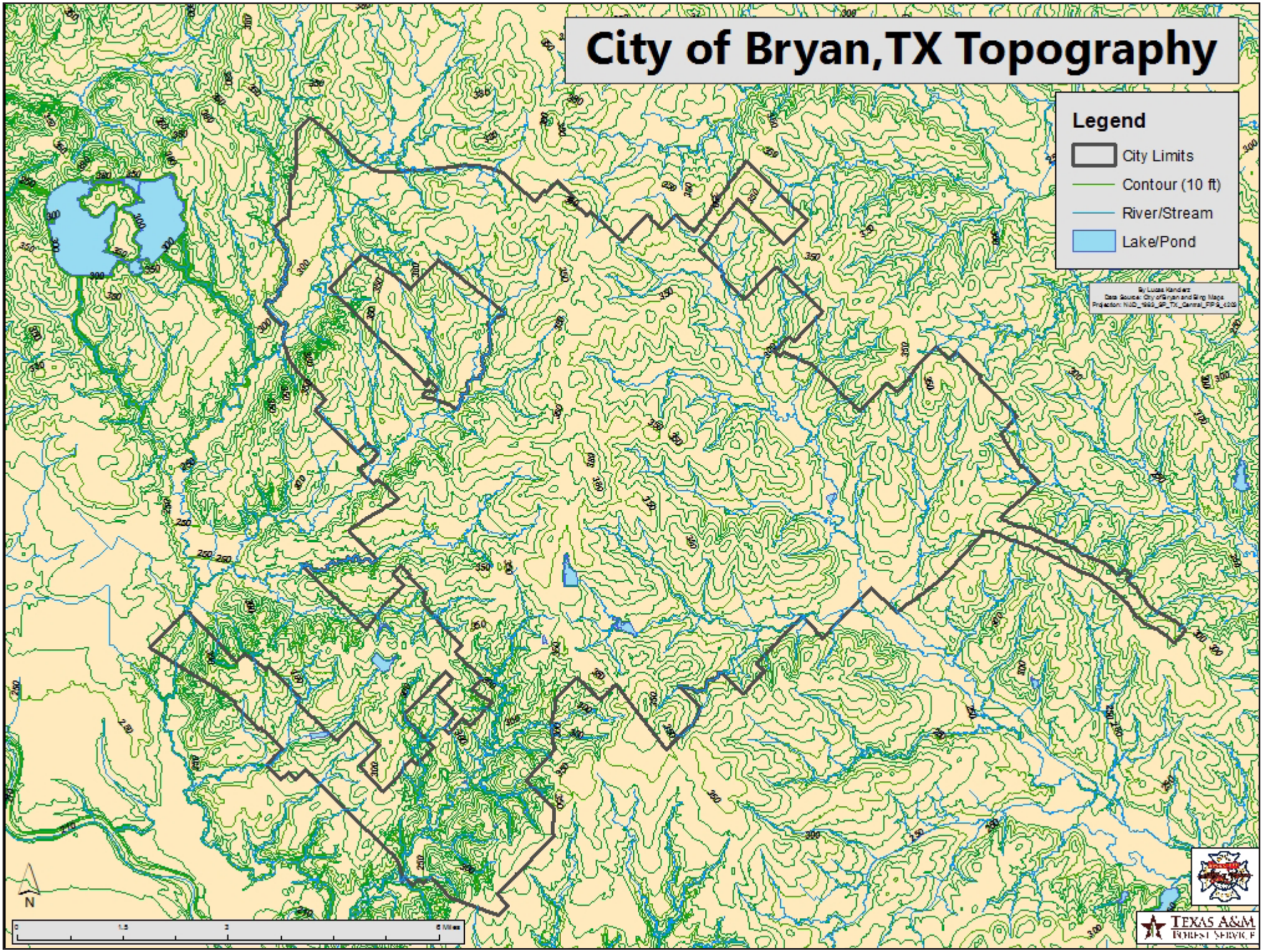
	Percentiles				
	3	4-10	11-25	26-50	51-100
1000-hr	13	14-15	16	17-18	19
100-hr	11	12-13	14	15-16	17
10-hr	5	6	7	8-9	10

NFDRS Thresholds (Fuel Model G)

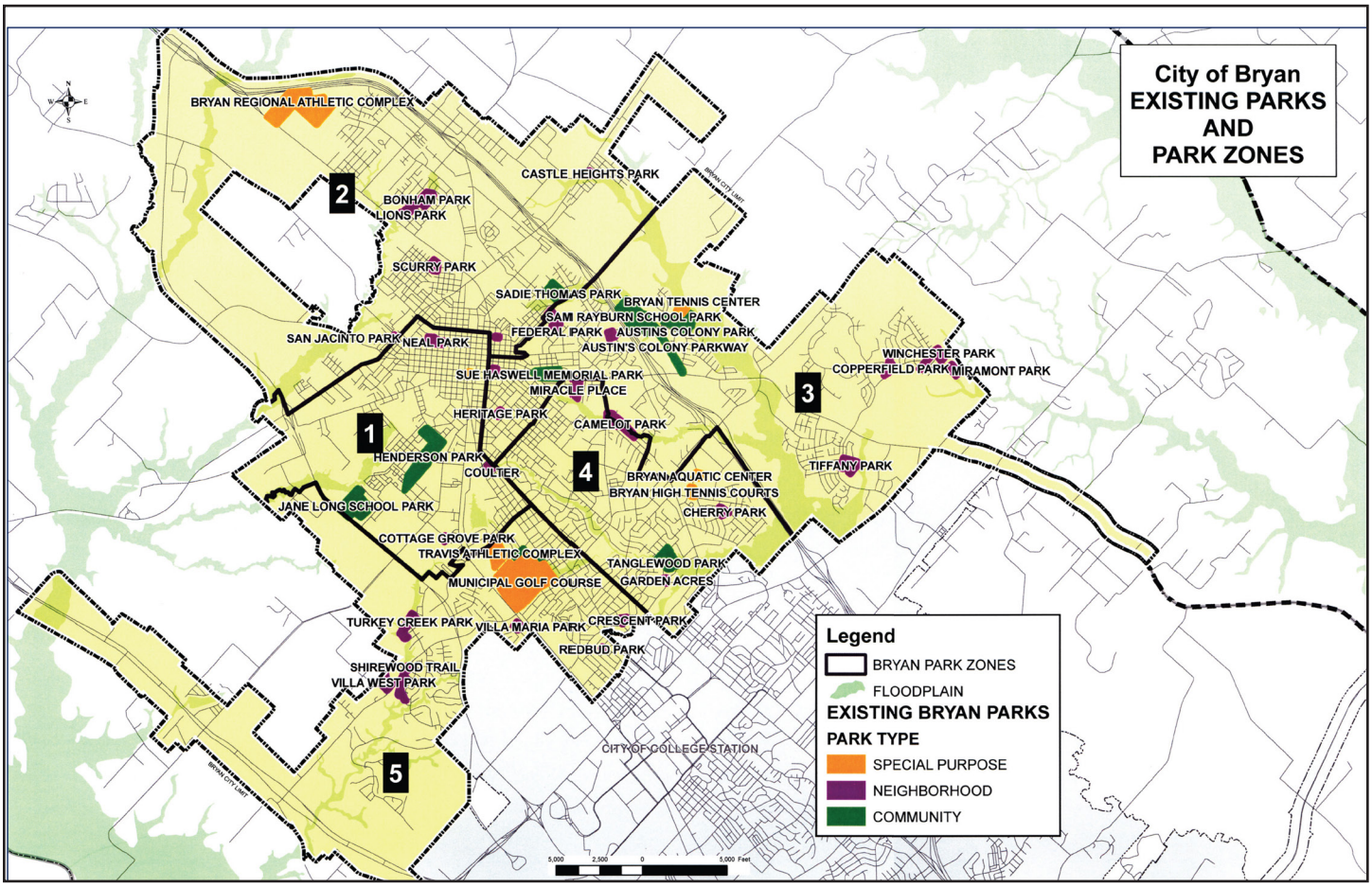
	Percentiles				
	97	90-96	75-89	50-74	0-49
ERC	47	38-46	31-37	25-30	0-24
BI	52	44-51	34-43	25-33	0-24
KBDI	758	683-757	606-682	470-605	0-469

Live Fuel Moisture

	Percentiles				
	3	4-10	11-25	26-50	51-100
Pine	105	106-120	121-130	131-150	151-300
Oak	75	76-90	91-100	101-125	126-300
Yaupon	100	101-115	116-130	131-150	151-300


City of Bryan,TX Topography
Legend
City Limits
Contour (10 ft)
River/Stream
Lake/Pond
By Lucas Kanders
Data Source: City of Bryan and Bing Maps
Projection: NAD_1983_SP_TX_Central_FPS_4203
N
0
1.5
3
6 Miles
TEXAS A&M
FOREST SERVICE

Parks



Community Parks

(signifies parks added since 2002)*

	Park Name	Size in Acres	Park District (Zone)	Status
1	Astin Recreation Area adjoining Williamson Park	12	5	
2	Austin's Colony / Austin's Colony Parkway	43	3	6of 43 acres are undeveloped
3	Sue Haswell	19.3	3	
4	Henderson*	52	1	32 of 52 acres were added since 2002
5	Park Hudson Trail*	59	3	undeveloped
6	Sadie Thomas	14.9	2	
7	Sam Rayburn	23	3	
8	Tanglewood	19.2	4	
9	Williamson	19	5	
10	Jane Long	26	1	

Special Purpose Parks and Open Space

	Park Name	Size in Acres
1	Bryan Regional Athletic Complex offers baseball, softball and soccer fields. There are courts and playgrounds as well as concessions and restroom facilities.	120
2	Travis Athletic Complex offers baseball, softball and t-ball fields along with restroom and concession facilities.	22
3	Bryan Aquatic Center has an Olympic-sized lap pool, a diving well and a waterslide and is near Bryan high School.	3
4	Bryan Tennis Center is adjacent to Harvey Mitchell Elementary and has three lighted covered courts on one-half acre.	part of Austin's Colony Park
5	Bryan High Tennis Courts include nine courts, 3 of which were built by the City of Bryan as part of a joint use agreement with BISD.	.5 part of Bryan High School
6	Bryan Municipal is an 18-hole golf course	141
7	The Palace Theater is an open-air facility used for concerts, movies and other outdoor venues.	.5
8	Neal Recreation Center	12

Neighborhood Parks

(signifies parks added since 2002)*

	Park Name	Size in Acres	Park District (Zone)	Status
1	Allen / Symphony*	6	3	undeveloped
2	Bonham	12	2	
3	Camelot Park	21	3 & 4	
4	Castle Heights	7	2	
5	Cherry Park*	4	4	
6	Crescent Park	2	5	
7	Copperfield	6	3	
8	Cottage Grove*	6	1	undeveloped
9	Coulter	.1	1	historic marker
10	Federal	5	3	
11	Heritage	2	3	
12	Lions Recreational	1	2	
13	Garden Acres	1	4	
14	Miracle Place	5	4	undeveloped / drainage area
15	Miramont*	6	3	undeveloped
16	Neal	12	1	
17	Redbud	1	5	
18	San Jacinto	2	2	
19	Scurry	7	2	
20	Shirewood	.5	5	
21	Tiffany	13	3	
22	Turkey Creek (Formerly Carriage Hills and Rock Hollow)	17.5	5	
23	Villa West	10	5	
24	Villa Maria	1	5	undeveloped
25	Visitor Center*	1	3	undeveloped
26	Washington	1	2	
27	Winchester	10.5	3	

Climate

Climate data for Bryan, Texas													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °F (°C)	86 (30)	99 (37)	94 (34)	94 (34)	100 (38)	104 (40)	109 (43)	108 (42)	106 (41)	98 (37)	89 (32)	86 (30)	109 (43)
Average high °F (°C)	61 (16)	66 (19)	73 (23)	79 (26)	85 (29)	92 (33)	96 (36)	96 (36)	91 (33)	82 (28)	71 (22)	63 (17)	80 (27)
Average low °F (°C)	40 (4)	44 (7)	50 (10)	57 (14)	65 (18)	72 (22)	74 (23)	73 (23)	69 (21)	59 (15)	49 (9)	42 (6)	63 (17)
Record low °F (°C)	7 (−14)	14 (−10)	17 (−8)	28 (−2)	42 (6)	53 (12)	58 (14)	60 (16)	44 (7)	29 (−2)	19 (−7)	2 (−17)	2 (−17)
Precipitation inches (mm)	3.32 (84.3)	2.38 (60.5)	2.84 (72.1)	3.20 (81.3)	5.05 (128.3)	3.79 (96.3)	1.92 (48.8)	2.63 (66.8)	3.91 (99.3)	4.22 (107.2)	3.18 (80.8)	3.23 (82)	39.67 (1,007.6)
Source: weather.com[12]													

Peak Fire Seasons:

Primary – July through September with summer drying

Dry vegetation due to little or no rain, combined with temperatures of 98° to 105° F on a daily basis. Hurricanes or tropical storms close to Southeast Texas bring in dry, strong to gusty winds from the north and northeast.

Secondary – December through March with cured grasses and wind events

Cold front moves in from the north ushering in drier air. Relative humidity drops below 20 percent during the afternoon hours with winds gusting anywhere from 25 mph to 50 mph.

City of Bryan Fuels

Fuel Model	Description	Rate of Spread	Flame Length	% of Land in City Limits	Acres of Land in City Limits
NB 91	Urban/Developed Land	n/a	n/a	54.7%	15,213
GR 1	Short, patchy, normally heavily grazed grass	Moderate	Low	16%	4,447
FM 9 HWD	Hardwood timber litter, with fluffy duff layer	Low	Low	10.7%	2,967
GR 2	Moderately coarse continuous grass (1 foot)	High	Moderate	10.2%	2,829
FM 8	Closed timber litter	Low	Low	6.8%	1,891

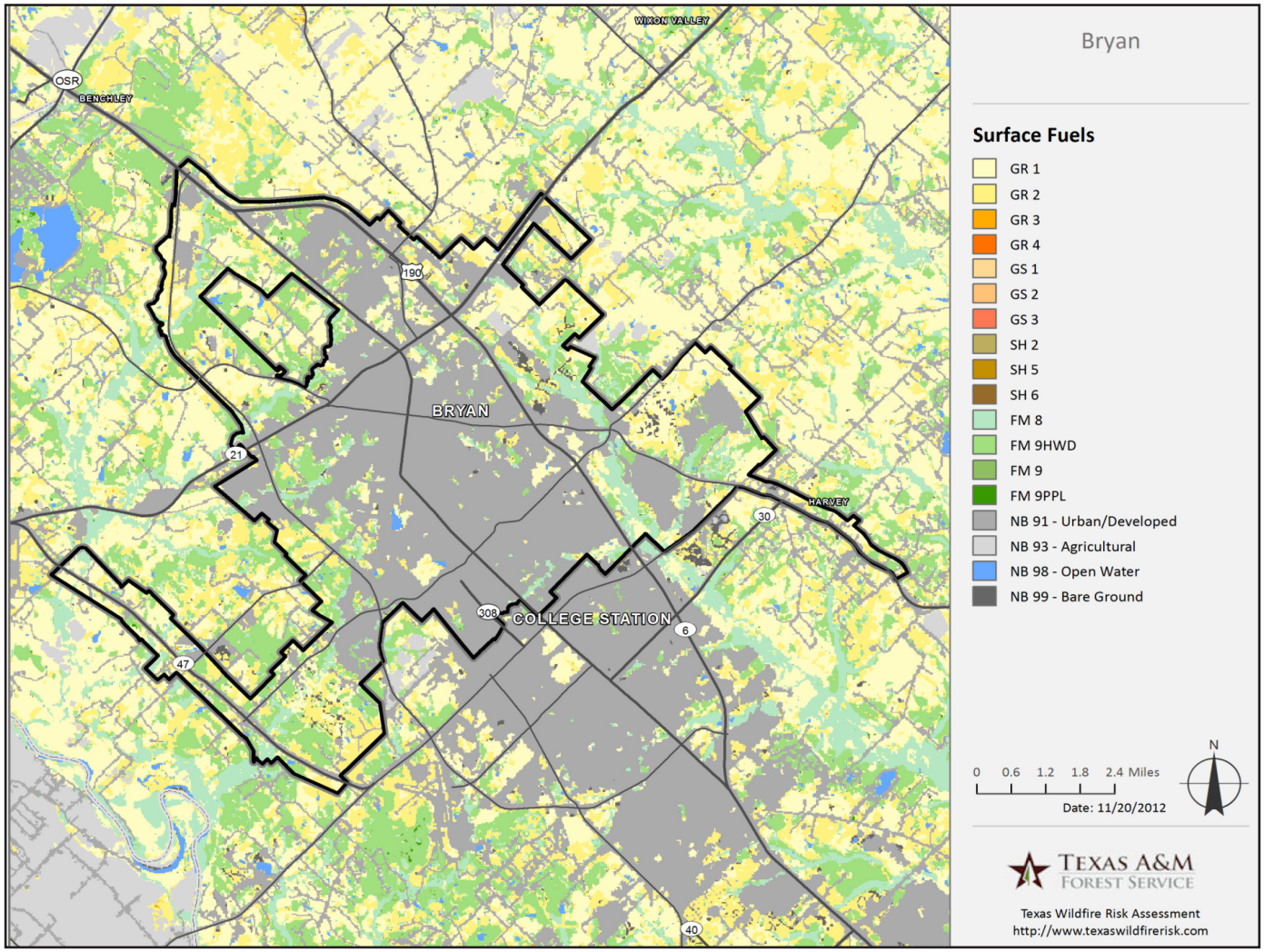
Surface fuels contain the parameters needed to compute surface fire behavior characteristics, such as rate of spread, flame length, fireline intensity and other fire behavior metrics. As the name might suggest, surface fuels only account for the surface fire potential.

Canopy fire potential is computed through a separate but linked process. The Texas Wildfire Risk Assessment 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.

Surface Fuels - Acres

Surface Fuels	Description	FBPS Fuel Model Set	Acres	Percent
GR 1	Short, Sparse Dry Climate Grass (Dynamic)	2005	4,447	16.0%
GR 2	Low Load, Dry Climate Grass (Dynamic)	2005	2,829	10.2%
GR 3	Low Load, Very Coarse, Humid Climate Grass (Dynamic)	2005	12	0.0%
GR 4	Moderate Load, Dry Climate Grass (Dynamic)	2005	0	0.0%
GS 1	Low Load, Dry Climate Grass-Shrub (Dynamic)	2005	0	0.0%
GS 2	Moderate Load, Dry Climate Grass-Shrub (Dynamic)	2005	0	0.0%
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	0	0.0%
SH 6	Low Load, Humid Climate Shrub	2005	0	0.0%
FM 8	Closed timber litter (compact)	1982	1,891	6.8%
FM 9 HWD	Hardwood litter (fluffy) - Low Load for Texas	Custom	2,967	10.7%
FM 9	Long-needle (pine litter) or hardwood litter	1982	18	0.1%
FM 9 PPL	Long-needle (pine litter, plantations) - High Load for Texas	Custom	7	0.0%
NB 91	Urban/Developed	2005	15,213	54.7%
NB 93	Agricultural	2005	58	0.2%
NB 98	Open Water	2005	126	0.5%
NB 99	Bare Ground	2005	247	0.9%
		Total	**27,814**	**100.0%**

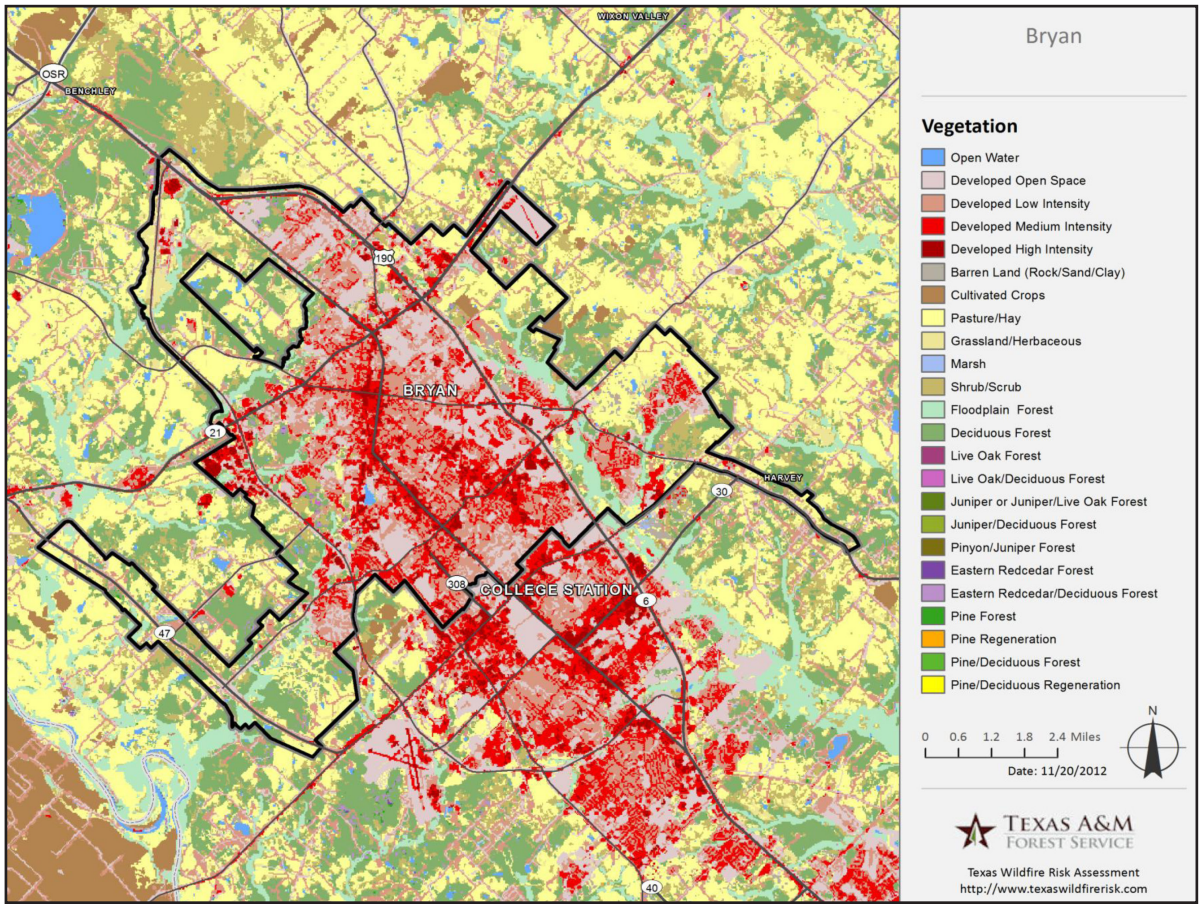


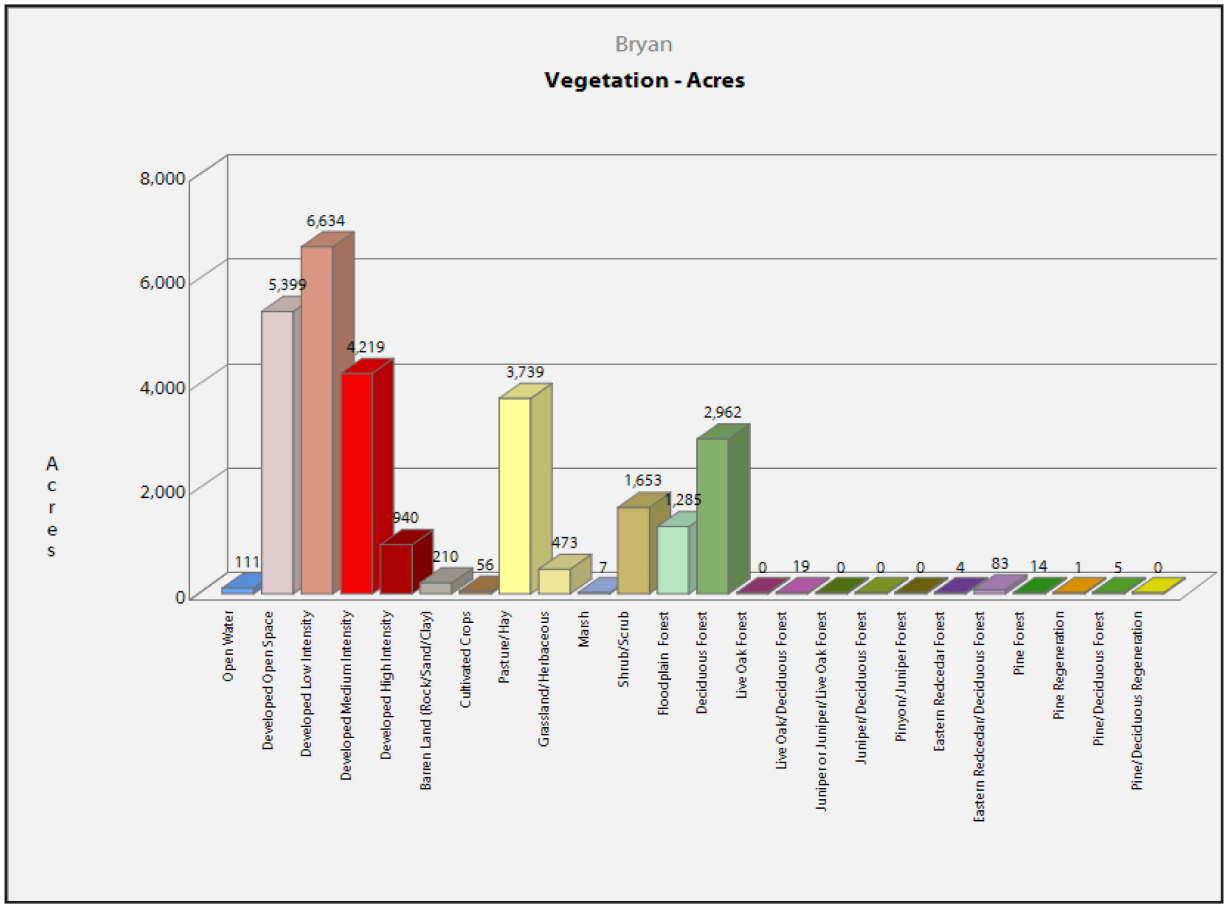
Vegetation

The vegetation map describes the general vegetation and landcover types across the state of Texas. In the Texas Wildfire Risk Assessment (TWRA), the vegetation dataset is used to support the development of 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.

Vegetation - Acres

Class	Description	Acres	Percent
Open Water	All areas of open water, generally with < 25% cover of vegetation or soil	111	0.4%
Developed Open Space	Impervious surfaces account for < 20% of total cover (i.e. golf courses, parks, etc…)	5,399	19.4%
Developed Low Intensity	Impervious surfaces account for 20-49% of total cover	6,634	23.9%
Developed Medium Intensity	Impervious surfaces account for 50-79% of total cover	4,219	15.2%
Developed High Intensity	Impervious surfaces account for 80-100%of total cover	940	3.4%
Barren Land (Rock/Sand/Clay)	Vegetation generally accounts for <15% of total cover	210	0.8%
Cultivated Crops	Areas used for the production of annual crops, includes land being actively tilled	56	0.2%
Pasture/Hay	Areas of grasses and/or legumes planted for livestock grazing or hay production	3,739	13.4%
Grassland/Herbaceous	Areas dominated (> 80%) by grammanoid or herbaceous vegetation, can be grazed	473	1.7%
Marsh	Low wet areas dominated (>80%) by herbaceous vegetation	7	0.0%
Shrub/Scrub	Areas dominated by shrubs/trees < 5 meters tall, shrub canopy > than 20% of total vegetation	1,653	5.9%
Floodplain Forest	> 20% tree cover, the soil is periodically covered or saturated with water	1,285	4.6%
Deciduous Forest	> 20% tree cover, >75% of tree species shed leaves in response to seasonal change	2,962	10.6%
Live Oak Forest	> 20% tree cover, live oak species represent >75% of the total tree cover	0	0.0%
Live Oak/Deciduous Forest	> 20% tree cover, neither live oak or deciduous species represent >75% of the total tree cover	19	0.1%
Juniper or Juniper/Live Oak Forest	> 20% tree cover, juniper or juniper/live oak species represent > 75% of the total tree cover	0	0.0%
Juniper/Deciduous Forest	> 20% tree cover, neither juniper or deciduous species represent > 75% of the total tree cover	0	0.0%
Pinyon/Juniper Forest	> 20% tree cover, pinyon or juniper species represent > 75% of the total tree cover	0	0.0%
Eastern Redcedar Forest	> 20% tree cover, eastern redcedar represents > 75% of the total tree cover	4	0.0%
Eastern Redcedar/Deciduous Forest	> 20% tree cover, neither eastern redcedar or deciduous species represent > 75% of the total tree cover	83	0.3%
Pine Forest	> 20% tree cover, pine species represent > 75% of the total tree cover	14	0.1%
Pine Regeneration	Areas of pine forest in an early successional or transitional stage	1	0.0%
Pine/Deciduous Forest	> 20% tree cover, neither pine or deciduous species represent > 75% of the total tree cover	5	0.0%
Pine/Deciduous Regeneration	Areas of pine or pine/deciduous forest in an early successional or transitional stage	0	0.0%
Total		**27,814**	**100.0%**


Bryan
Vegetation
Open Water
Developed Open Space
Developed Low Intensity
Developed Medium Intensity
Developed High Intensity
Barren Land (Rock/Sand/Clay)
Cultivated Crops
Pasture/Hay
Grassland/Herbaceous
Marsh
Shrub/Scrub
Floodplain Forest
Deciduous Forest
Live Oak Forest
Live Oak/Deciduous Forest
Juniper or Juniper/Live Oak Forest
Juniper/Deciduous Forest
Pinyon/Juniper Forest
Eastern Redcedar Forest
Eastern Redcedar/Deciduous Forest
Pine Forest
Pine Regeneration
Pine/Deciduous Forest
Pine/Deciduous Regeneration
0 0.6 1.2 1.8 2.4 Miles
Date: 11/20/2012
N
TEXAS A&M FOREST SERVICE
Texas Wildfire Risk Assessment
http://www.texaswildfirerisk.com
BRYAN
COLLEGE STATION
WIXON VALLEY
BENCHLEY
HARVEY
OSR
190
21
30
308
6
47
40


Bryan
Vegetation - Acres
Acres
8,000
6,000
4,000
2,000
0
111
5,399
6,634
4,219
940
210
56
3,739
473
7
1,653
1,285
2,962
0
19
0
0
0
4
83
14
1
5
0
Open Water
Developed Open Space
Developed Low Intensity
Developed Medium Intensity
Developed High Intensity
Barren Land (Rock/Sand/Clay)
Cultivated Crops
Pasture/Hay
Grassland/Herbaceous
Marsh
Shrub/Scrub
Floodplain Forest
Deciduous Forest
Live Oak Forest
Live Oak/Deciduous Forest
Juniper or Juniper/Live Oak Forest
Juniper/Deciduous Forest
Pinyon/Juniper Forest
Eastern Redcedar Forest
Eastern Redcedar/Deciduous Forest
Pine Forest
Pine Regeneration
Pine/Deciduous Forest
Pine/Deciduous Regeneration

Land Use

According to the City of Bryan Comprehensive Plan, land use refers to how land is currently being used and how it should be used in the future. The City of Bryan guides land use to ensure that land resources appropriately encourage economic development, promote a variety of housing developments, preserve natural and historic resources and accommodate transportation routes and public facilities in order to protect and improve Bryan's quality of life.

Factors Influencing Land Use

A number of factors influence land use decisions. Some of the most important are discussed below.

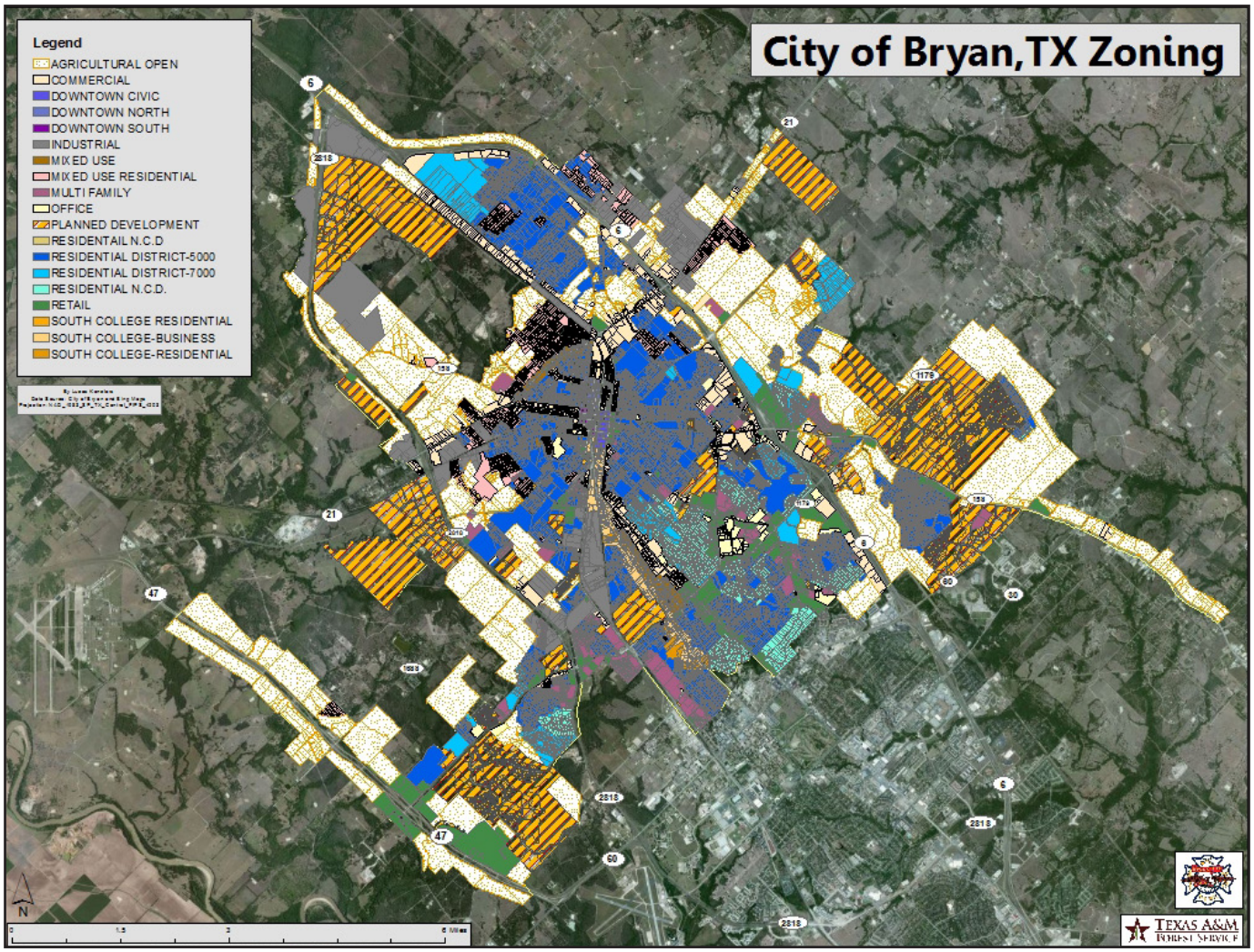
• **Population** – As Bryan's population grows, the demand for developable residential land will increase, as will secondary uses such as neighborhood commercial, institutional and parks.

• **Economy** – Due to the ongoing positive economic outlook for Bryan, a significant amount of land is likely to be needed for construction of new single-family homes, businesses and industrial development.

• **Market** – Distinct from the overall economy, the amount and cost of appropriately zoned land has a great impact on when and where land is developed.

• **Transportation** – Land use decisions are largely based on proximity to the transportation system. Freeways and arterials will attract commercial, industrial and high-density residential uses. Minor arterials and major collectors attract limited commercial, office uses and multi-family. Rail lines and airports attract industrial uses and discourage residential development.

• **Infrastructure** – The availability of water, sewer and electrical service are predominant factors influencing the location of all land uses. The costs of extending utility services impact the timing and density of development.



• **Environment** – Topography, soil type, floodplain and plant and animal species may impact the suitability of land for any particular development and affect the cost of development.
• **Regulations** – Zoning and subdivision regulations determine many aspects of development. Land must be appropriately zoned for the requested use. Also, required parking areas, lot coverage, setbacks, density and on-site utilities are determined by local codes.

Existing Land Use

Existing land use reflects how property is currently being used, not how it is zoned. Existing land uses may not be consistent with established zoning districts, as they may have been established prior to the initiation of zoning. What follows is a list of land uses and what they consist of:

• **Single-family residential** – Conventional detached dwellings
• **Two-family residential** – Duplexes
• **Multi-family residential** – Triplexes, fourplexes and apartments
• **Manufactured residential** – Manufactured and mobile homes
• **Public and semi-public** – Public buildings, schools and hospitals
• **Commercial** – General retail, wholesale and office
• **Industrial** – Manufacturing and production
• **Parks and recreation** – Parks and golf courses
• **Agricultural** – Cultivated cropland, orchards, vineyards and ranches
• **Vacant** – Undeveloped with no current use

Source: Brazos County Appraisal District

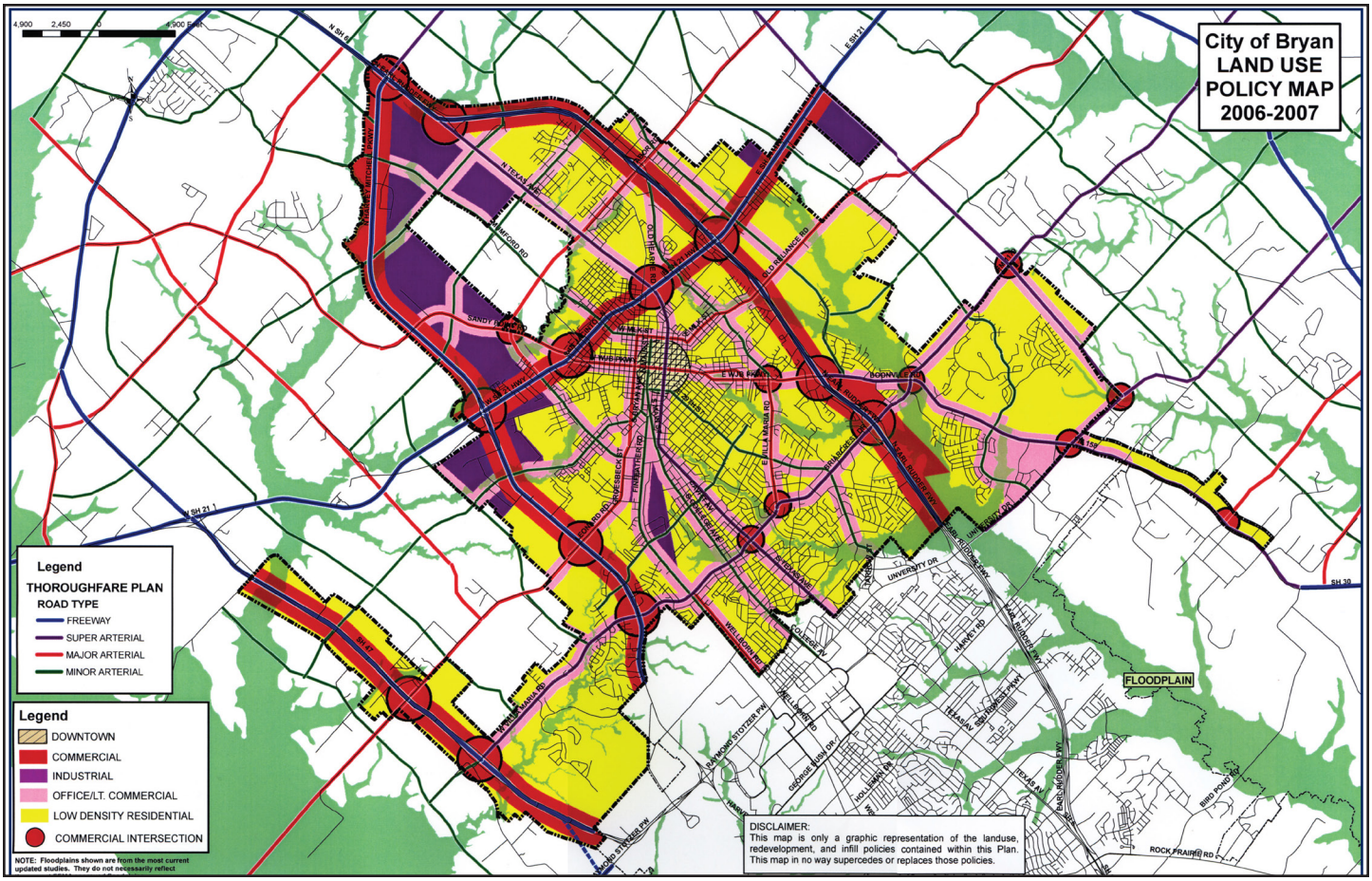
Future Land Use

In the next two decades, the needs of the growing local population will require additional acreage for development. Assuming a 2025 population of 93,466, a consistent vacant property rate and constant development rates and patterns, the need for land by use type will be similar to what's shown in the table at right.

	2005	2025 ESTIMATE
Population	69,396	93,466
Single-family acreage	13,466	18,136
Two-family acreage	2,258	3,041
Multi-family acreage	367	494
Manufactured residential acreage	550	741
Commercial acreage	1,587	2,138
Industrial acreage	953	1,284
Public/semi-public acreage	277	373
Parks and recreation acreage	790	1,064
Rights-of way acreage	3,563	4,799
Agricultural acreage	1,915	2,579
Vacant acreage	2,324	3,130
TOTAL	28,050	37,779

Source: Brazos County Appraisal District. Note: Numbers have been rounded.

If the scenario illustrated on the previous page is borne out, the greatest demand for land over the next 20 years will be for single-family lots, followed distantly by acreage for rights-of-way and duplexes. The table on the previous page projects an additional 9,729 acres being annexed into the City of Bryan if all forecasted future development is to take place within the city limits, assuming a consistent vacant property percentage and development densities.



Citywide land use policies

All land uses should be located such that:

- Appropriate buffers separate dissimilar uses. Buffers include, but may not be limited to transitional land uses, floodplain areas, parks, landscaping or natural and man-made features;
- Where incompatible land uses must be adjacent, zoning boundaries should be drawn along rear property lines such that activities face away from each other to avoid potential negative impacts;
- Potential negative impacts on historic areas or environmentally sensitive areas, including wildlife habitat areas and topographically constrained areas within the floodplain should be avoided or adequately mitigated;
- Floodplain areas should be preserved but may be incorporated into parklands where appropriate and/or reclaimed for development in accordance with the City of Bryan's drainage regulations;
- Residential uses are generally close to schools, parks and other community facilities;
- Where feasible parks, schools, employment centers, residential areas and shopping areas should be linked by walkways and bikeways;
- At the time of or concurrently with development, the property can be adequately served by utilities and transportation routes and access; and
- Noise sensitive and high-rise uses are not near airport environs.

Fire Response Capabilities

The Bryan Fire Department has five fire stations and staffs five engine companies, one truck company, four advanced life support (ALS) ambulances, one battalion chief and an EMS supervisor each day. Firefighters are divided into three shifts that work 24-hour periods. All fire engines and ambulances are staffed with paramedics in order to provide ALS.

The Bryan Fire Department maintains a Technical Rescue Team trained in water rescue, confined space, trench collapse, high angle, building collapse and lost person/ wilderness search that responds to calls throughout Brazos County and the Brazos Valley region.

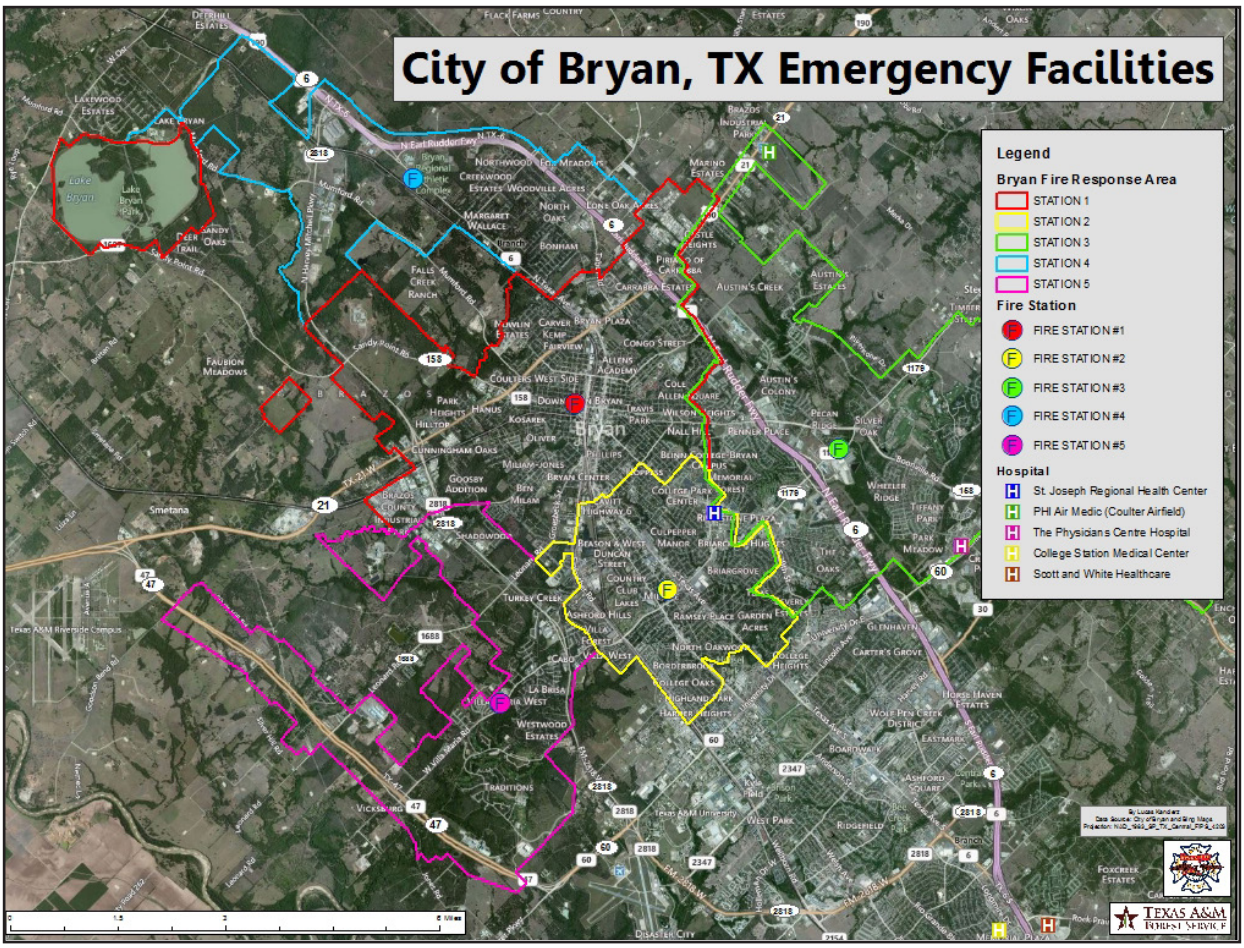
2012 Bryan Fire Department Incident Responses:

Fire: 244
Explosion: 7
EMS/rescue: 7,430
Hazardous situations: 268
Service calls: 548
Weather incidents: 6

ISO rating: 2

STATION	APPARATUS
Fire Station No. 1 300 West William J. Bryan Parkway (979) 209-5960	Battalion 1 – Suburban Command Vehicle Engine 1 – 1500 GPM Pumper Truck 1 – 100-foot Platform Rescue 1 – Heavy Rescue Vehicle Boat 1 – Swift Water Rescue Boat with 40 hp Boat 2 – 50 hp Evacuation Rescue Boat EMS 1 – Paramedic Supervisor Vehicle Medic 1 – Type I Ambulance Mobile Command Post Arson Investigation Trailer
Fire Station No. 2 2813 Cavitt Avenue (979) 209-5960	Engine 2 – 1500 GPM Pumper Medic 2 – Type I Ambulance
Fire Station No. 3 3211 Briarcrest Drive (979) 209-5960	Engine 3 – 1500 GPM Pumper Medic 3 – Type I Ambulance
Fire Station No. 4 5429 North Texas Avenue (979) 209-5960	Engine 4 - 1500 GPM Pumper
Fire Station No. 5 2052 W. Villa Maria Road (979) 209-5960	Engine 5 – 1500 GPM Pumper Medic 5 – Type I Ambulance HazMat 5 – Hazardous Materials Response Vehicle Boat 5 – Swift Water Rescue Boat with 25 hp

Emergency Facilities



Treatment centers in the area include:

St. Joseph Regional Health Center, 2801 Franciscan

- 266 licensed beds; 36-bed medical/surgical ICU; 16 operating rooms
- MRI scanner; two CT scanners; dialysis unit
- 30 isolation beds
- Emergency power for indefinite number of hours
- **Emergency room: 28 treatment room beds**

College Station Medical Center, 1604 Rock Prairie Road

- 171 licensed beds; 12-bed medical/surgical ICU; eight operating rooms (plus two cath labs)
- MRI scanner; CT scanner; dialysis unit
- 13 isolation beds (one in ER)
- Emergency power for 158 hours
- **Emergency room: 29 acute care beds**

Scott and White Healthcare, Highway 6 and Rock Prairie Road

The Physicians Centre Hospital, 3131 University Drive

- 16 licensed beds; no ICU; four operating rooms and two minor procedure rooms
- MRI scanner, CT scanner, no dialysis unit
- Emergency power for 24 hours
- **Unstaffed first aid suite with on-call doctor, no emergency rooms**

PHI Air Medic, located at St. Joseph Regional Health Center, 2801 Franciscan

- Transports patients by helicopter

The closest burn units are:

• Shriners Hospitals for Children Pediatric Burn Center in Galveston

• University of Texas Medical Branch Blocker Adult Burn Center in Galveston

Utilities and Transportation

Regional Utilities

Bryan Texas Utilities
(979) 821-5700

College Station Utilities
(979) 764-3535

Entergy
(800) 368-3749

Mid-South Synergy
(936) 825-5100

Navasota Valley Electric Co-op
(979) 828-3232

Texas A&M University Utilities
(979) 458-5500

UTILITY RESTORATION PRIORITIES FOR CRITICAL FACILITIES

Utility Service Restoration Priorities: 1 = Highest 5 = Lowest

Emergency Generator: Yes = Emergency Generator on site.

Facility Name & Address: City of Bryan/Brazos County	Emer. Gen.	Elec.	Phone	Water	WW	Gas
Brazos County Administration Building	No	1	1	1	1	2
Brazos County Courthouse, 300 E. 26th St.	Yes	1	1	1	1	2
Brazos County Sheriff's Office	Yes	1	1	1	1	2
Brazos Center	No	1	2	1	1	2
Brazos County Expo Center	No	1	2	1	1	2
CEOC, 110 N. Main St.	Yes	1	1	1	1	NA
Fire Station #1, 300 West William J. Bryan Pkwy.	Yes	3	2	1	1	1
Fire Station #2, 2813 Cavitt Ave.	Yes	3	2	1	1	1
Fire Station #3, 3211 Briarcrest Drive	Yes	3	2	1	1	1
Fire Station #4, 5429 N. Texas Ave.	Yes	3	2	1	1	1
Fire Station #5, 2051 W. Villa Maria Road	Yes	3	2	1	1	1
Municipal Building, 300 S. Texas Ave.	Yes	2	1	1	1	2
Police Station, 301 S. Texas Ave.	Yes	2	1	1	1	2
BTU Building, 205 E. 28th St.	Yes	3	2	1	1	2
Communications Tower Building, 200 Morrison	Yes	1	NA	1	1	1
St. Joseph Hospital, 2801 Franciscan Drive	Yes	1	1	1	1	1
Verizon Building, 201 Regent	Yes	1	1	1	1	2
BISD Schools	Yes	1	3	1	1	1
The Physicians Centre, 3131 University Drive E.	Yes	2	2	1	1	1

Hazardous materials transportation routes

Hazardous materials transportation routes are a concern in the event of a wildfire that prompts road closures or evacuations.

Highways

Texas State Highway 6
Primary chemical hazards: Liquefied petroleum gas (LPG); gasoline
Protective action distance: 800 meters-1,600 meters

Texas State Highway 21
Primary chemical hazards: LPG; gasoline
Protective action distance: 800 meters-1,600 meters

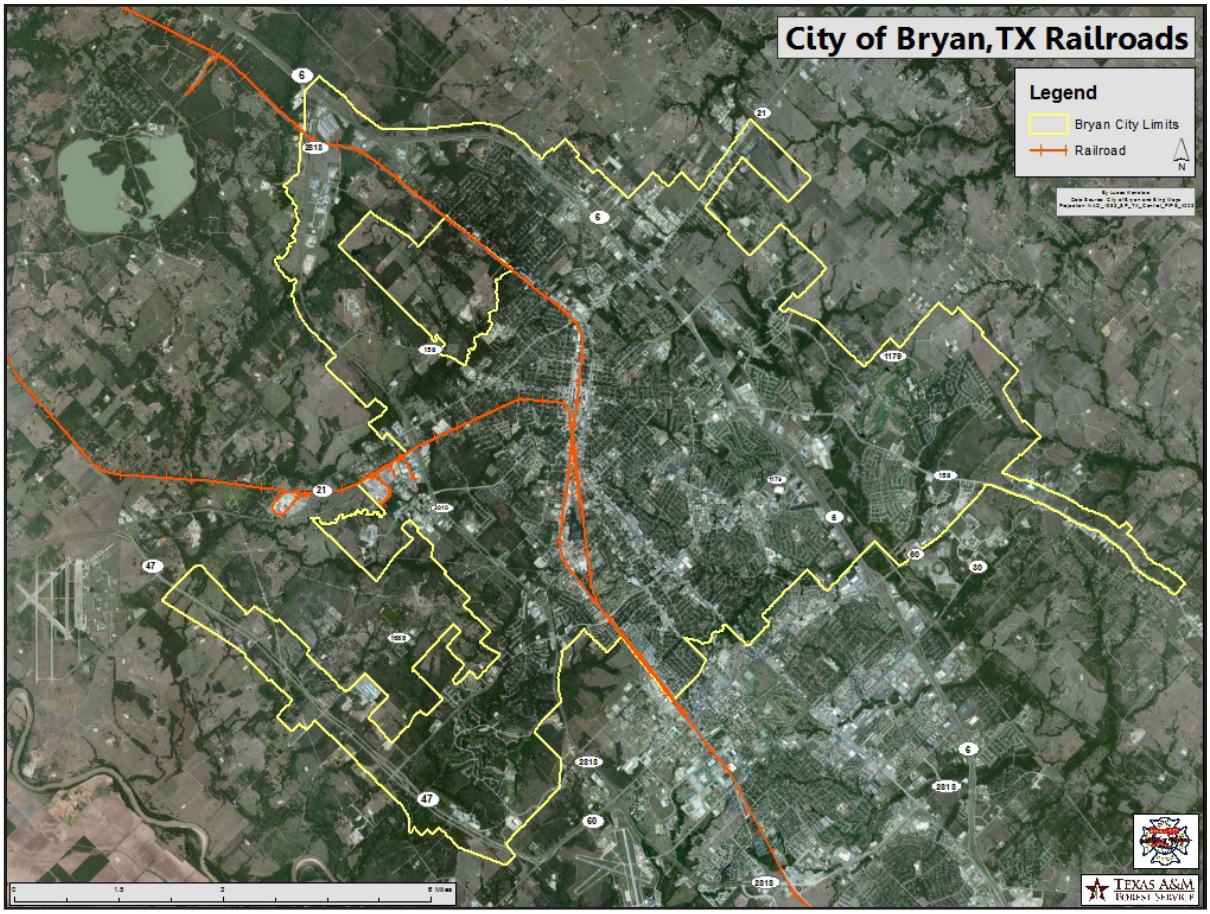
Texas State Highway 30
Primary chemical hazards: LPG; gasoline
Protective action distance: 800 meters-1,600 meters

Union Pacific Railroad tracks near Finfeather Road and Carson Street.

Texas F.M. 2818
Primary chemical hazards: Ammonia
Protective action distance: 1,600 meters

Railroads

Union Pacific Railroad
Primary chemical hazards: Liquid and dry chemicals; hydrofluoric acid
Protective action distance: 800 meters, or as required for safety



The orange lines show railroads through the city.

Pipelines

Exxon/Mobil Pipeline
Primary chemical hazard: Petroleum
Protective action distance: 300 meters-800 meters

ConocoPhillips Pipeline
Primary chemical hazard: Petroleum
Protective action distance: 300 meters-800 meters

Teppco Pipeline
Primary chemical hazard: Petroleum
Protective action distance: 300 meters-800 meters

Koch Pipeline
Primary chemical hazard: Petroleum/crude oil
Protective action distance: 300 meters-800 meters

Enterprise Pipeline
Primary chemical hazard: Natural gas
Protective action distance: 800 meters-1,600 meters

Pipeline Safety

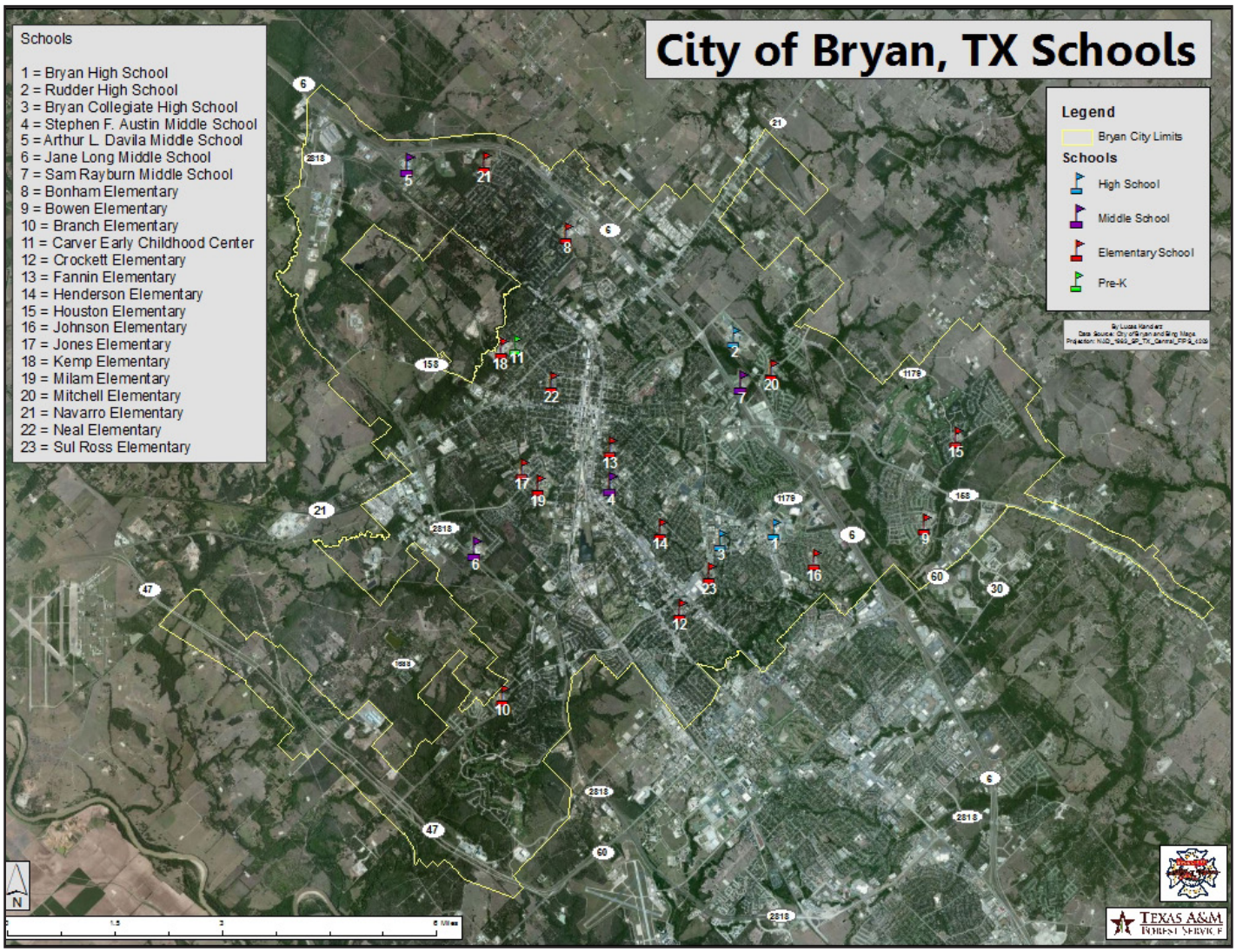
Most highly explosive pipelines will be buried approximately three feet deep, but there are exceptions.

Some of the larger firefighting equipment will be powerful enough to rupture these lines. Other lines may not be as explosive but can also be very dangerous. Most of the plastic "flow lines" that lie on top of the ground are usually carrying less of a dangerous liquid but can still burn if ignited. This hazard requires the use of lookouts, especially at night. Some situations may require that the ground person walk in front of the equipment if pipelines are suspected in the vicinity.

Underground pipelines are marked with above-ground markers.

Schools

Bryan Independent School District



1. Bryan High School (9-12)
3450 Campus Drive
(979) 209-2400

2. Rudder High School (9-12)
3251 Austin's Colony Parkway
(979) 209-7900

3. Bryan Collegiate High School (9-12)
1901 E. Villa Maria Road
(979) 209-2790

4. Stephen F. Austin Middle School (6-8)
801 S. Ennis Street
(979) 209-6700

5. Arthur L. Davila Middle School (6-8)
2751 N. Earl Rudder Freeway
(979) 209-7150

6. Jane Long Middle School (6-8)
1106 N. Harvey Mitchell Parkway
(979) 209-6500

7. Sam Rayburn Middle School (6-8)
1048 N. Earl Rudder Freeway
(979) 209-6600

8. Bonham Elementary (PreK-5)
3100 Wilkes Street
(979) 209-1200

9. Bowen Elementary (K-5)
3870 Copperfield Drive
(979) 209-1300

10. Branch Elementary (K-5)
2040 W. Villa Maria Road
(979) 209-2900

11. Carver Early Childhood Center (PreK)
1601 W. Martin Luther King Jr.
(979) 209-3700

12. Crockett Elementary (PreK-5)
401 Elm Ave.
(979) 209-2960

13. Fannin Elementary (K-5)
1200 Baker Ave.
(979) 209-3800

14. Henderson Elementary (K-5)
801 Matous St.
(979) 209-1560

15. Houston Elementary (K-5)
4501 Canterbury Drive
(979) 209-1360

16. Johnson Elementary (K-5)
3800 Oak Hill Drive
(979) 209-1460

17. Jones Elementary (PreK-5)
1400 Pecan Street
(979) 209-3900

18. Kemp Elementary (K-5)
750 Bruin Trace
(979) 209-3760

19. Milam Elementary (PreK-5)
1201 Ridgedale St.
(979) 209-3960

20. Mitchell Elementary (K-5)
2500 Austin's Colony Parkway
(979) 209-1400

21. Navarro Elementary (K-5)
4619 Northwood Drive
(979) 209-1260

22. Neal Elementary (K-5)
801 W. Martin Luther King Jr.
(979) 209-3860

23. Sul Ross Elementary (K-5)
3300 Parkway Terrace
(979) 209-1500

Private Schools

1. Brazos Christian School
3000 West Villa Maria Road
(979) 823-1000

2. Allen Academy
3201 Boonville Road
(979) 776-0731

3. St. Joseph Catholic School
600 South Coulter Drive
(979) 822-6641

4. St. Michael's Episcopal School
2500 South College Ave.
(979) 822-2715

Higher Education

1. Blinn College
2423 Blinn Blvd.
(979) 209-7223

2. Texas A&M Health Science Center
8441 Highway 47
(979) 436-9100

School Evacuation and Sheltering

Bryan ISD has a comprehensive emergency management plan in place to deal with a wide range of situations, including fire evacuation, hazardous materials incidents, serious injury, severe weather and utility emergencies.

The district's current enrollment is about 15,671 students. Staff includes 65 district office personnel, 1,086 teachers and 102 administrators. Additionally, there are 284 office/support staff, 181 aides, 160 cafeteria staff, 58 maintenance staff, 125 transportation staff and 114 custodial staff. The school district has 36 buildings, many of which can be used as shelters, staging areas or Incident Command Post locations when classes are not in session.

Initial Response:

Bryan ISD personnel are likely to be first on the scene of an emergency situation within the school. They will normally take charge and remain in charge of the incident until it is resolved or others who have legal authority to do so assume responsibility. They will seek guidance and direction from local officials and seek technical assistance from state and federal agencies and industry when appropriate.

The superintendent or designee will appoint a District Emergency Management Coordinator. Each school principal or designee will act as that school's EMC.

Bryan ISD's emergency management plan addresses evacuating school campuses when a wildfire threatens.

Evacuation/Sheltering:

In the event that a fire is threatening an area where a school is located, one of two processes can be employed.

- School officials can contact the Bryan Fire Department, and the Incident Commander will provide them necessary information and a recommendation on whether they should evacuate.
- The Incident Commander determines potential threats and communicates that information to the Emergency Management Coordinator. The EMC works with the American Red Cross to determine temporary sheltering, whether hotel rooms should be provided, whether schools require evacuation and whether schools could serve as a shelter. The EMC contacts Bryan ISD's Executive Director of Support Services in the event that a school needs to be evacuated or could be used as a shelter location.

The school district's transportation staff will provide division-wide transportation using all available bus drivers and coordinate transportation plans with state police and other law enforcement personnel.

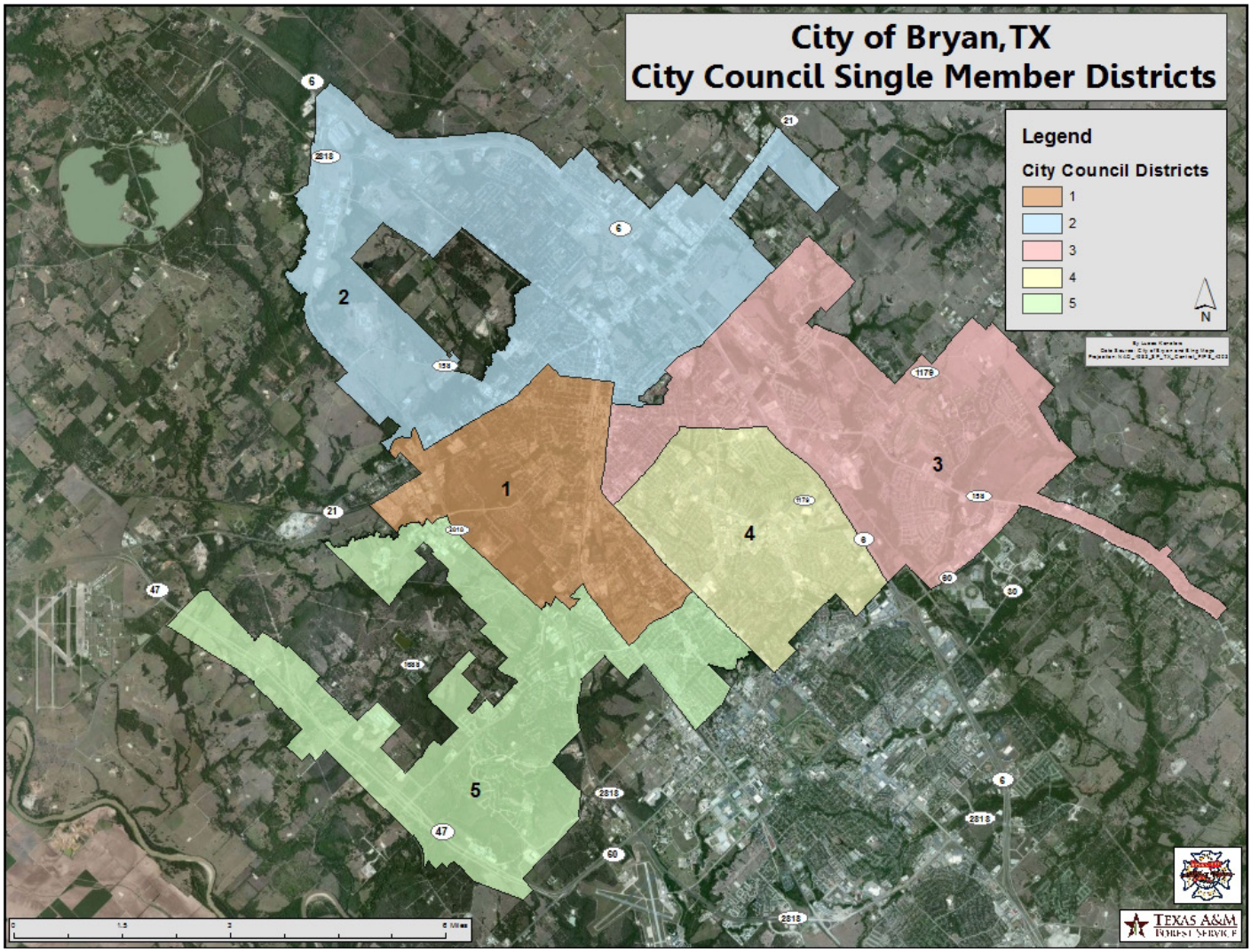
Community Legal Authority

The City of Bryan charter stipulates that the council/manager form of government be utilized. The seven-member city council consists of a mayor and six council members, with one council member elected at-large and the other five elected from single-member districts. The mayor and council members are elected for alternating three-year terms with six-year term limits. The role of the City Council is to enact ordinances and resolutions, adopt regulations and set policy direction for the conduct of the affairs of the city.

In the event of an incident, the first responder on the scene will take charge and serve as the Incident Commander until relieved in accordance with local procedures (*Brazos County Interjurisdictional Emergency Management Plan, Annex N, Direction and Control*). The county judge or mayor will likely be responsible for declaring a disaster and ordering evacuations. The City of Bryan is National Incident Management System-compliant and employs Incident Command System principles during emergency response.

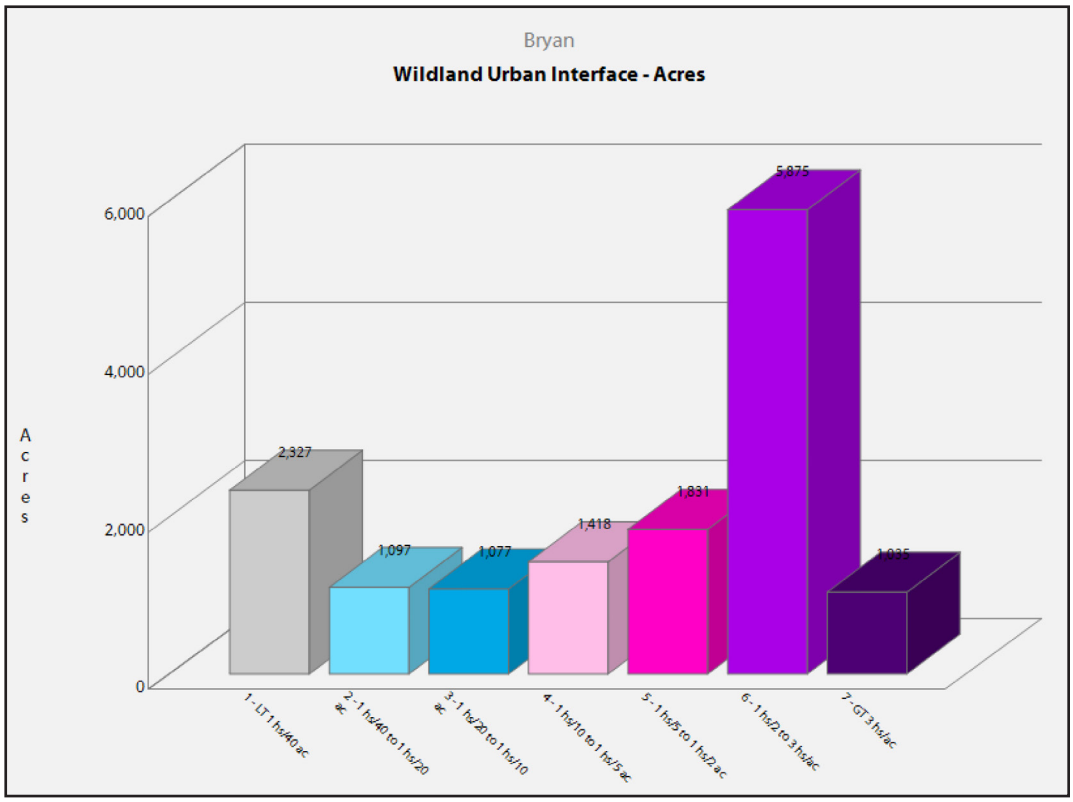
Burn bans are set by the Brazos County Commissioners Court (burning is not allowed within the city limits). Burn bans are evaluated based on the Keetch-Byram Drought Index (particularly when it is approaching 600), frequency of fire calls and other weather conditions.

Single Member Districts



Fire Environment

Wildland Urban Interface



The Wildland Urban Interface (WUI) is described as the area where structures meet and intermingle with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases wildfire risks. In Texas, more than 80 percent of wildfires occur within two miles of a community.

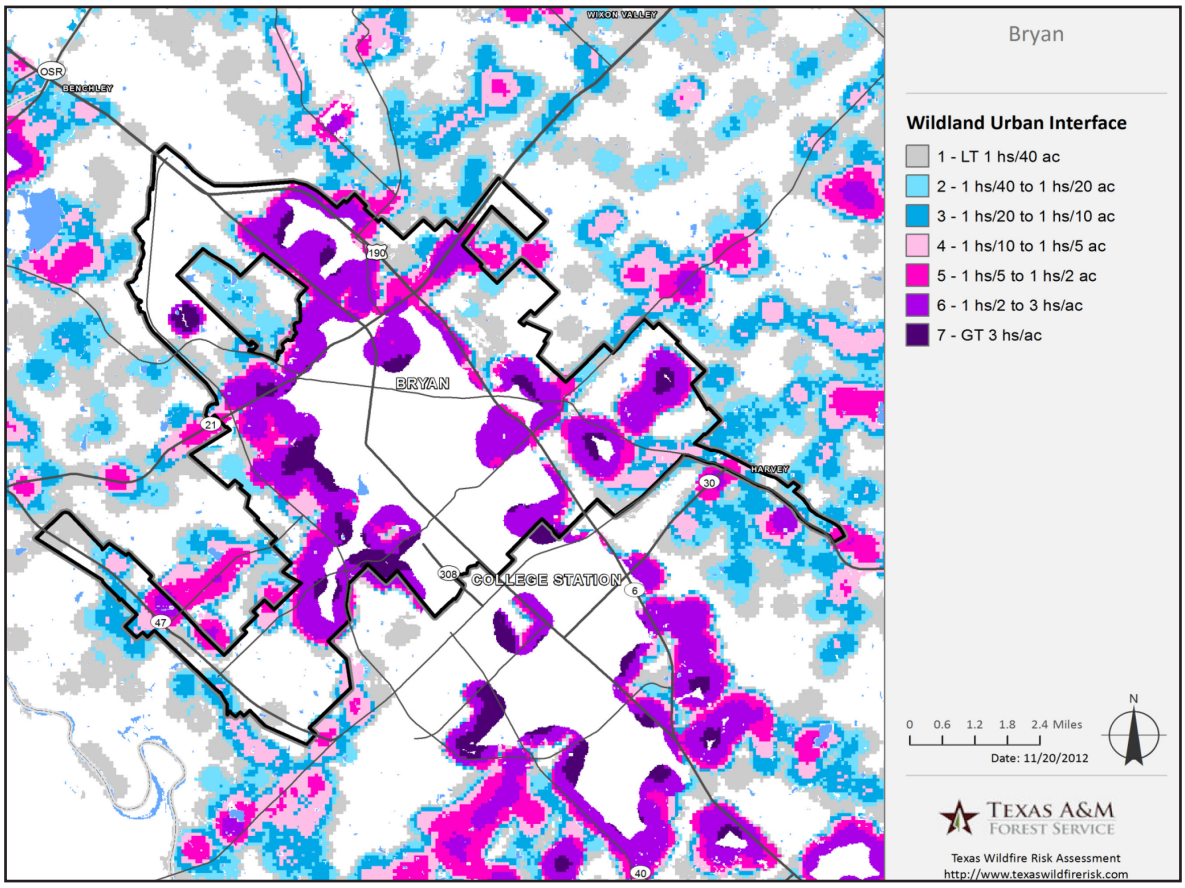
Bryan's population is estimated to be 76,201, according to the 2010 U.S. Census.

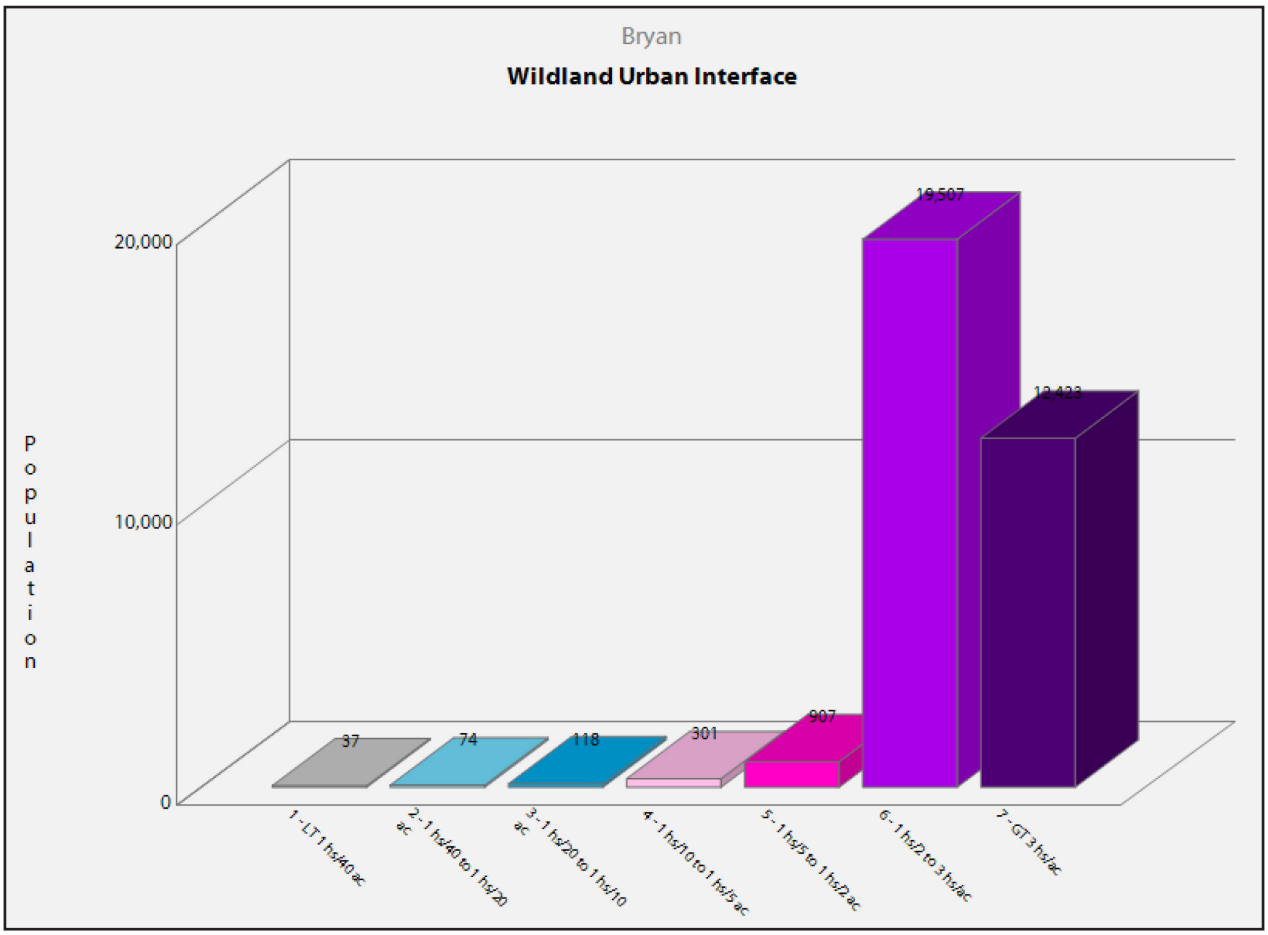
It is estimated that 33,367 people, or 45 percent of the population, live within the WUI. Population is determined by the housing density of a certain area. This is measured in the number of houses per number of acres. The higher-density areas are calculated at three houses per acre and the less dense areas are calculated at one house per 40 acres. This information gives planners an idea of how many homes are at risk to wildfire and how many homes would need to be protected during a wildfire, which is useful when planning evacuations.

The scale at right shows the lowest density (gray) to highest density (purple) and the WUI population and acreage reflected for each density level in Bryan.

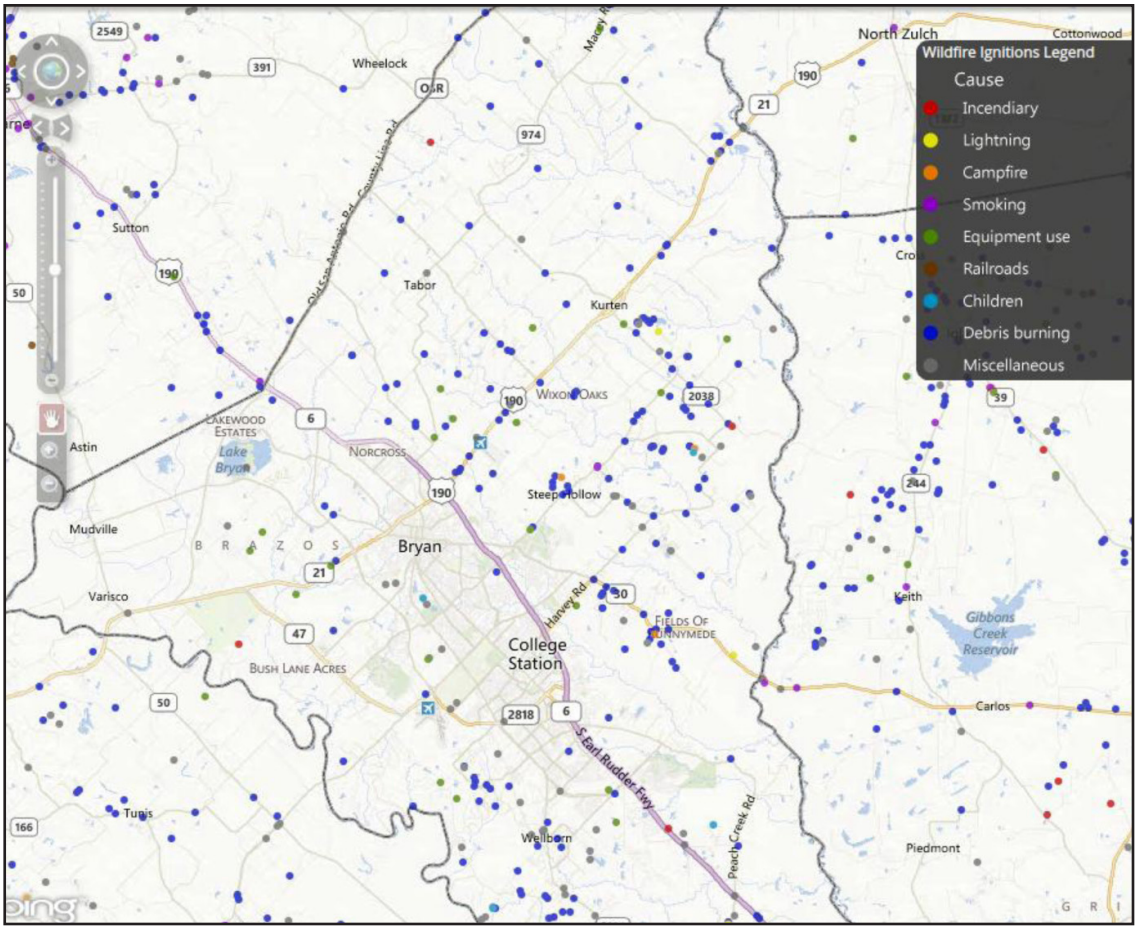
WUI – Population and Acres

Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
LT 1hs/40ac	37	0.1%	2,327	15.9%
1hs/40ac to 1hs/20ac	74	0.2%	1,097	7.5%
1hs/20ac to 1hs/10ac	118	0.4%	1,077	7.3%
1hs/10ac to 1hs/5ac	301	0.9%	1,418	9.7%
1hs/5ac to 1hs/2ac	907	2.7%	1,831	12.5%
1hs/2ac to 3hs/1ac	19,507	58.5%	5,875	40.1%
GT 3hs/1ac	12,423	37.2%	1,035	7.1%
Total	**33,367**	**100.0%**	**14,661**	**100.0%**


Bryan
Wildland Urban Interface
1 - LT 1 hs/40 ac
2 - 1 hs/40 to 1 hs/20 ac
3 - 1 hs/20 to 1 hs/10 ac
4 - 1 hs/10 to 1 hs/5 ac
5 - 1 hs/5 to 1 hs/2 ac
6 - 1 hs/2 to 3 hs/ac
7 - GT 3 hs/ac
BRYAN
COLLEGE STATION
WIXON VALLEY
BENCHLEY
HARVEY
0 0.6 1.2 1.8 2.4 Miles
N
Date: 11/20/2012
TEXAS A&M FOREST SERVICE
Texas Wildfire Risk Assessment
http://www.texaswildfirerisk.com


Bryan
Wildland Urban Interface
Population
20,000
10,000
0
37
74
118
301
907
19,507
13,423
1 - LT 1 hs/40 ac
2 - 1 hs/40 to 1 hs/20 ac
3 - 1 hs/20 to 1 hs/10
4 - 1 hs/10 to 1 hs/5 ac
5 - 1 hs/5 to 1 hs/2 ac
6 - 1 hs/2 to 3 hs/ac
7 - GT 3 hs/ac

Fire Occurrence

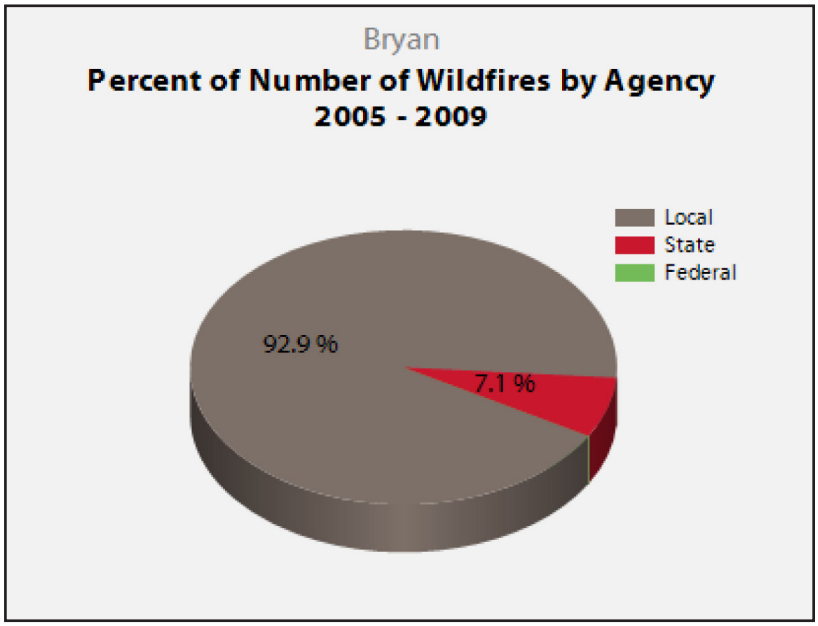


Wildfire occurrence statistics provide insight into the number of fires, the cause of fires and acres burned. These statistics are useful for prevention and mitigation planning. They can be used to determine the time of year most fires typically occur and develop a fire prevention campaign aimed at reducing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

- **Federal** – Fires reported by U.S. Forest Service, U.S. Fish and Wildlife Service and National Park Service.

- **Texas A&M Forest Service (TFS)** – Texas A&M Forest Service's fire occurrence database represents all state-reported fires.

- **Local** – The local category includes fires reported via Texas A&M Forest Service'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.



Five years of historic fire report data was used to create the fire occurrence summary charts. Data was obtained from federal, state and local fire department report data sources for the years 2005-2009.

Fire Behavior

The City of Bryan has two primary fuel types of concern: grasses and oak. During the dormant season, grasses pose the most risk especially during passing weather fronts. Cured grasses and high winds can produce extreme fire behavior during the dormant season. Depending on grazing practices, rates of spread and flame lengths can range from low to high. Since grasses are considered a one-hour fuel, they dry out quickly and burn rapidly.

Even with minimal fuel to burn, wildfire can ignite homes and spread rapidly through combustible attachments.

Oak forests pose the most risk during late summer drying (July through September). Oaks can produce single-tree and group torching depending on live fuel moisture levels and the presence of understory fuels. Sustained crown runs also may be possible but are rare events. Oaks pose the most risk for spotting potential. Because oak leaves are large and thin, they retain heat well and can easily be lofted far ahead of the main fire, producing spot fires.

Yaupon and tall grasses are the primary ladder fuels in the area. Tall grasses can produce high flame lengths and under the right conditions, can cause oaks and eastern red cedars to torch. Yaupon can grow tall (6 to 12 feet) and can provide a route for a surface fire to climb and spread into the canopy.

Fuel loading near Bonham Drive and Wilkes Street

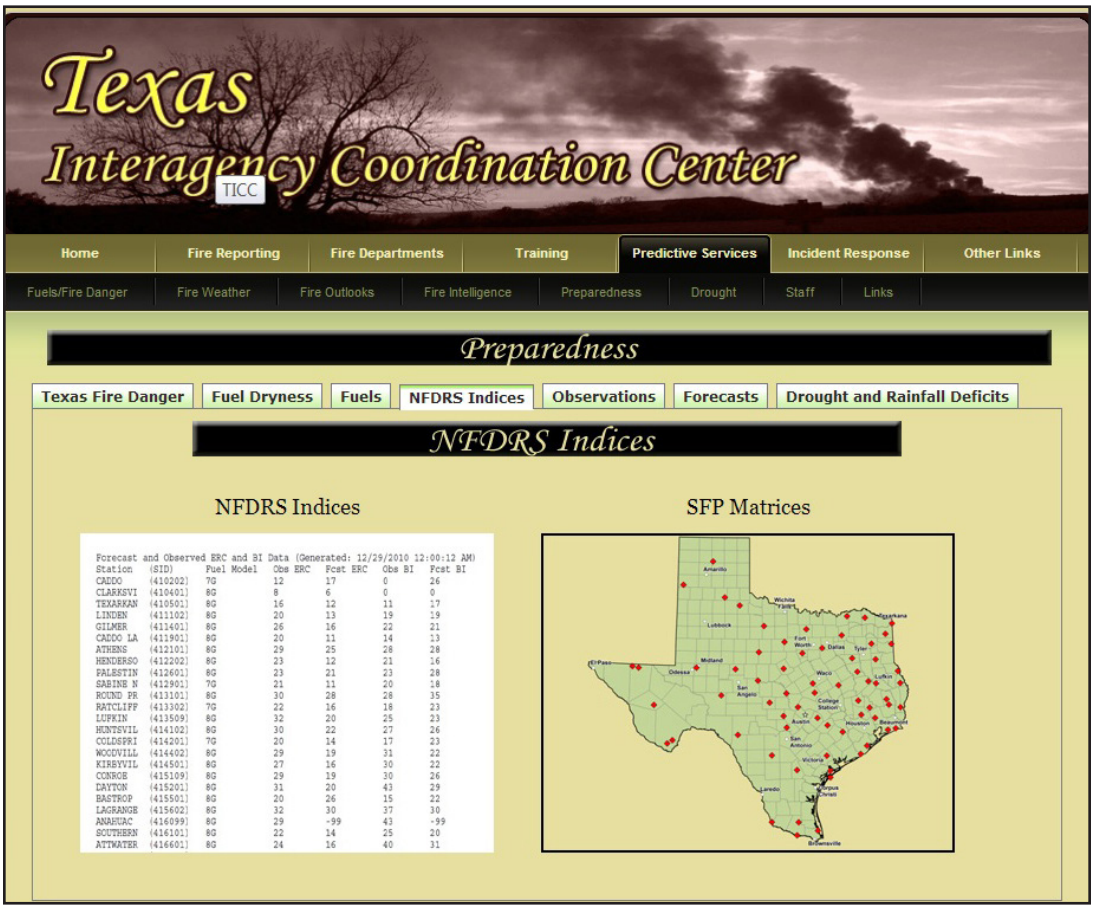
While most wildland incidents will end with a successful initial attack, the City of Bryan does have the potential for extended attack, especially during dry, windy conditions and when Energy Release Components are above the 97th percentile.

Peak Fire Seasons:
Primary: July through September with summer drying.
Secondary: December through March with cured grasses and wind events.

Fire Danger Tools:
Probably the most effective tool for gauging the day-to-day fire behavior in the City of Bryan is the Significant Fire Potential Matrix that can be found on the Texas Interagency Coordination Center website (**http://ticc.tamu.edu**). The matrix, pictured at right, takes into account the Burning Index (BI) and Energy Release Component (ERC). The BI provides the potential for initial attack activity, while the ERC provides the potential for extended attack activity. Together, these two indices produce a simple and accurate outlook for fire behavior on any given day.

For the City of Bryan, these values can be found at:
BI/ERC Calculations: **http://ticc.tamu.edu/PredictiveServices/WeatherStation.htm**
* Click on "NFDRS Indices"
Fire Potential Matrix: **http://ticc.tamu.edu/PredictiveServices/WeatherStation.htm**
* Click on the "Round Prairie RAWS"

Round Prairie RAWS		Preparedness Level Energy Release Component G (ERC)			
		1 0-29	2 30-41	3 42-45	4 46+
Dispatch Level Burning Index G (BI)	1 0-42	Low	Low	Moderate	Moderate
	2 43-57	Low	Moderate	Moderate	Moderate
	3 58-64	Moderate	Moderate	High	High
	4 65+	Moderate	Moderate	High	Very High



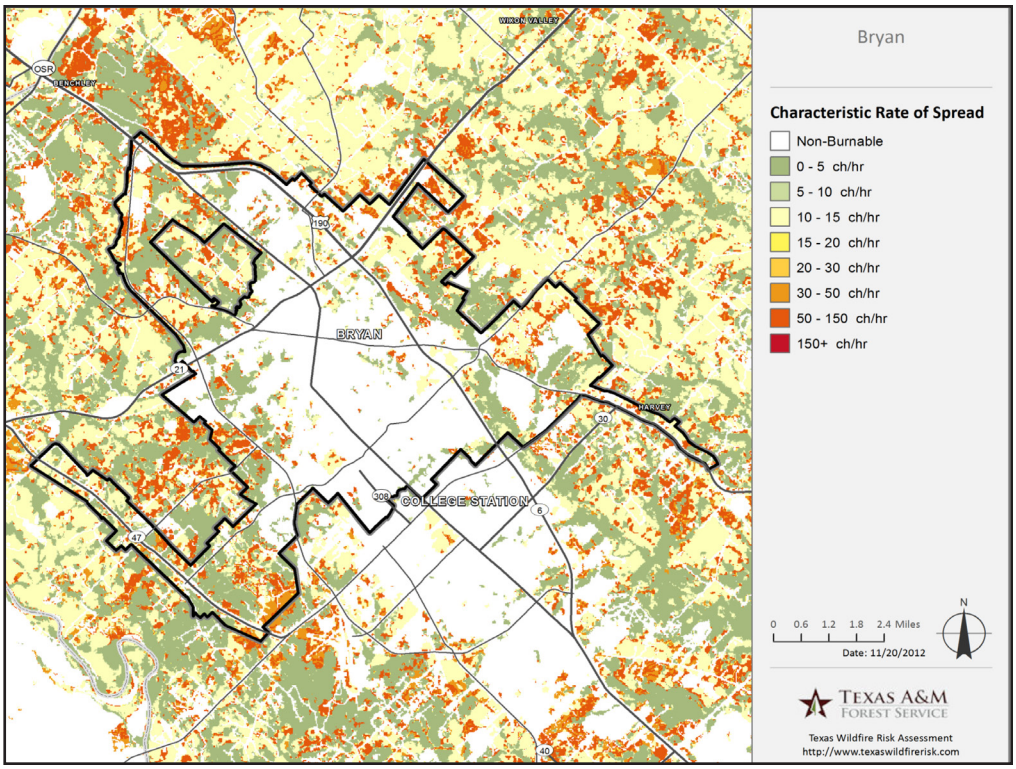
Characteristic Rate of Spread

Characteristic Rate of Spread is the typical or representative rate of spread of a potential fire based on a weighted average of four percentile weather categories. Rate of spread is the speed with which a fire moves in a horizontal direction across the landscape, usually expressed in chains* per hour (ch/hr) or feet per minute (ft/min). For purposes of the Texas Wildfire Risk Assessment, this measurement represents the maximum rate of spread of the fire front.

Rate of spread 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.

Characteristic Rate of Spread – Acres

Rate of Spread	Acres	Percent
Non-Burnable	15,643	56.2%
0 - 5 (ch/hr)	5,066	18.2%
5 - 10 (ch/hr)	317	1.1%
10 – 15 (ch/hr)	4,034	14.5%
15 - 20 (ch/hr)	158	0.6%
20 - 30 (ch/hr)	0	0.0%
30 - 50 (ch/hr)	523	1.9%
50 - 150 (ch/hr)	2,073	7.5%
150 + (ch/hr)	0	0.0%
Total	**27,814**	**100.0%**

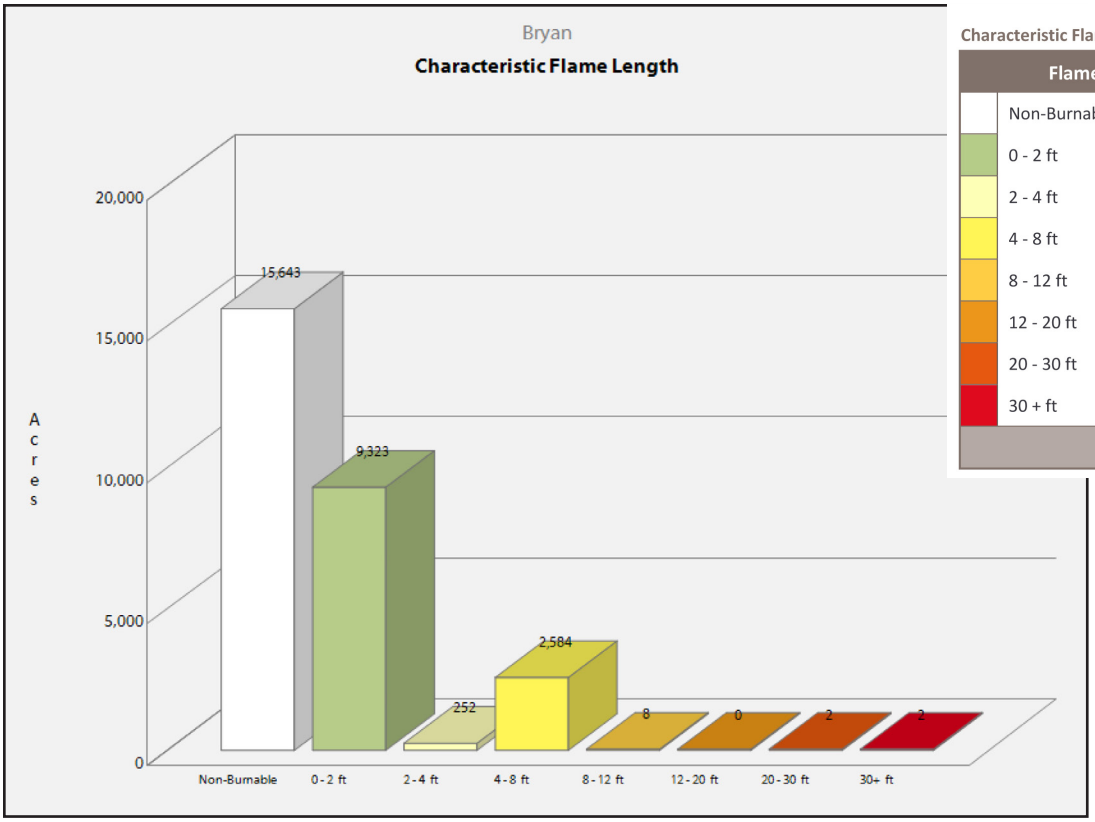


Characteristic Flame Length

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.

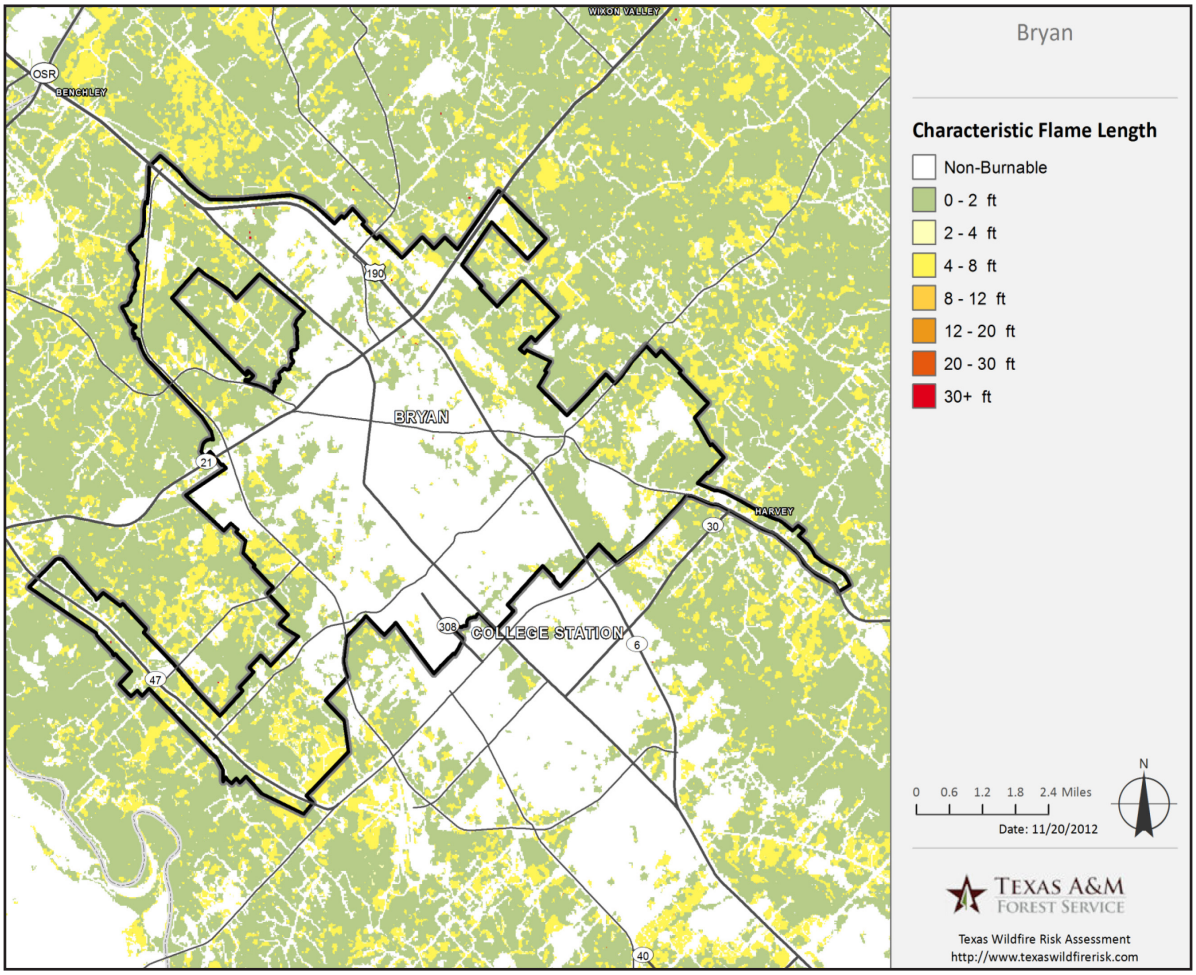
Flame length is a fire behavior output, which is influenced by three environmental factors – fuels, weather and topography.

** A chain is 66 feet.*



Characteristic Flame Length – Acres

Flame Length	Acres	Percent
Non-Burnable	15,643	56.2%
0 - 2 ft	9,323	33.5%
2 - 4 ft	252	0.9%
4 - 8 ft	2,584	9.3%
8 - 12 ft	8	0.0%
12 - 20 ft	0	0.0%
20 - 30 ft	2	0.0%
30 + ft	2	0.0%
Total	**27,814**	**100.0%**



Risk Assessments

Risk assessments are conducted to gauge wildland fire hazards for the lands and neighborhoods in a particular area. Assessments are crucial to developing an understanding of the risk of potential losses to life, property and natural resources during a wildland fire.

Specifically, the risk assessment:

- Assesses risks, hazards, fire protection capability, structural vulnerability and values to be protected.
- Identifies the Wildland Urban Interface (WUI) within the planning area.
- Identifies and prioritizes areas in which to conduct fuels reduction treatments.

Texas A&M Forest Service Wildland Urban Interface Specialist Jared Karns, left, works with Acting Lt. Jimmie Rosier to identify wildfire risks in Response Zone 5.

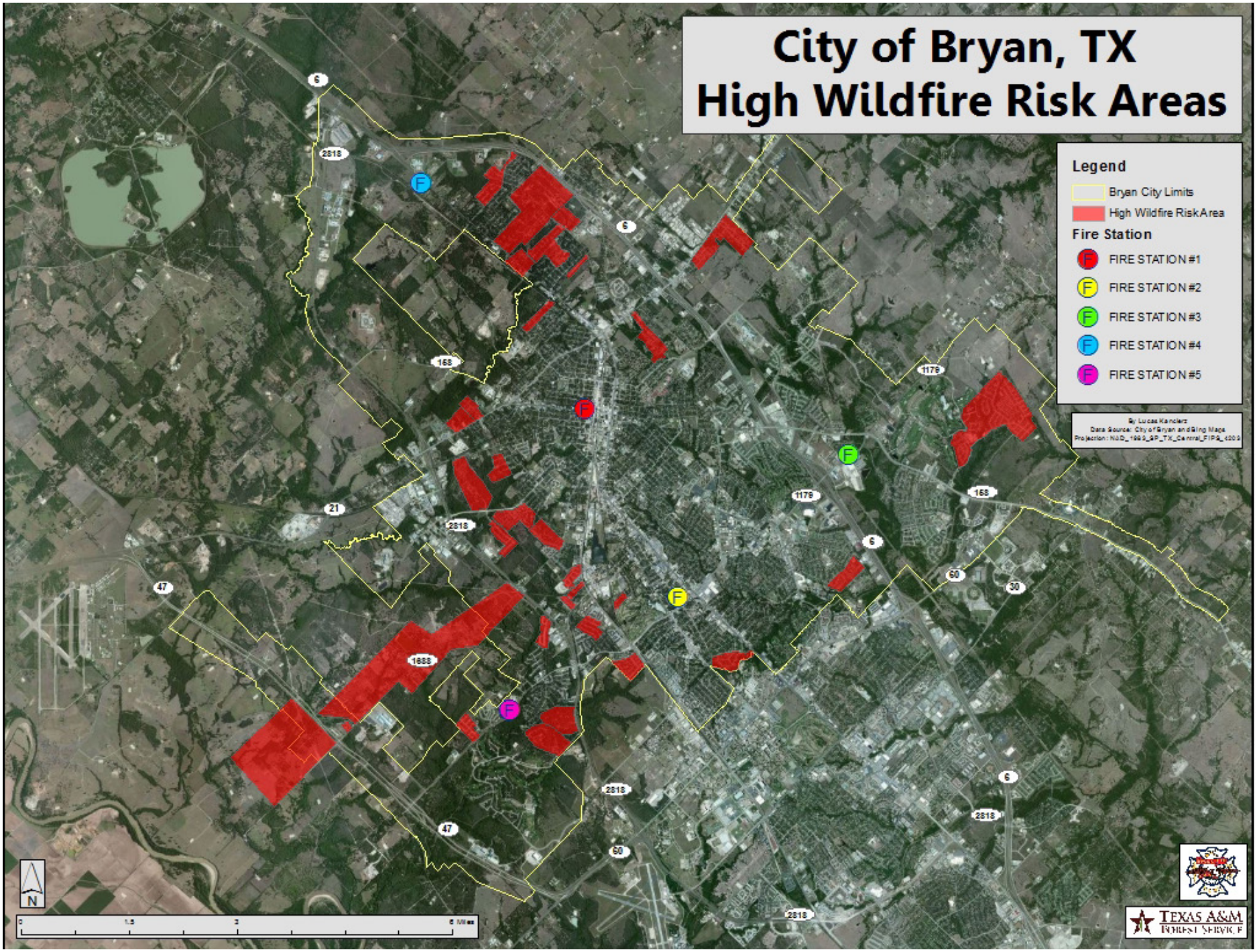
Risk assessment criteria includes:

- Means of access (ingress and egress, road width, all-season road condition, fire service access and street signs)
- Vegetation (characteristics of predominate vegetation within 300 feet of a home, defensible space)
- Roofing assembly (roof class)
- Building construction (materials)
- Available fire protection (water source availability, organized response resources)
- Placement of gas and electric utilities

Risk assessments were conducted over a two-week period in the response zones for each of Bryan's five fire stations. Members of the working group assessed 54 areas within the city limits. The findings showed 32 high-risk areas, 21 moderate-risk areas and one low-risk area.

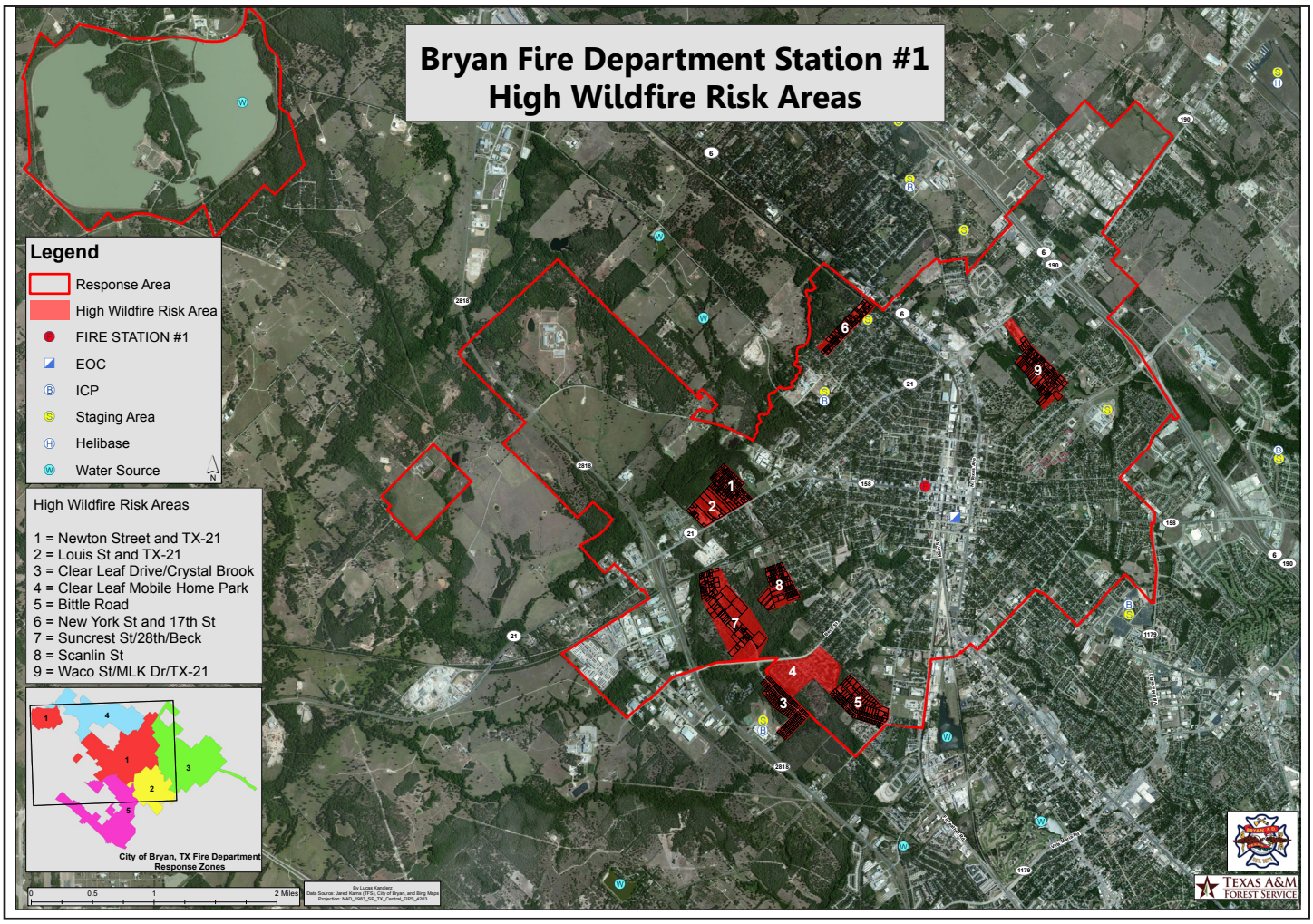
Once high-risk areas were identified, specific mitigation strategies were outlined to reduce wildfire risks.

Texas A&M Forest Service Wildland Urban Interface Specialist Luke Kanclerz collaborated with Bryan GIS Coordinator Dale Kubenka to generate maps for the CWPP.


City of Bryan, TX
High Wildfire Risk Areas
Legend
Bryan City Limits
High Wildfire Risk Area
Fire Station
FIRE STATION #1
FIRE STATION #2
FIRE STATION #3
FIRE STATION #4
FIRE STATION #5
By Lucas Kanclerz
Data Source: City of Bryan and Bing Maps
Projection: NAD_1983_SP_TX_Central_FIPS_4203
N
0
1.5
3
6 Miles
TEXAS A&M
FOREST SERVICE

Risk Assessment Findings by Zone

Response Zone 1



Thirteen individual risk assessments were conducted in Response Zone 1, which is covered by Fire Station No. 1 at 300 West William J. Bryan Parkway.

Of the 13 neighborhoods assessed, nine were high risk and four were moderate risk. The high-risk areas include 444 homes on 327 acres with an estimated total value of $30,889,532. (*Parcel data was not available for Clear Leaf Mobile Home Park, so it is unclear how many homes are in that area).

Several mitigation strategies were identified for this response zone, including the following:

- Ingress/egress plan
- Structure protection plan
- Fuels reduction: mechanical, hand clearing and grazing
- Public education (targeting things like combustible attachments, home construction, building materials, fuels management, defensible space and Ready, Set, Go!)

1. Newton Street and Highway 21

High Risk
84 points

Address:
Newton Street and
Highway 21
N 30° 40’ 25”
W 96° 23’ 45”

Values at Risk:
- 70 homes
- $2,365,538 total value
- 19 acres

The Newton Street area is next to a large pocket of wildland fuels (approximately 450 acres). The area has two points of access south to Highway 21 and is surrounded by fuels (juniper, oak and grasses). During a wildfire, the primary threat would be direct flame contact and ember intrusion from the north and west. The homes are built with combustible attachments (decks and fences) making them vulnerable to wildfire. Defensible space is not present.

Mitigation Strategies:

Ingress/Egress Plan
- Access points are from Highway 21 to Newton Street and Bowser Street.
- An estimated 70 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

Structure Protection Plan
- An estimated 70 homes are at risk in this area.
- Primary threat during a wildfire: Homes that interface with wildlands on the west and northwest edges.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire; identify safety zones for firefighters.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Fuels management, defensible space, home construction materials and Ready, Set, Go!

2. Clear Leaf Drive and Crystal Brook Drive

High Risk
84 points

Address:
Clear Leaf Drive and Crystal Brook Drive
N 30° 39’ 07”
W 96° 23’ 23”

Values at Risk:
- 96 homes
- $10,173,460 total value
- 25 acres

The Crystal Brook neighborhood is next to a large area of wildland fuels (approximately 160 acres). The fuels transition from grasses to dense oak and juniper (adjacent to homes).

The wildland area to the southeast has a high historical fire occurrence. During a wildfire, the primary threat would be from direct flame contact and ember intrusion to the first row of homes.

Access for evacuation is good. Most of the homes are built with combustible attachments (fences) that are vulnerable to wildfire.

Mitigation Strategies:

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching or hand clearing due to fuel types (pockets of juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Fuels management, defensible space, home construction materials and Ready, Set, Go!

Ingress/Egress Plan
- Access points are from F.M. 2818 and Beck Street to Clear Leaf Drive.
- An estimated 96 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

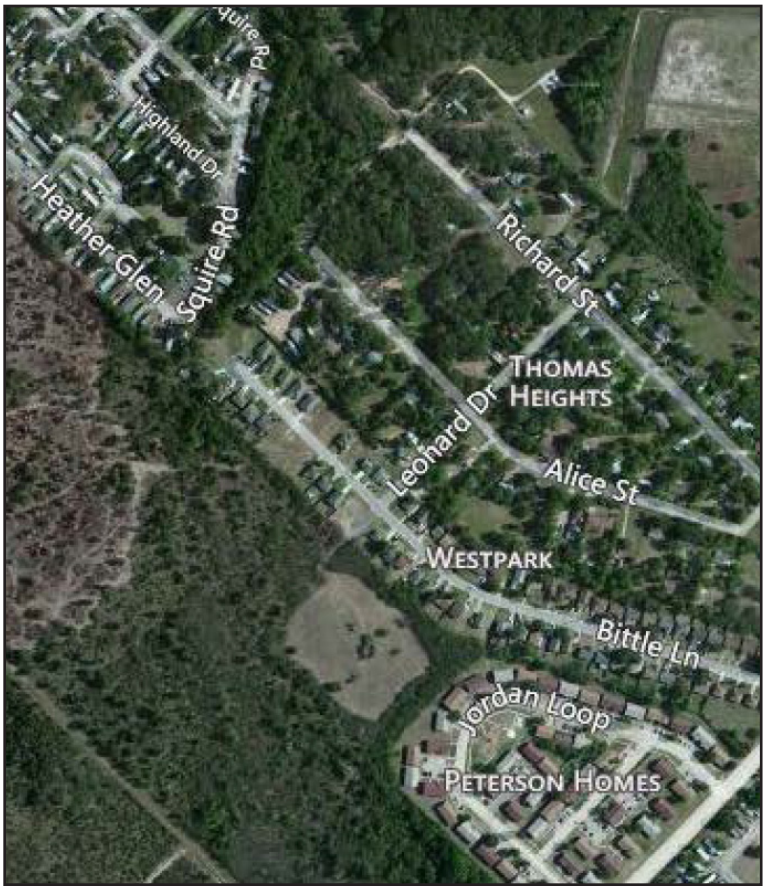
3. Bittle Lane

High Risk
80 points

Values at Risk:
- 83 homes
- $6,760,100 total value
- 38 acres

Address:
Bittle Lane/Groesbeck Street and Bittle Lane/Leonard Road
N 30° 39' 11"
W 96° 23' 04"

The Bittle Lane neighborhood is adjacent to Jordan Loop, the Clear Leaf neighborhood and a large wildland area (160 acres). The fuels consist of grass, juniper and oak and there is a history of fire occurrence. Access is limited to Bittle Lane and Richard Street, both of which tie into Groesbeck Street.



During a wildfire, the primary threats would be direct flame contact and embers coming from the southwest and west. This would threaten primarily the first row of homes, but there are fuels intermixed with the development that increase the chance of spot fires.

The homes in this area have combustible attachments that increase their vulnerability.

Mitigation Strategies:

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching or hand clearing due to fuel types (pockets of juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Fuels management, defensible space and home construction materials.

4. New York Street

High Risk
79 points

Address:
New York Street and 17th Street
N 30° 41’ 23”
W 96° 23’ 12”

The New York Street neighborhood is adjacent to a large wildland area to the north (800-plus acres) The fuels immediately adjacent to homes consist of yaupon, oak, juniper and grasses. There also are pockets of pasture land within the 800-plus acres.

Values at Risk:
- 79 homes
- $2,463,204 total value
- 24 acres

During a wildfire, the primary threats would be direct flame contact and ember intrusion from the northeast and east. There is good access and water supply, so the threats would be limited to the first or second rows of homes (although spotting and ember intrusion could involve a larger area, depending on the spotting distance).

Homes have defensible space but also have combustible attachments.

Mitigation Strategies:

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Fuels management, defensible space and home construction materials.

Fuels Reduction

- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching or hand clearing due to fuel types (pockets of juniper and oak).

5. Clear Leaf Mobile Home Park

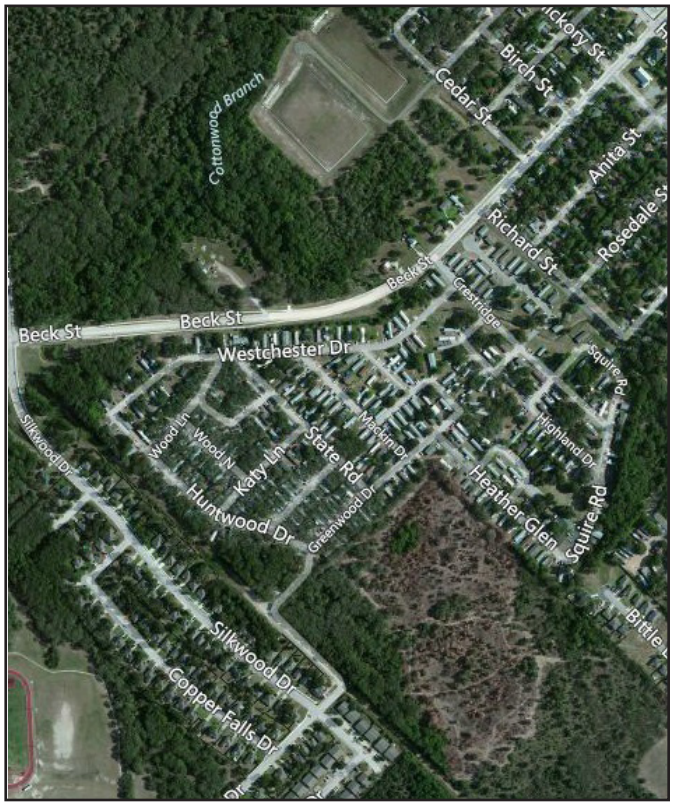
High Risk
71 points

Crestridge Road and Beck Street
30° 39’ 31”
96° 23’ 18”

The Clear Leaf Mobile Home Park is bordered by a wildland area to the southeast. The primary fuels consist of grass, juniper and oak. Access points are to the south at Clear Leaf Drive and to the north at Crestridge Road.

Values at Risk:
- No individual parcel data
- $3,232,740 total value
- 65 acres

During a wildfire, the primary threats would be direct flame contact, radiant heat (to vinyl skirting) and ember intrusion from the southeast. Many of the homes in this area have combustible attachments.



Mitigation Strategies:

Ingress/Egress Plan
- Access points are from Beck Street to Crestridge and F.M. 2818 to Clear Leaf Drive.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching or hand clearing due to fuel types (pockets of juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Fuels management, defensible space, home construction materials and Ready, Set, Go!

6. Suncrest Street

High Risk
70 points

Suncrest Street/28th Street and Suncrest Street/Beck Street
N 30° 39’ 41”
W 96° 23’ 53”

Values at Risk:
- 49 homes
- $2,252,490 total value
- 32 acres

The Suncrest Street neighborhood is surrounded by wildland fuels to the east and west (approximately 280 acres). There are two points of access (to the south and north) but the routes are lined with dense brush and trees. The primary fuels are grass, juniper and oak.

The homes in this area have little to no defensible space and most have combustible attachments. During a wildfire, the primary threats would be direct flame contact and ember intrusion. Also, in the event of an evacuation, egress routes could become involved with dense smoke and flames, creating challenges for evacuees and responders.

Mitigation Strategies:

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Ready, Set, Go!, fuels management and defensible space.

Ingress/Egress Plan
- Access points are from Beck Street and 28th Street to Suncrest Street.
- An estimated 49 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

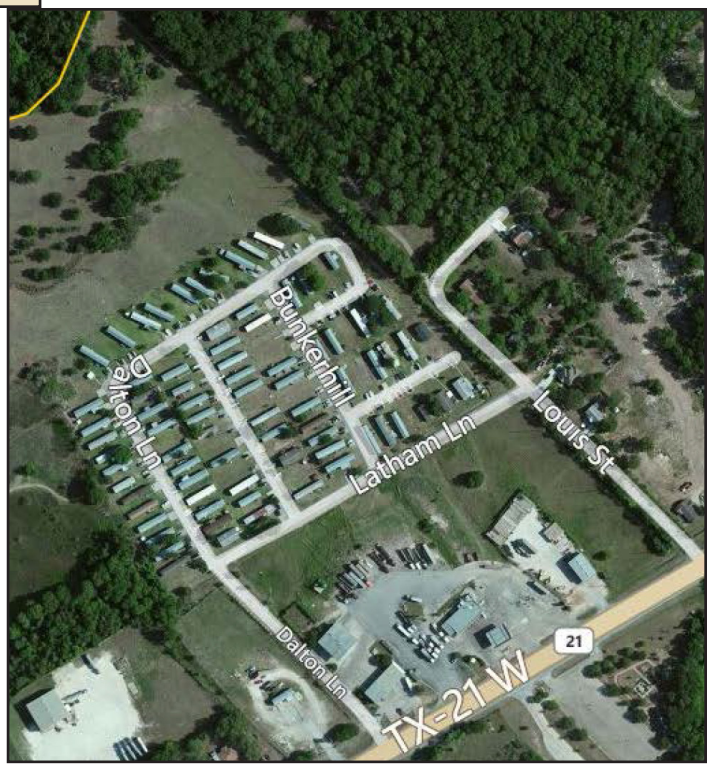
7. Louis Street

High Risk
66 points

Louis Street and Highway 21
N 30° 40’ 16”
W 96° 24’ 05”

Values at Risk:
- 32 homes
- $1,427,890 total value
- 36 acres

The Louis Street area is bordered by wildland fuels on the west, north and east. The primary fuel types are grass, juniper and oak. The fuels on the west and north sides consist of short and tall grasses. During a wildfire, the primary threats on the west and north sides would be direct flame contact, radiant heat and ember intrusion.



The fuels on the east side are dense brush (juniper and oak). During a wildfire, the primary threats would be ember intrusion and direct flame contact. The majority of the homes have good defensible space, but also have combustible attachments and vinyl skirting. Access points are to the south (Dalton Lane and Louis Street).

Mitigation Strategies:

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Ready, Set, Go!, building materials and fuels management.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching, hand clearing and grazing due to fuel types (grass, yaupon, juniper and oak).

Ingress/Egress Plan
- Access points are from Highway 21 to Louis Street and Dalton Lane.
- An estimated 32 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

8. Scanlin Street

High Risk
65 points

Scanlin Street and Kinnard Avenue
N 30° 40’ 03”
W 96° 23’ 34”

Values at Risk:
- 60 homes
- $2,077,510 total value
- 40 acres

The Scanlin Street neighborhood is next to a large area of wildland fuels to the west and south. The fuels consist of dense brush (juniper, oak and grasses). Most of the homes have at least 30 feet of defensible space and there are several access points to the north and east. Most homes have combustible attachments.

During a wildfire, the primary threats would be ember intrusion and direct flame contact to the first row or two of homes that interface with the wildland area to the west and south.

Mitigation Strategies:

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Ready, Set, Go!, building materials and fuels management.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

Structure Protection Plan
- An estimated 60 homes are at risk in this area.
- Primary threat during a wildfire: Homes that interface with wildlands on the west and southwest edges.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire and identify safety zones for firefighters.

9. Waco Street

High Risk
60 points

Waco Street/Martin Luther King Jr. and Waco Street/Highway 21
N 30° 41’ 12”
W 96° 21’ 42”

Values at Risk:
- 95 homes
- $4,136,600 total value
- 48 acres

The Waco Street neighborhood is bordered by and intermixed with wildland fuels to the west and east. During a wildfire, the primary threats would be ember intrusion and direct flame contact to combustible attachments. Points of access are good and most homes have defensible space.

Mitigation Strategies:

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials and defensible space.

Fuels Reduction

- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching, hand clearing and grazing due to fuel types (grass, yaupon, juniper and oak).

10. Coulter Drive

Moderate Risk
56 points

North Coulter Drive and Park Street
N 30° 40’ 11”
W 96° 21’ 27”

The Coulter Drive neighborhood has a pocket of dense brush on the interior of the neighborhood. The primary fuels are grass, juniper and oak. Access is good and most homes have good defensible space. During a wildfire, the primary threat would be under drought conditions (fire weather) that would result in ember intrusion and direct flame contact to the homes that interface with the wildland area.

Mitigation Strategies:
- Public education (target home construction, Ready, Set, Go!)
- Fuels reduction: mechanical, hand clearing

11. Jordan Loop

Moderate Risk
55 points

Jordan Loop and Leonard Road
N 30° 38’ 58”
W 96° 22’ 56”

The Jordan Loop area is bordered by wildland fuels to the west. Most of the homes in Jordan Loop are built with noncombustible materials and have good defensible space. During a wildfire, the primary threat to these homes would be ember intrusion. Access is limited to Leonard Road for evacuations.

Mitigation Strategies:
- Public education (target Ready, Set, Go!)
- Ingress/egress plan

12. Cole Street

Moderate Risk
52 points

Cole Street and Waco Street
N 30° 40’ 48”
W 96° 21’ 17”

The Cole Street neighborhood has a pocket of dense fuels in its interior (13 acres). The primary fuel types are grass, juniper, oak and yaupon. During a wildfire, the primary threat would be under drought conditions (fire weather) that would result in ember intrusion and direct flame contact to the first rows that interface with the wildland area. Access to the area is limited to Waco Street from the west and Allen Forest Drive from the east.

Mitigation Strategies:
- Public education (target Ready, Set, Go!, defensible space, fuels management)
- Fuels reduction: mechanical, hand clearing

13. Colson Road Industrial Park

Moderate Risk
39 points

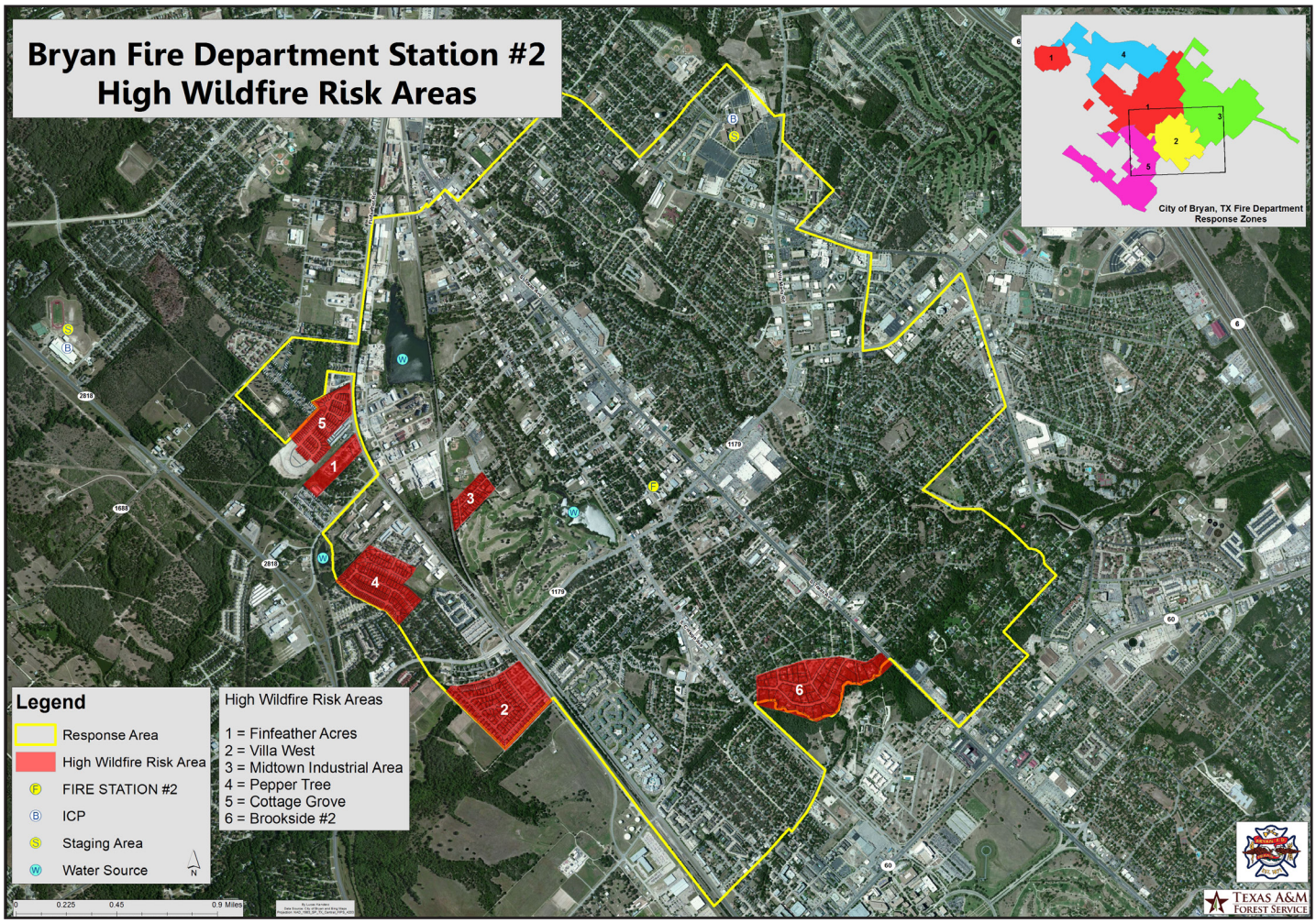
Colson Road and Gooseneck Drive
N 30° 42’ 11”
W 96° 21’ 19”

The Colson Road Industrial Park is bordered by grasslands to the east. Since most of the structures are built with noncombustible materials, the primary threat would be direct flame contact from a fast-moving grass fire. Other concerns are evacuation and managing hazardous materials in the area.

Mitigation Strategies:
- Public education (target Ready, Set, Go!)
- Fuels reduction: grazing

Risk Assessment Findings by Zone

Response Zone 2



Ten individual risk assessments were conducted in Response Zone 2, which is covered by Fire Station No. 2 at 2813 Cavitt Ave.

Of the 10 neighborhoods assessed, six were high risk and four were moderate risk. The high-risk neighborhoods include 391 homes on 122 acres with an estimated total value of $51,684,119. (*Parcel data was not available for Finfeather Acres, so it is unclear how many homes are in that area).

Several mitigation strategies were identified for this response zone, including the following:

- Fuels reduction: mechanical, hand clearing, grazing and prescribed burning
- Public education (targeting things like building materials, defensible space, combustible attachments, home construction, arson and fuels management)
- Ingress/egress plan
- Structure protection plan

1. Finfeather Acres

High Risk
74 points

Finfeather Circle/ Finfeather Road
N 30° 38’ 44”
W 96° 22’ 33”

Finfeather Acres is located to the south of Cottage Grove and backs up to a wildland area to the west. The primary threat of wildfire is to the west of the neighborhood. The fuels are a mix of short and tall grasses and juniper and oak trees.

Values at Risk:
- No individual parcel data
- $628,930 total value
- 11 acres

Mitigation Strategies:

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Ready, Set, Go!, building materials and defensible space.

Fuels Reduction

- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

2. Villa West

High Risk
73 points

Forestwood Drive
and Yegua Street
N 30° 37’ 44”
W 96° 21’ 58”

Values at Risk:
- 118 homes
- $15,790,459 total value
- 31 acres

Villa West is bordered by approximately 600 acres of wildland fuels to the southwest, south and southeast of the neighborhood. The primary fuels are short and tall grasses, juniper, oak and yaupon.

Due to the proximity of the fuels, the houses bordering this area are vulnerable to any fires that may ignite. Within the neighborhood itself, combustible privacy fences and decks are attached to the majority of homes and could carry a fire from structure to structure.

Mitigation Strategies:

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Hand clearing and grazing due to fuel types (grass, juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials and defensible space.

3. Midtown Industrial Area

High Risk
70 points

Values at Risk:
- 35 homes
- $1,984,660 total value
- 8 acres

Roosevelt Street and
Churchill Drive
N 30° 38' 29"
W 96° 22' 09"

The Roosevelt Street neighborhood backs up to the Midtown Industrial wildland area (approximately 16 acres). This area has been identified as a location with high fire occurrence due to accidental starts and arson (both human-caused and preventable).

The area is mixed with short and tall grasses and pockets of juniper and oak. The primary threats are ember exposure to the PlyGem factory and housing along Roosevelt Street. Access is limited to one gated entrance on the south side of the PlyGem factory. Railroad tracks running along the west side of the homes on Roosevelt limit access for structure protection.

Mitigation Strategies:

Fuels Reduction

- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Hand clearing and grazing due to fuel types (grass, with pockets of juniper and oak).

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space and arson.

4. Pepper Tree Drive and Sprucewood Street

High Risk
67 points

Pepper Tree Drive and
Sprucewood Street
N 30° 38' 17"
W 96° 22' 25"

Values at Risk:
- 95 homes
- $11,157,760 total value
- 22 acres

Pepper Tree Drive is adjacent to a pasture of undeveloped and unmaintained land (to the southeast). The primary threat would be a quick-moving grass fire that burns into the first row of homes.

The homes are surrounded by combustible privacy fencing and have combustible attachments. There also are cul-de-sacs within the neighborhood that can make access difficult.

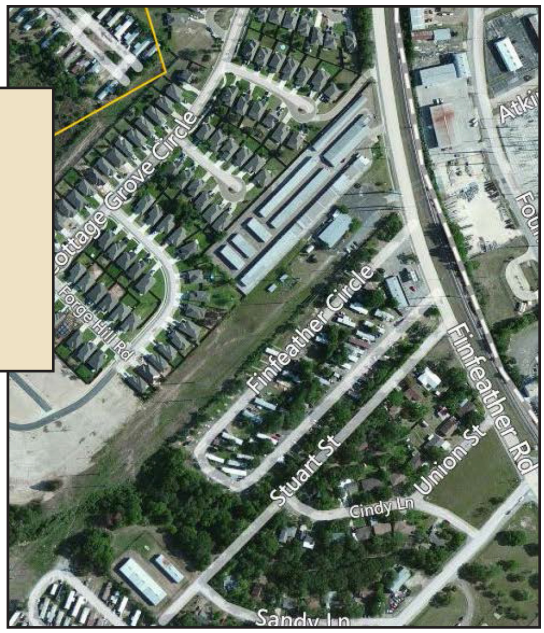
Mitigation Strategies:

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space and arson.

5. Cottage Grove

High Risk
61 points



Values at Risk:
- 91 homes
- $10,039,500 total value
- 17 acres

Cottage Grove Circle and Finfeather Road
N 30° 38’ 53”
W 96° 22’ 34”

Cottage Grove is a relatively new development. Homes are built with cement board siding and noncombustible roofing. The homes also have at least 30 feet of defensible space and managed vegetation (which may need to be readdressed in the future, once vegetation has grown).

There are two primary concerns with Cottage Grove. The first is that there is only one point of ingress/egress, which could create challenges for incoming resources and during evacuations. The second concern is that there is a large area of wildland fuels adjacent to the neighborhood (to the west). This area is heavily timbered (juniper and oak) with a grassy understory that could carry wildfires. The spotting distance in these fuel types is increased.

The primary threat to Cottage Grove is wildfires igniting combustible privacy fences (and other combustible attachments) that may compromise homes. Additional threats are ember intrusion and smoke management.

Mitigation Strategies:

Ingress/Egress Plan
- Access points are from Finfeather Road to Cottage Grove Circle.
- An estimated 91 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

Structure Protection Plan
- An estimated 91 homes are at risk in this area.
- Primary threat during a wildfire: Homes that interface with a wildland area on the western edge of the neighborhood.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire and identify safety zones for firefighters.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials (combustible attachments) and Ready, Set, Go!

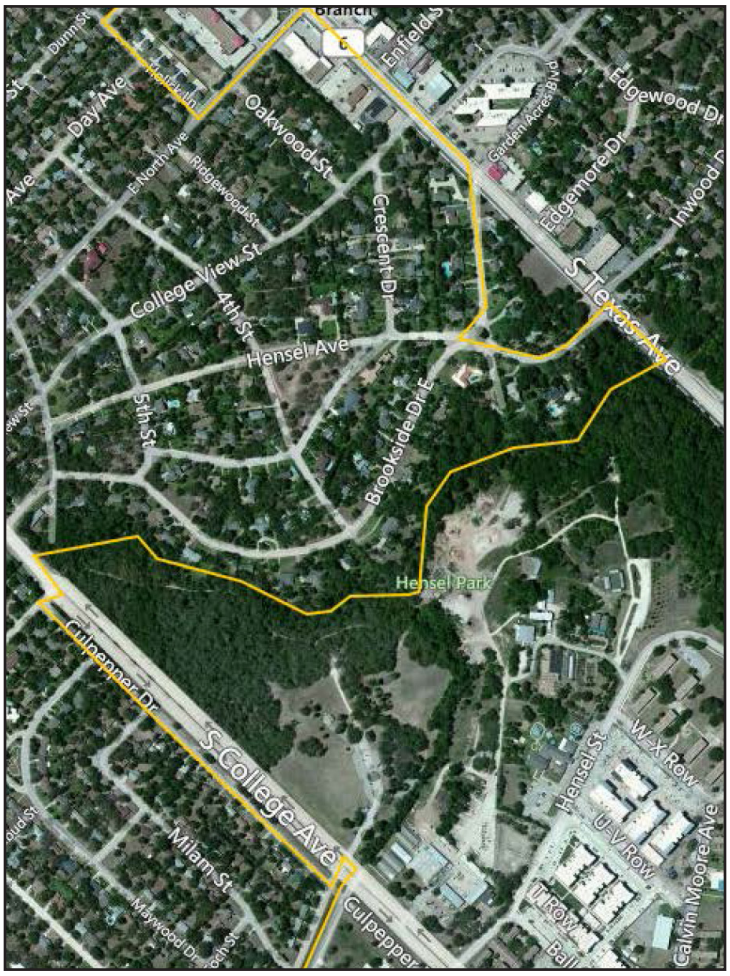
6. Brookside #2

High Risk
60 points

Brookside Drive East/South College Avenue and Hensel Avenue/South Texas Avenue
N 30° 37’ 51”
W 96° 20’ 44”

Values at Risk:
- 52 homes
- $12,082,810 total value
- 33 acres

This area of Brookside Drive has dense vegetation to the south due to a greenbelt/creek and Hensel Park. The primary fuels are juniper and oak with an understory of short and tall grasses and leaf litter.



The primary threat to this neighborhood would be a wildfire igniting to the south and moving to the north. There is limited access to the south and homes with little to no defensible space that interface with the wildland fuels along Brookside Drive.

Mitigation Strategies:

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space and fuels management.

Fuels Reduction

- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

7. Inwood Drive

Moderate Risk
59 points

Inwood Drive/South Texas Avenue and Inwood Drive/Vine Street
N 30° 38' 09"
W 96° 20' 24"

The Inwood Drive area has a greenbelt running along the south side of the street. Most of the fuels are juniper, oak and grasses and interface with homes on the south side of Inwood Drive. Most of the homes have 30 feet or less of defensible space and combustible attachments. There also are several combustible privacy fences that are vulnerable to wildfire.

Mitigation Strategies:
- Public education (target defensible space, building materials, fuels management)
- Fuels reduction: mechanical, hand clearing

8. Rosemary Drive

Moderate Risk
54 points

Rosemary/Texas Avenue and Rosemary/29th Street
N 30° 38' 10"
W 96° 20' 06"

The primary threats to the Rosemary Drive neighborhood are fuel loading and continuity of fuels. Most of the homes are built with noncombustible materials and access is good. The fuels that intermix with the neighborhood (including defensible space) are primarily dense grasses with oak and juniper. During normal conditions this may not pose a threat, but once fuels reach critical fuel moisture levels, they may produce significant fire behavior, including group torching and spotting.

Mitigation Strategies:
- Public education (target defensible space, building materials, fuels management)
- Fuels reduction: mechanical, hand clearing

9. Brookside #1

Moderate Risk
49 points

Brookside Drive/Old College and Brookside Drive/College Avenue
N 30° 37' 44"
W 96° 21' 11"

The Brookside Drive area has a greenbelt running east to west along the southern end of the street. The wildland fuels begin to interface with homes, posing a threat of wildfires in an area with limited access. The primary threat is to the homes directly adjacent to the greenbelt. The fuels are a mixture of juniper, oak and grasses, which under elevated fire conditions can produce group torching and spotting.

Mitigation Strategies:
- Fuels reduction: mechanical, hand clearing
- Public education (target defensible space, construction materials, fuels management)

10. Tanglewood Drive and Midwest Street

Moderate Risk
39 points

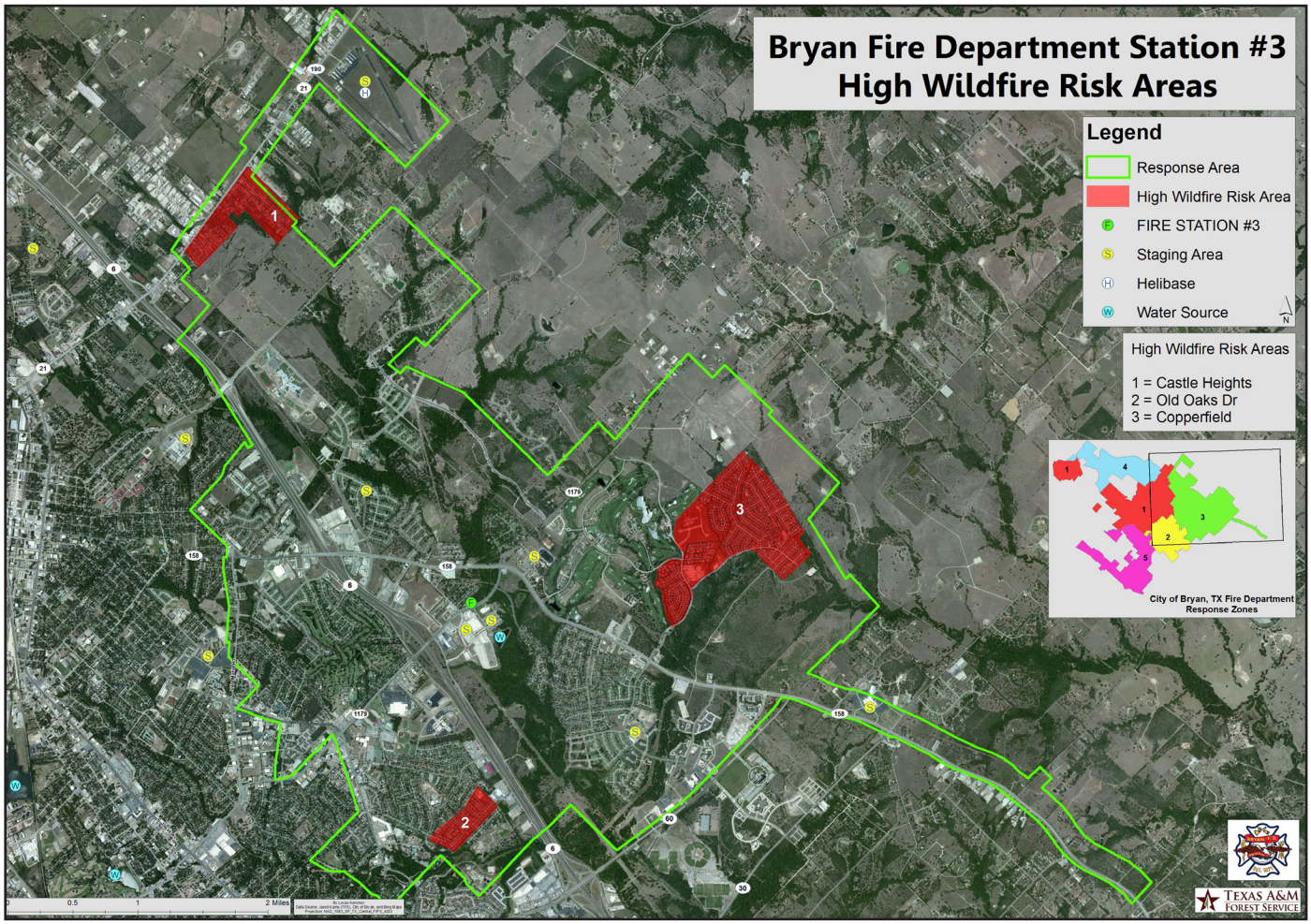
Tanglewood Drive and Midwest Street
N 30° 38' 47
W 96° 20' 22"

The Tanglewood/Midwest area has an open, unmaintained field surrounded by housing. The primary fuel type is short and tall grasses. The primary threat is fast-moving grass fires that ignite combustible attachments, including fences, and begin igniting homes before fire personnel arrive. Access is good.

Mitigation Strategies:
- Public education (target home construction, defensible space)
- Fuels reduction: grazing

Risk Assessment Findings by Zone

Response Zone 3



Eleven individual risk assessments were conducted in Response Zone 3, which is covered by Fire Station No. 3 at 3211 Briarcrest Drive.

Of the 11 neighborhoods assessed, three were high risk, seven were moderate risk and one was low risk. The high-risk neighborhoods include 1,100 homes on 366 acres with an estimated total value of $165,420,349.

Several mitigation strategies were identified for this response zone, including the following:

- Ingress/egress plan
- Fuels reduction: mechanical, hand clearing, prescribed fire and grazing
- Public education (targeting things like combustible attachments, building materials, defensible space, fuels management, home construction and Ready, Set, Go!)
- Signage (evacuation, fire danger, etc.)
- Structure protection plan

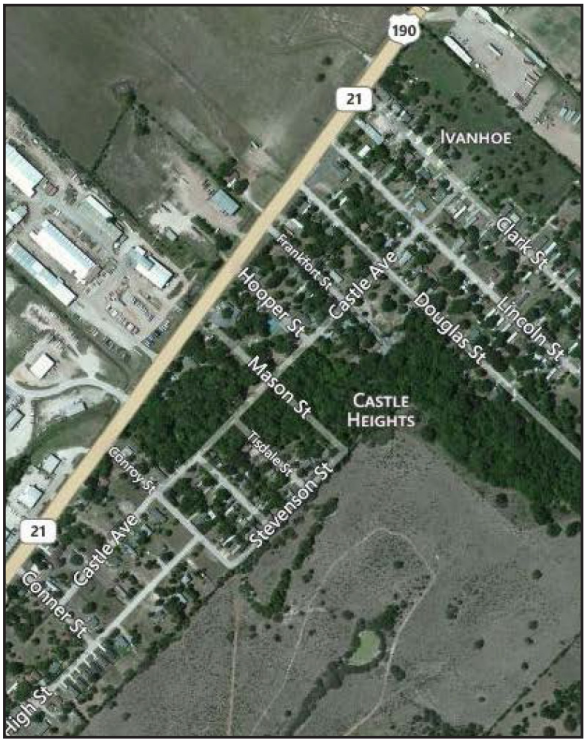
1. Castle Heights

High Risk
75 points

Castle Avenue and Clark Street
N 30° 42’ 25”
W 96° 20’ 47”

Values at Risk:
- 250 homes
- $6,471,019 total value
- 82 acres

Castle Heights is along the southern edge of Highway 21 East. The neighborhood is surrounded by wildland fuels (short and tall grasses, oak and juniper). The southwestern edge of the neighborhood has the most dense woody vegetation vs. the east side which is primarily flashy fuels with pockets of shrub and timber.



Castle Heights has multiple points of ingress/egress but all nearby exits connect with Highway 21 to the north. The other option for evacuation would be to connect to Highway 6 (to the west). Egress could be challenging with a fire burning from north to south (into the development from Highway 21). Most homes in this neighborhood have combustible attachments and there are no hydrants on site.

Mitigation Strategies:

Ingress/Egress Plan
- Access points are from Highway 21 to Clark Street, Lincoln Street and Mason Street.
- An estimated 250 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space and Ready, Set, Go!

2. Old Oaks Drive

High Risk
67 points

Old Oaks Drive/Barak Lane and Old Oaks Drive/ Briar Oaks Drive
N 30° 38’ 38”
W 96° 19’ 28”

Values at Risk:
- 125 homes
- $16,514,300 total value
- 34 acres

The Old Oaks neighborhood includes Old Oaks Drive and Valley Oaks Drive. Highway 6 is to the east of the neighborhood and Burton Creek is to the south. The wildland area that lies to the south of Old Oaks (approximately 80 acres) is primarily grasslands with pockets of yaupon, juniper and oak. The wooded areas directly adjacent to homes along these streets are dense with ladder fuels (yaupon). Along with the fuels, combustible attachments present a risk to this area.

The primary threat to Old Oaks is fast-moving grass fires igniting homes before fire personnel arrive. The potential for group torching and spot fires is elevated during fire weather conditions (drought, low fuel moistures, windy days, low relative humidity, etc.)

Mitigation Strategies:

Fuels Reduction

- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching and grazing due to fuel types (grass, yaupon, juniper and oak).

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space and fuels management.

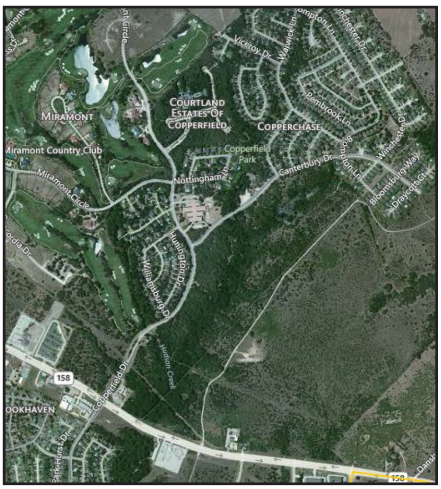
3. Copperfield

High Risk
60 points

Copperfield Drive and Canterbury Drive
N 30° 40’ 07”
W 96° 17’ 52”

Values at Risk:
- 725 homes
- $142,435,030 total value
- 250 acres

Copperfield is a densely populated neighborhood along the eastern boundary of the City of Bryan. The main entrance road (Copperfield Drive) intersects with F.M. 1179 to the north and F.M. 158 to the south. While the subdivision has pockets of thick fuels, the primary threats are to the north, east and southeast.



This area is dominated by flashy fuels (approximately 3,000 acres) that will burn rapidly and intensely under the right weather conditions. The neighborhood also has several cul-de-sacs and dead ends as well as one egress to Copperfield Drive (surrounded by dense fuels). Homes are built with combustible attachments.

Mitigation Strategies:

Ingress/Egress Plan
- Access points are from F.M. 158 to Copperfield Drive and F.M. 1179 to Miramont Circle.
- An estimated 725 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

Structure Protection Plan
- An estimated 725 homes are at risk in this area.
- Primary threat during a wildfire: Homes that interface with wildland areas on the northwest, north, northeast and eastern edges of the neighborhood.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire and identify safety zones for firefighters.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood’s evacuation route to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space and Ready, Set, Go!

Signage – Signage is needed to identify evacuation routes during smoky conditions.

4. Red Robin

Moderate Risk
53 points

Red Robin Loop and Wildflower Drive
N 30° 40' 01"
W 96° 19' 26"

The Red Robin neighborhood has a dense pocket of fuels (20 acres) surrounding the area to the east and north. Fuels include short and tall grasses mixed with oak and juniper. The primary threat would be a grass fire that ignites the fence line or other combustible attachments. Response time from Station 3 is minimal as it backs up to Red Robin.

Mitigation Strategies:
- Public education (target home construction, defensible space, fuels management)
- Fuels reduction: mechanical, hand clearing

5. Wheeler Ridge

Moderate Risk
50 points

Green Valley Drive and Meadowbrook Drive
N 30° 39' 45"
W 96° 18' 51"

The major threat to Wheeler Ridge is the (approximately) 330 acres that border the eastern edge of the neighborhood. The vegetation is dense with juniper, oak, grass and some yaupon. The major threat would be from ember intrusion and spotting from the heavier fuels. Direct flame contact could potentially threaten the first row of homes adjacent to the wildland area. Other important factors to consider are limited access and the scope of the interface area (approximately 2 miles).

Mitigation Strategies:
- Fuels reduction: mechanical, hand clearing
- Public education (target defensible space, construction materials, fuels management)
- Structure protection plan

6. Austin's Colony

Moderate Risk
49 points

F.M. 158 and Austin's Colony Parkway
N 30° 40' 19"
W 96° 19' 59"

Austin's Colony is bordered by approximately 100 acres of wildland fuels along its northern and eastern edges. Primary fuels are short and tall grasses, juniper and oak. There are several points of access, but there also are several dead-end streets. Homes are built with noncombustible materials and defensible space is prevalent. The concern would be a wildfire burning into the eastern edge of the neighborhood. Considering the fuels, access, water sources and home construction, the first two rows of homes (adjacent to the wildlands) would face the most significant threat.

Mitigation Strategies:
- Ingress/egress plan
- Structure protection plan
- Fuels reduction: mechanical, prescribed fire, grazing
- Public education (target Ready, Set, Go!, fuels management)

7. Siena

Moderate Risk
48 points

Old Reliance Road
N 30° 42' 03"
W 96° 20' 04"

Siena is a relatively new subdivision with undeveloped lots. The primary fuels surrounding the area are short and tall grasses. There is a pocket of woods to the southeast of the neighborhood that poses no threat to homes at this time. A major concern is a single point of access, meaning that fire resources could be entering the area while residents are attempting to evacuate. Considering the fuel types in this area, a fire near this neighborhood would most likely burn rapidly.

Mitigation Strategies:
- Public education (target Ready, Set, Go!, fuels management)
- Ingress/egress plan
- Fuels reduction: grazing

8. Tiffany Park

Moderate Risk

47 points

Tiffany Park and Copperfield Drive
N 30° 39' 33"
W 96° 18' 14"

Tiffany Park is bordered by a neighborhood to the west and south and by commercial property to the north. The area of concern is a wooded area (approximately 35 acres) to the east. There also is a wooded area across F.M. 158 to the northeast, but a fire would have to cross F.M. 158 to pose a risk. A major concern with the east side of Tiffany Park would be under elevated fire conditions. Fires that start in this area could produce group torching and spotting. The primary threats would be ember intrusion and direct flame contact to the row of homes immediately adjacent to the wildland area.

Mitigation Strategies:

- Public education (target defensible space, building materials, fuels management, Ready, Set, Go!)
- Fuels reduction: mechanical, hand clearing
- Structure protection/access

9. Oak Forest Drive

Moderate Risk

47 points

Oak Forest Drive and F.M. 1179
N 30° 40' 24"
W 96° 18' 59"

The Oak Forest development is located to the east of Austin's Colony along F.M. 1179. There are two points of access to F.M. 1179 for ingress and egress, but these routes also have dense fuels that could limit access if burning occurs. The area is surrounded by wildland fuels to the west, north and east. Most of the fuels are juniper, oak and grasses. The fuels intermixed with the development provide a route for fire to pass through.

Mitigation Strategies:

- Public education (target: defensible space, fuels management, Ready, Set, Go!)
- Fuels reduction: mechanical, hand clearing
- Ingress/egress plan

10. Austin's Estates

Moderate Risk

34 points

Austin's Estates Drive and Austin's Landing
N 30° 41' 40"
W 96° 19' 33"

Austin's Estates is located to the north of Austin's Colony. Homes in this area are on large plots of land and have good defensible space. The primary fuels surrounding the western and northern parts of the neighborhood are oak and juniper. The fuels to the east and south are grasses with pockets of juniper and oak. The major threat for Austin's Estates would be a fast-moving grass fire that could potentially ignite combustible attachments.

Mitigation Strategies:

- Public education (target home construction, defensible space)
- Fuels reduction: grazing

11. Miramont

Low Risk

24 points

Miramont Boulevard and F.M. 158
N 30° 40' 03"
W 96° 18' 51"

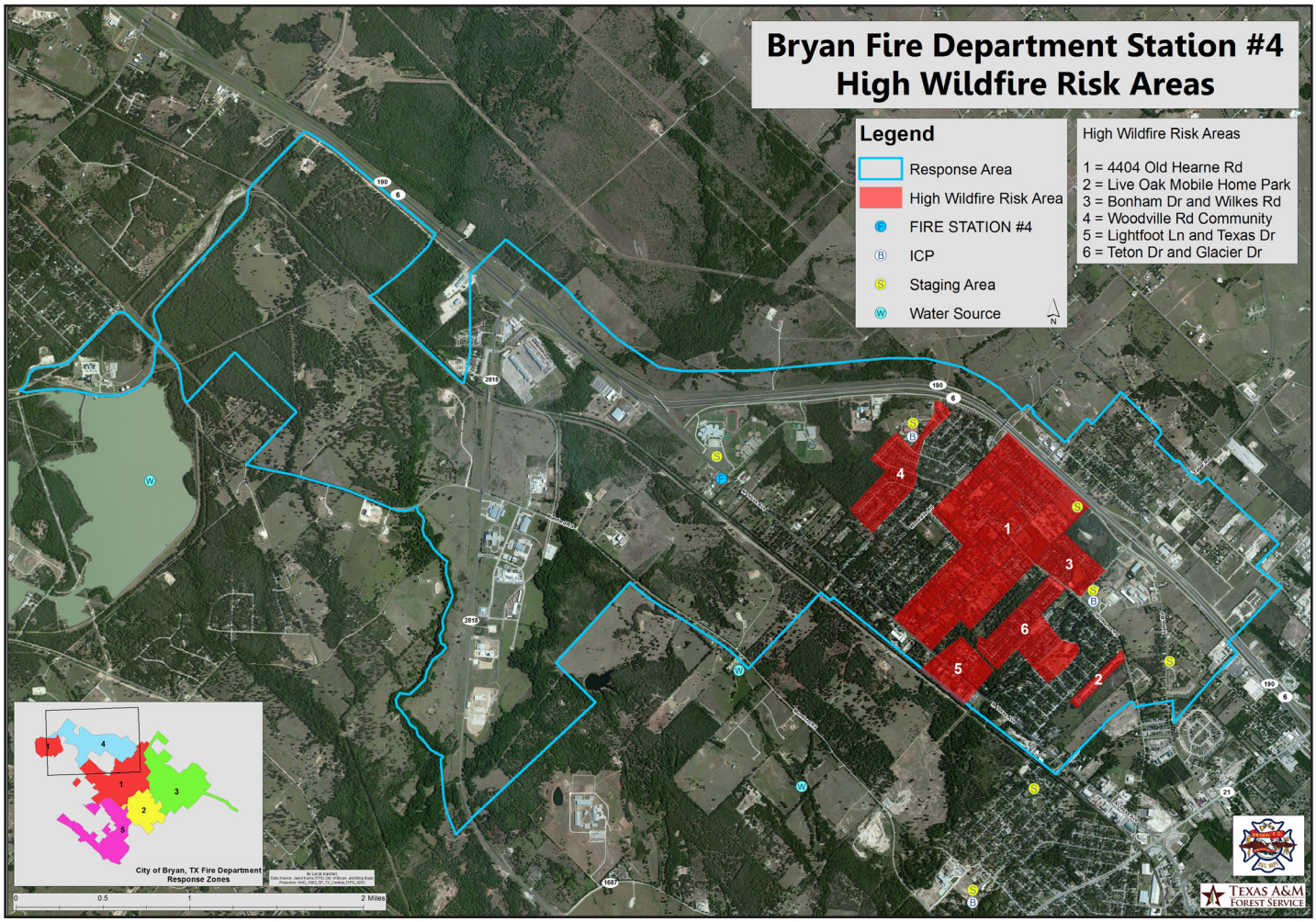
The neighborhood is surrounded by wildland fuels which are fragmented by a golf course. Homes are built with noncombustible materials and defensible space is well-maintained. There are several points of access. The primary threat to Miramont is smoke drift from wildland incidents.

Mitigation Strategies:

- Public education (target Ready, Set, Go!)

Risk Assessment Findings by Zone

Response Zone 4



Nine individual risk assessments were conducted in Response Zone 4, which is covered by Fire Station No. 4 at 5429 North Texas Avenue.

Of the nine neighborhoods assessed, six were high risk and three were moderate risk. The high-risk neighborhoods include 662 homes on 537 acres with an estimated total value of $66,723,889. (*Parcel data was not available for Live Oak Mobile Home Park, so it is unclear how many homes are in that area).

Several mitigation strategies were identified for this response zone, including the following:

- Structure protection plan
- Public education (targeting things like building materials, combustible attachments, fuels management, defensible space, home construction and Ready, Set, Go!)
- Fuels reduction: mechanical, hand clearing, grazing and selective thinning
- Ingress/egress plan

1. 4404 Old Hearne Road

High Risk
85 points

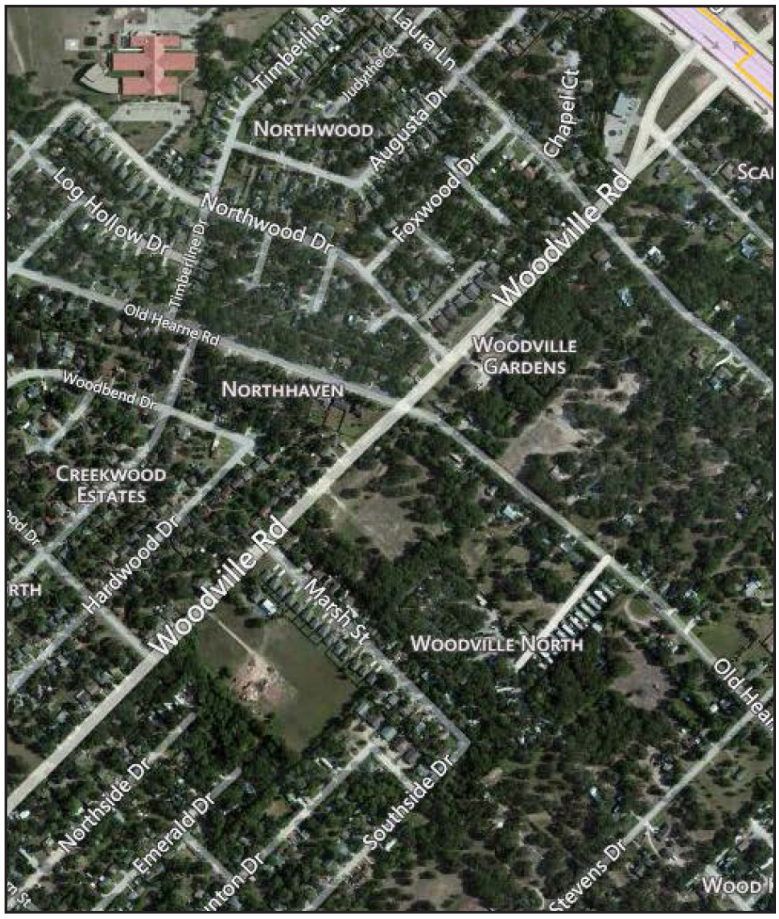
4404 Old Hearne Road
N 30° 42’ 42”
W 96° 23’ 10”

Values at Risk:
- 160 homes
- $17,933,229 total value
- 240 acres

The 4404 Old Hearne Road area is intermixed with wildland fuels to the north and south. The neighborhood has only one point of access to Old Hearne Road, creating challenges for ingress/egress.

The fuels surrounding the neighborhood consist of dense yaupon, oak and juniper and the majority of the homes have less than 30 feet of defensible space.

Homes are built with vinyl skirting and combustible attachments, making them vulnerable to radiant heat and direct flame contact.



Mitigation Strategies:

Structure Protection Plan

- An estimated 160 homes are at risk in this area.
- Primary threat during a wildfire: Homes that intermix with the wildland area.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire and identify safety zones for firefighters.

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space and Ready, Set, Go!

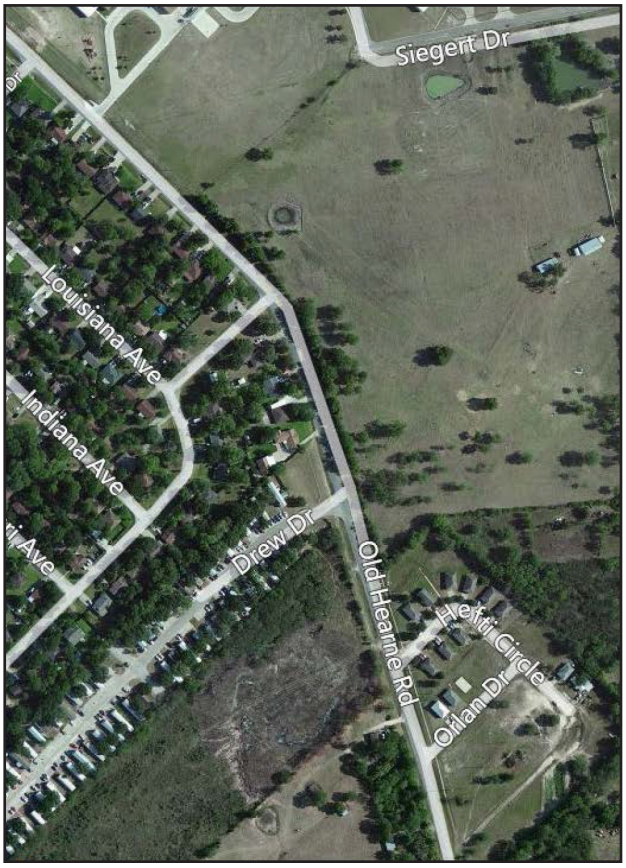
2. Live Oak Mobile Home Park

High Risk
83 points

Old Hearne Road and Drew Drive
N 30° 42’ 05”
W 96° 22’ 29”

Values at Risk:
- No individual parcel data
- $734,000 total value
- 10 acres

The Live Oak Mobile Home Park is north of an approximately 50-acre field that transitions from short and tall grasses to dense brush immediately adjacent to homes. The majority of homes in the area are built with vinyl skirting and combustible attachments. This makes direct flame contact and radiant heat major threats.



Ember intrusion also can be a threat considering the majority of homes have less than 25 feet of defensible space. Access also is an issue as there is only one exit point.

Mitigation Strategies:

Structure Protection Plan
- Primary threat during a wildfire: Homes that interface with wildland areas to the south.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire and identify safety zones for firefighters.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching and grazing due to fuel types (grass, yaupon, juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space and Ready, Set, Go!

3. Bonham Drive and Wilkes Street

High Risk
77 points

Bonham Drive and Wilkes Street
N 30° 42’ 26”
W 96° 22’ 36”

Values at Risk:
- 93 homes
- $8,434,590 total value
- 28 acres

The Bonham Drive neighborhood is adjacent to a 25-acre section of undeveloped land. The fuels consist primarily of oak, juniper, yaupon and grasses. There is just one point of access to the south (Wilkes Street).

Most of the homes are built with combustible attachments and few have more than 25 feet of defensible space. A major concern is an ignition from the east side of the development burning into the first row of homes that interfaces with the woods. During a wildfire, the primary threats would be ember intrusion and direct flame contact.

Mitigation Strategies:

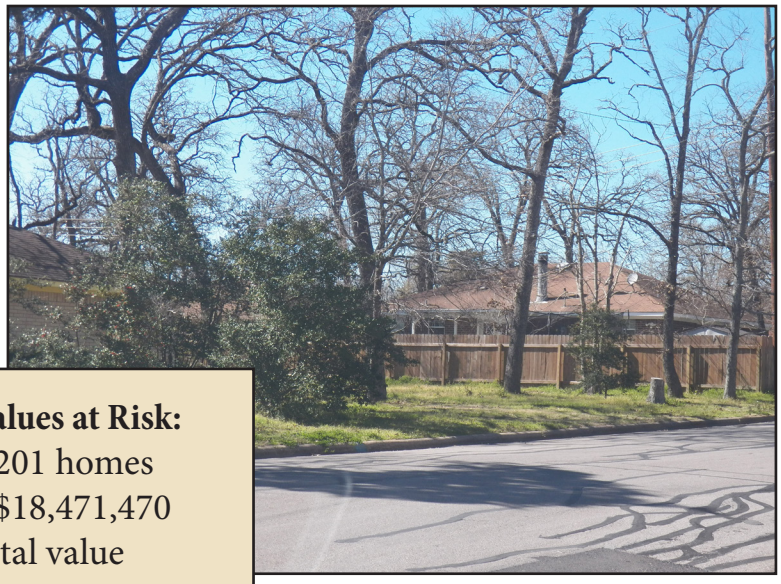
Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space, fuels management and Ready, Set, Go!

Ingress/Egress Plan
- An access point is from Wilkes Street to Bonham Drive.
- An estimated 93 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

4. Woodville Road

High Risk
65 points

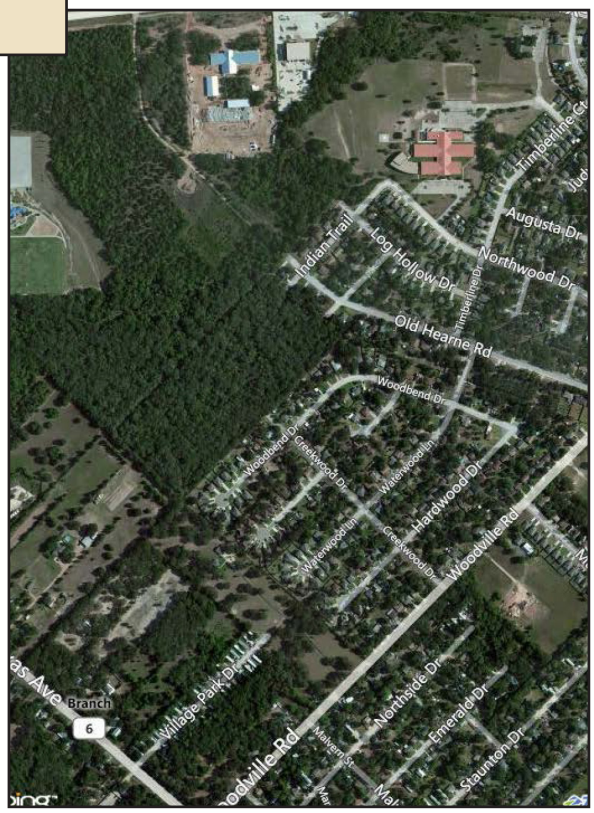


Woodbend Drive, Indian Trail, Timberline Court
N 30° 42’ 56”
W 96° 23’ 43”

The Woodville Road neighborhood is to the north of Woodville Road and bordered by approximately 140 acres of wildland fuels. The majority of the fuels consist of dense brush (juniper, oak and yaupon) and a grassy understory.

Values at Risk:
- 201 homes
- $18,471,470 total value
- 181 acres

Most homes have at least 30 feet of defensible space and are built with noncombustible materials. However, there are several combustible privacy fences throughout the neighborhood that are vulnerable to direct flame contact.



Access is limited as there are several dead-end roads. During a wildfire, the primary threat would be to the first rows of homes that interface with the wildland. Ember intrusion and direct flame contact would be the greatest threats.

Mitigation Strategies:

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space, fuels management and Ready, Set, Go!

Ingress/Egress Plan
- Access points are from Woodville Road to Creekwood Drive, Old Hearne Road and Laura Lane.
- An estimated 201 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

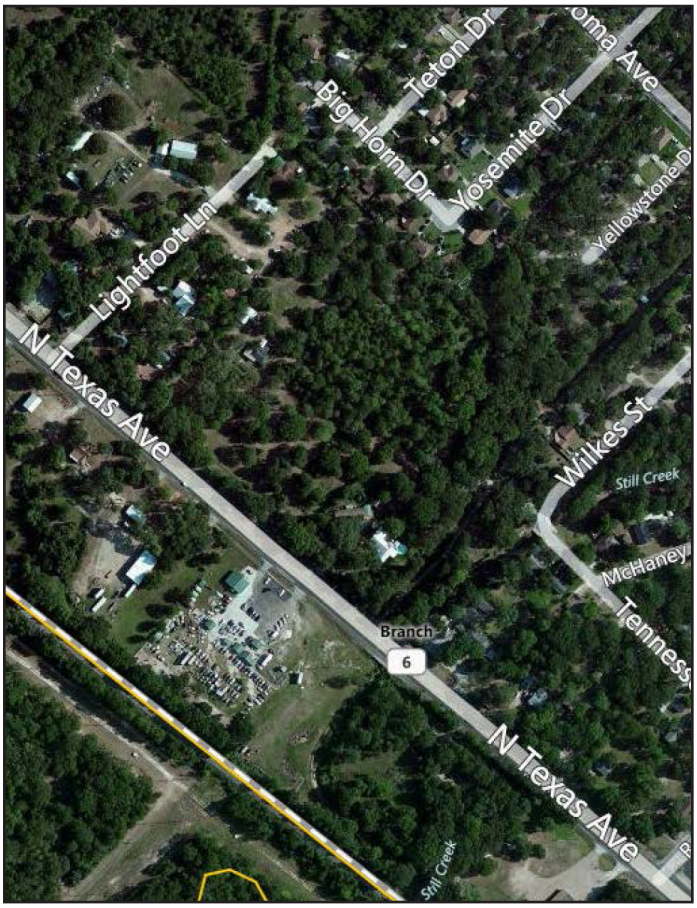
5. Lightfoot Lane and Texas Avenue

High Risk
64 points

Lightfoot Lane and Texas Avenue
N 30° 42’ 02”
W 96° 23’ 19”

Values at Risk:
- Eight homes
- $1,020,630 total value
- 28 acres

The Lightfoot Lane neighborhood is intermixed with wildland fuels and bordered by wildland areas to the north and south (approximately 85 acres). The neighborhood has only one access point to the southwest (Texas Avenue). The primary fuel types are short and tall grasses mixed with oak and juniper. The potential threat for this neighborhood would be for a fire to spread through the contiguous fuels and ignite combustible attachments. Ember intrusion also is a concern.



Mitigation Strategies:

Ingress/Egress Plan
- Access points are from Texas Avenue to Lightfoot Lane.
- An estimated eight homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching and selective thinning due to fuel types (yaupon, juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space, fuels management and Ready, Set, Go!

6. Teton Drive/Glacier Drive

High Risk

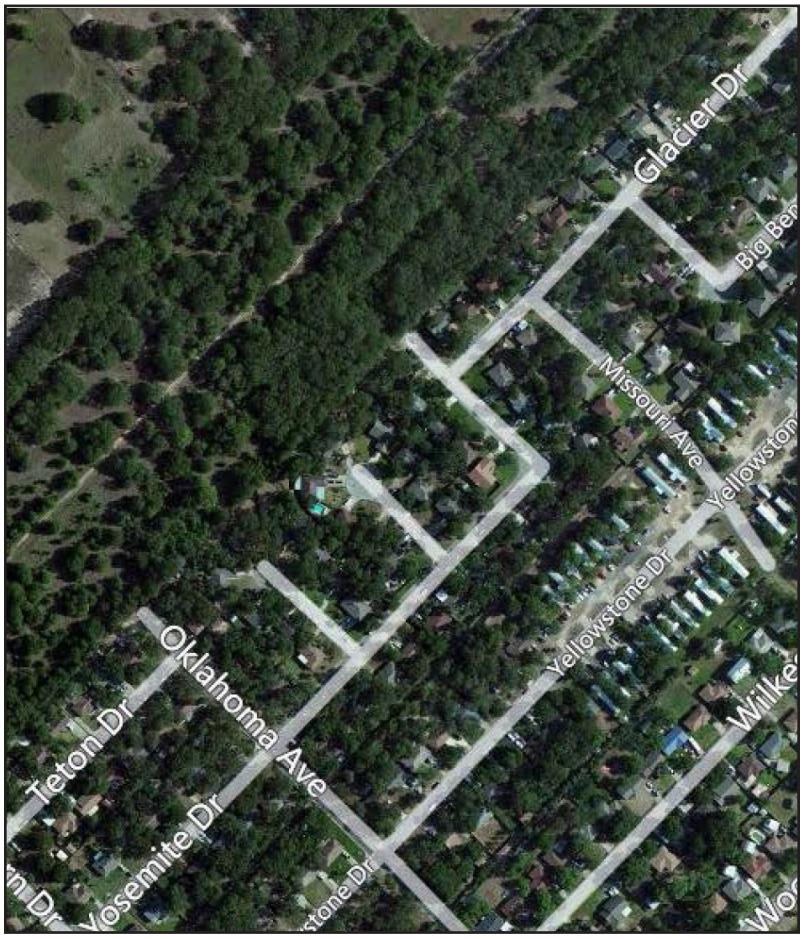
60 points

Teton Drive/Oklahoma Avenue and Glacier Drive/ Missouri Avenue
N 30° 42’ 11”
W 96° 23’ 06”

Values at Risk:
- 200 homes
- $20,129,970 total value
- 50 acres

The Teton Drive and Glacier Drive area interfaces with 90 acres of wildland fuels. The fuels are dense brush that consist of juniper, oak, yaupon and grasses.

Most of the homes have defensible space but also have combustible attachments. During a wildfire, the primary threats would be direct flame contact and ember intrusion to the first row or two of homes.



Mitigation Strategies:

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, fuels management and Ready, Set, Go!

Fuels Reduction

- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

7. Kim Street and Candy Lane

Moderate Risk
57 points

Kim Street and Old Hearne Road
N 30° 42’ 25”
W 96° 22’ 47”

The Kim Street neighborhood is bordered by 10 acres of wildland fuels to the north and west. The area has two points of access that connect to Old Hearne Road. The fuels intermixed with and surrounding the neighborhood are juniper, oak, yaupon and grass. During a wildfire, the primary threats would be direct flame contact and ember intrusion. Most homes have combustible attachments, primarily fences.

Mitigation Strategies:
- Public education (target building materials, Ready, Set, Go!, combustible attachments)
- Fuels reduction: mechanical, hand clearing
- Ingress/egress plan

8. Rabbit Lane

Moderate Risk
49 points

Rabbit Lane and Stevens Drive
N 30° 43’ 09”
W 96° 22’ 26”

The Rabbit Lane neighborhood is bordered by open fields to the east (approximately 240 acres) The primary fuel type is short and tall grass with pockets of juniper and oak. Homes within the Rabbit Lane area are spread out and intermixed with vegetation. Most of the yards are kept watered and grass is cut short. Some homes are built with combustible attachments, but most are defendable and access is good. The primary threat would be a fast-moving grass fire that ignites combustible attachments.

Mitigation Strategies:
- Public education (target Ready, Set, Go!, combustible attachments)
- Fuels reduction: grazing
- Structure protection plan (due to homes being spread out)

9. Stevens Drive

Moderate Risk
47 points

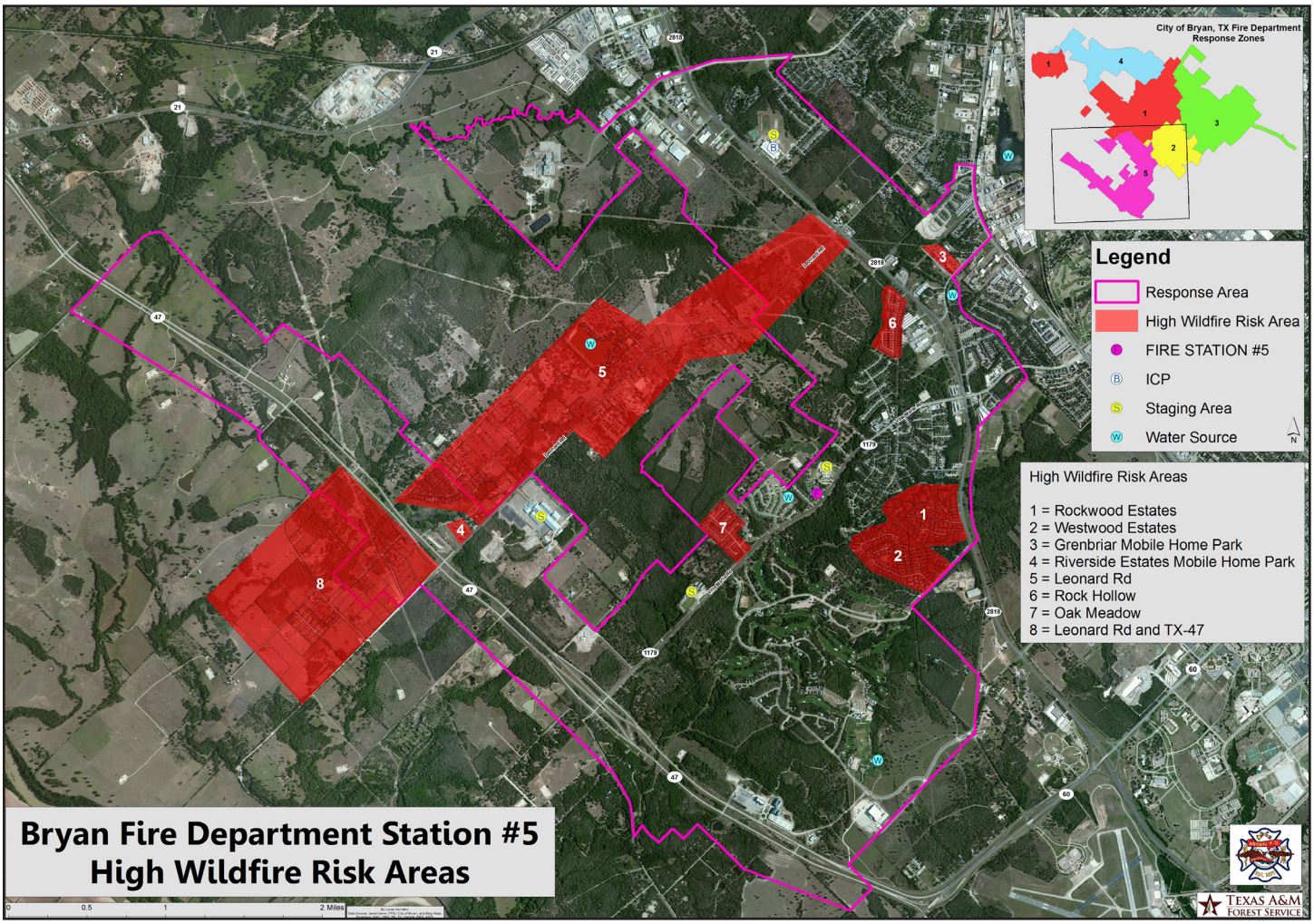
Stevens Drive/Texas Avenue and Stevens Drive/Old Hearne Road
N 30° 42’ 23”
W 96° 23’ 17”

The Stevens Drive neighborhood is intermixed with juniper and oak fuels. Most of the homes are built with some kind of combustible attachment. The grasses in yards surrounding the homes are kept short and watered. The potential for home ignition is minimal and the primary threats of ember intrusion and direct flame contact would be from the southern edge.

Mitigation Strategies:
- Public education (target construction materials, fuels management, combustible attachments)

Risk Assessment Findings by Zone

Response Zone 5



Eleven individual risk assessments were conducted in Response Zone 5, which is covered by Fire Station No. 5 at 2052 West Villa Maria Road.

Of the 11 neighborhoods assessed, eight were high risk and three were moderate risk. The high-risk neighborhoods include 524 homes on 1,662 acres with an estimated total value of $82,907,867. (*Parcel data was not available for Greenbriar or Riverside mobile home parks, so it is unclear how many homes are in those areas).

Several mitigation strategies were identified for this response zone, including the following:

- Structure protection plan
- Public education (targeting things like defensible space, building materials, combustible attachments, fuels management, home construction and Ready, Set, Go!)
- Fuels reduction: mechanical, hand clearing and grazing
- Ingress/egress plan
- Evacuation route markings

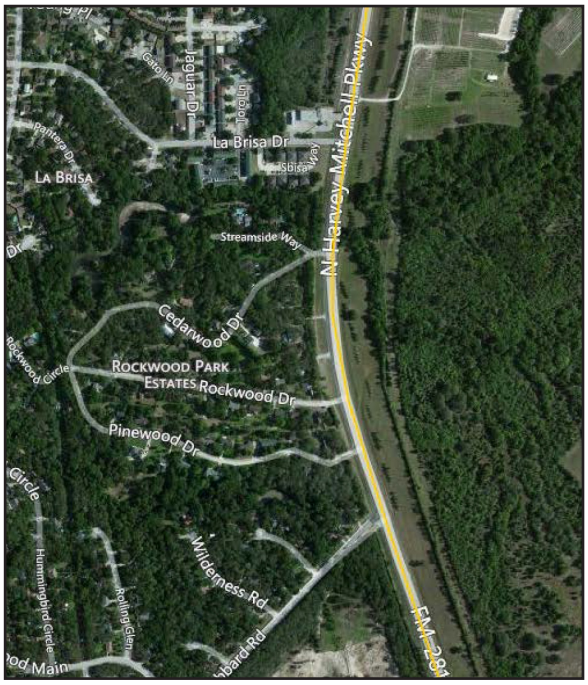
1. Rockwood Estates

High Risk
81 Points

Values at Risk:
- 76 homes
- $10,522,700 total value
- 65 acres

Rockwood Drive and F.M. 2818
N 30° 37’ 15”
W 96° 22’ 37”

The Rockwood Estates neighborhood is surrounded by and intermixed with wildland fuels. The primary fuel types are yaupon, juniper and oak, and the fuels are dense. Most homes have little to no defensible space and are built with some type of combustible attachment.



Threats under elevated fire weather conditions include direct flame contact, embers and radiant heat. The fuels also are somewhat contiguous throughout the neighborhood, allowing the potential for a fire to spread.

Mitigation Strategies:

Structure Protection Plan
- An estimated 76 homes are at risk in this area.
- Primary threat during a wildfire: Homes that interface with wildlands on the north and south edges.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire and identify safety zones for firefighters.

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space, fuels management and Ready, Set, Go!

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that intermix with the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

Ingress/Egress Plan
- Access points are from F.M. 2818 to Rockwood Drive, Cedarwood Drive and Pinewood Drive.
- An estimated 76 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

2. Westwood Estates

High Risk
76 points

Values at Risk:
- 120 homes
- $19,092,967 total value
- 67 acres

Westwood Main and
Gabbard Road
N 30° 36’ 57”
W 96° 22’ 48”

The Westwood Estates neighborhood is surrounded by and intermixed with wildland fuels. The primary fuel types are yaupon, juniper and oak and the fuels are dense.

Most homes have little to no defensible space and are built with some type of combustible attachment. Threats under elevated fire weather conditions include direct flame contact, embers and radiant heat. The fuels also are somewhat contiguous throughout the neighborhood, allowing the potential for a fire to spread.

Mitigation Strategies:

Structure Protection Plan
- An estimated 120 homes are at risk in this area.
- Primary threat during a wildfire: Homes that intermix with wildlands.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire and identify safety zones for firefighters.

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, defensible space, fuels management and Ready, Set, Go!

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (yaupon, juniper and oak).

Ingress/Egress Plan
- Access points are from Gabbard Road to Westwood Main and F.M. 1179 to Shirewood Drive.
- An estimated 120 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

3. Greenbriar Mobile Home Park

High Risk
75 points

Greenbriar Circle and Turkey Creek Road
N 30° 38’ 28”
W 96° 22’ 38”

Values at Risk:
- No individual parcel data
- $332,620 total value
- 8 acres

The Greenbriar Mobile Home Park is bordered by wildland fuels to the west. The fuels are primarily grasses with juniper and oak.

Homes within this neighborhood have vinyl skirting and combustible attachments, making them vulnerable to direct flame contact and radiant heat. Access also may be a challenge for firefighters and equipment.

Mitigation Strategies:

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, fuels management and Ready, Set, Go!

Ingress/Egress Plan
- Access points are from Turkey Creek Road to Greenbriar Circle.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

4. Riverside Estates Mobile Home Park

High Risk
71 points

Values at Risk:
- No individual parcel data
- $837,390 total value
- 35 acres

Leonard Road and Meg Lane
N 30° 37' 10"
W 96° 25' 22"

Riverside Estates Mobile Home Park is next to a large area of wildland fuels off Leonard Road. The primary fuel intermixed with the neighborhood is grass, but there are some pockets of dense brush (juniper and oak).

For the most part, homes have good defensible space. However, most of the homes also have vinyl skirting and combustible fences and decks, making them vulnerable to embers, direct flame contact and radiant heat.

Mitigation Strategies:

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (juniper and oak).

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, fuels management and defensible space.

5. Leonard Road (East) and Highway 47

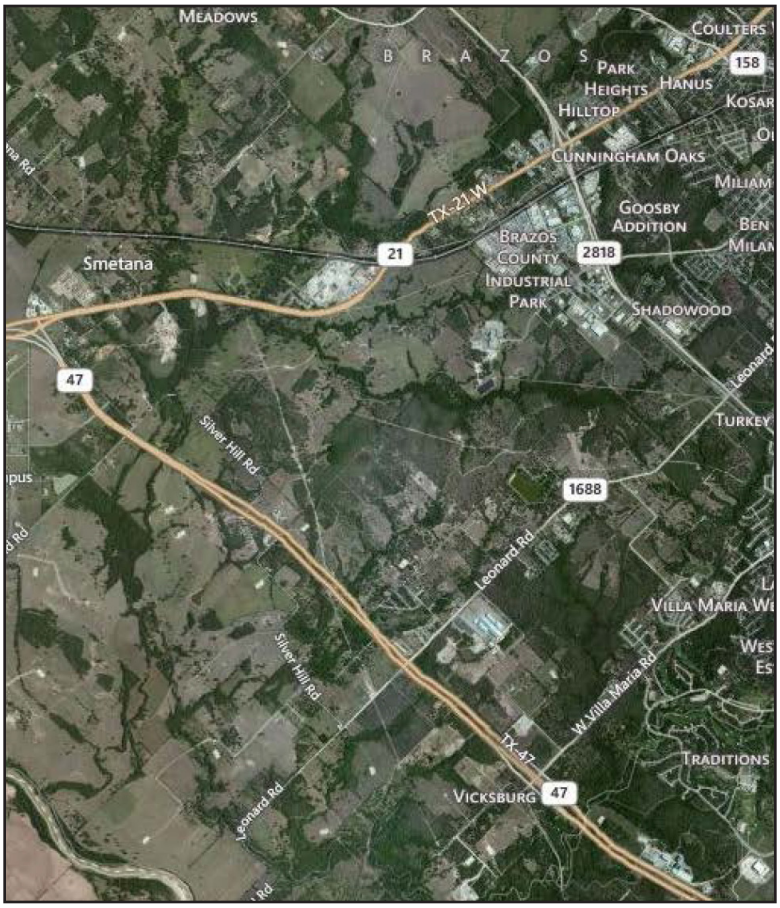
High Risk
68 points

Leonard Road/F.M. 2818 and
Leonard Road/Highway 47
N 30° 38' 03"
W 96° 24' 21"

Values at Risk:
- 125 homes
- $18,102,030 total value
- 1,060 acres

The Leonard Road neighborhood is intermixed with grass, yaupon, juniper and oak. Most of the homes have good defensible space and most are built with noncombustible materials.

The majority of the homes have combustible attachments, making them vulnerable to direct flame contact. Access to homes along Leonard Road is good, presenting no major challenges in the event of an evacuation. There are several potential water sources and a large staging area for resources along Leonard Road.



Mitigation Strategies:

Fuels Reduction

- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment methods: Mulching and grazing due to fuel types (grass, juniper and oak).

Public Education

- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, fuels management and Ready, Set, Go!

6. Rock Hollow Place

High Risk
65 points

Rock Hollow Place and
F.M. 2818
N 30° 38’ 20”
W 96° 22’ 56”

Values at Risk:
- 39 homes
- $9,214,950 total value
- 16 acres

The Rock Hollow Place neighborhood is bordered by wildland fuels consisting primarily of yaupon, juniper and oak to the west. The area has only one point of access to the north (F.M. 2818).

While there are dense fuels that interface with the homes, most homes have good defensible space and are built with noncombustible materials. During a wildfire, a major concern would be direct flame contact igniting the combustible privacy fence that connects homes within the neighborhood.

Mitigation Strategies:

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, fuels management and Ready, Set, Go!

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (juniper and oak).

Ingress/Egress Plan
- Access points are from F.M. 2818 to Rockhollow Place.
- An estimated 39 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

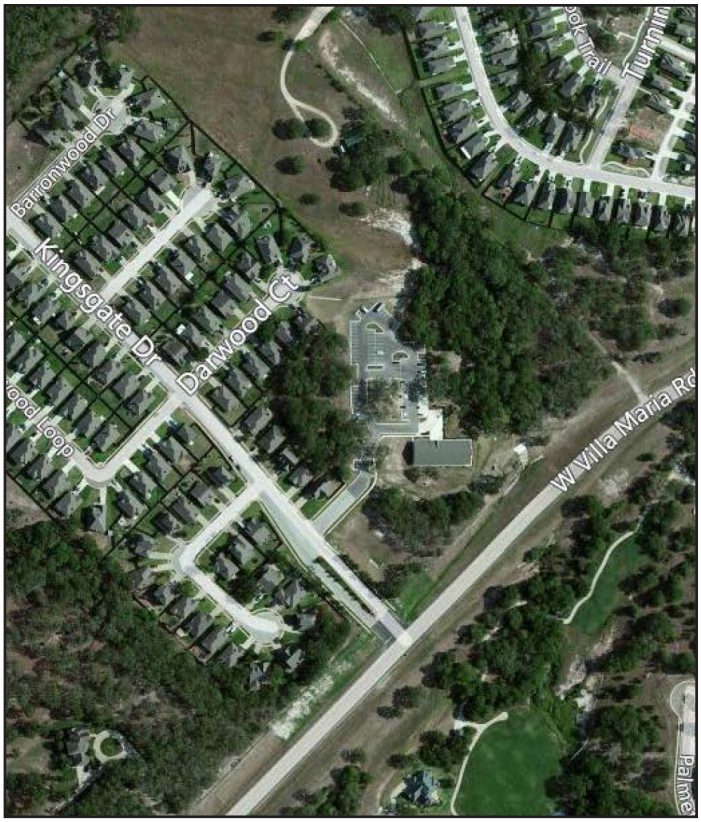
7. Oak Meadow

High Risk
63 points

Kingsgate Drive and F.M. 1179
N 30° 37’ 06”
W 96° 23’ 49”

The Oak Meadow neighborhood interfaces with a large area of wildland fuels (800-plus acres). The primary fuels are grass, yaupon, juniper and oak.

Values at Risk:
- 112 homes
- $17,973,320 total value
- 22 acres



Most of the homes are built with noncombustible materials and have good defensible space. However, combustible privacy fences are prevalent. There is one point of access to the area (Kingsgate and F.M. 1179), which could present challenges for incoming resources and in the event evacuations are necessary.

The primary threats would be direct flame contact and ember intrusion from a large fire in the area north and west of the neighborhood.

Mitigation Strategies:

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Building materials, fuels management and Ready, Set, Go!

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Mulching due to fuel types (juniper and oak).

Ingress/Egress Plan
- Access points are from F.M. 1179 to Kingsgate Drive.
- An estimated 112 homes are in this area.
- Project goal: Identify a method to safely evacuate residents while providing a clear route of entry for fire personnel.

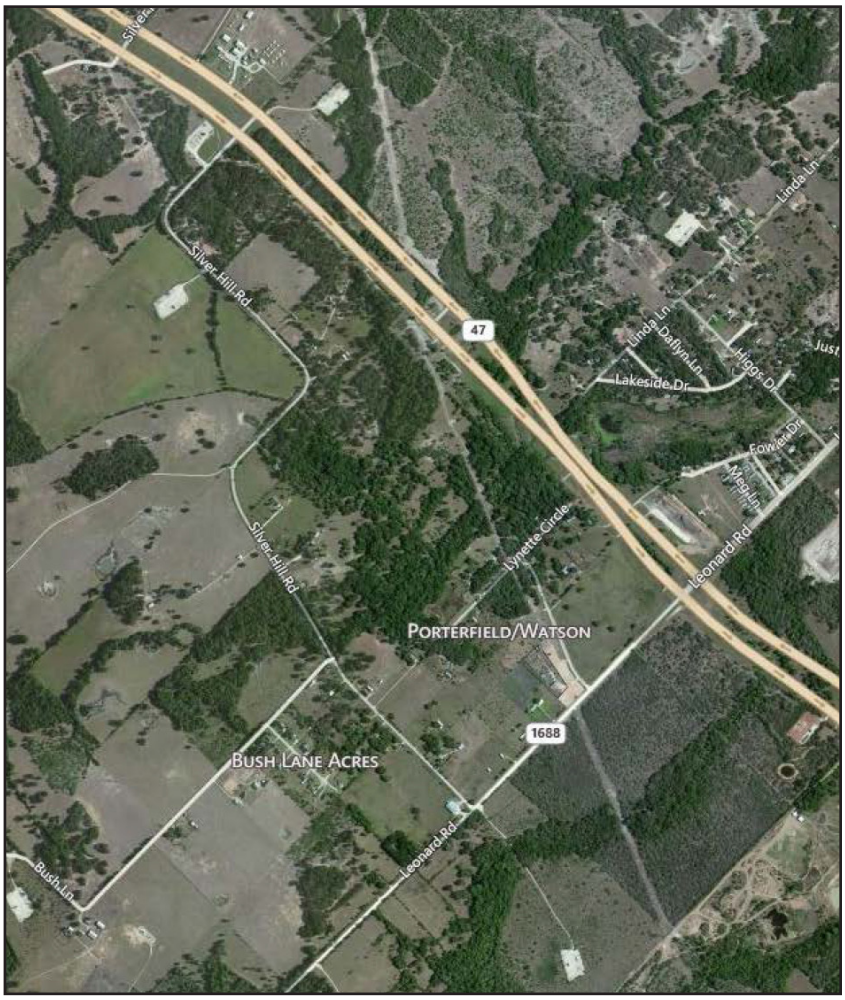
8. Leonard Road (West) and Highway 47

High Risk
60 points

Values at Risk:
- 52 homes
- $6,831,890 total value
- 389 acres

Leonard Road/Highway 47 and
Leonard Road/Silver Hill Road
N 30° 36’ 53”
W 96° 25’ 41”

The Leonard Road (West) neighborhood is on the west side of Highway 47. Most of the homes are intermixed with grass, juniper and oak but have good defensible space. Combustible attachments are prevalent, making homes vulnerable to direct flame contact. Access is good. During a wildfire, the primary threat would be direct flame contact.



Mitigation Strategies:

Public Education
- Project goal: Target specific hazards in the area and raise public awareness.
- Public education opportunities: Combustible attachments and Ready, Set, Go!

Fuels Reduction
- Project goal: Reduce ladder fuels and fuel loading that border the neighborhood to give firefighters a safer area to work and modify the expected fire behavior.
- Effective treatment method: Grazing due to fuel types (grass, juniper and oak).

Structure Protection Plan
- An estimated 52 homes are at risk in this area.
- Primary threat during a wildfire: Homes that intermix with the wildland area.
- Project goal: Identify the type and number of engines needed to protect or prepare homes in the event of a wildfire and identify safety zones for firefighters.

9. Autumn Lake

Moderate Risk

58 points

Chick Lane and F.M. 1179
N 30° 37' 13"
W 96° 23' 38"

Autumn Lake borders the same 800-plus-acre wildland area as the Oak Meadow subdivision. Autumn Lake has a break in fuels along the northern edge of the neighborhood (homes also are intermixed). This break in fuels provides a space for firefighters to work safely and attack a potential wildfire. Most homes in Autumn Lake are built with noncombustible materials and have good defensible space. There are two points of access (F.M. 1179 and Chick Lane). The primary threats are direct flame contact and ember intrusion.

Mitigation Strategies:

- Public education (target combustible attachments, Ready, Set, Go!)
- Ingress/egress plan

10. Rosewood/La Brisa

Moderate Risk

58 points

Shirewood Drive and F.M. 1179
N 30° 37' 38"
W 96° 23' 09"

The Rosewood/La Brisa area is intermixed with fuels (grass, yaupon, juniper and oak). Most of the homes are built with noncombustible materials and have good defensible space. There are several points of access. The primary concern in the area is combustible attachments. There also are some areas with dense vegetation that could produce a lot of radiant heat. Direct flame contact is the primary threat.

Mitigation Strategies:

- Public education (Ready, Set, Go!, combustible attachments, fuels management)
- Fuels reduction: hand clearing throughout neighborhood

11. Traditions

Moderate Risk

52 points

Traditions Boulevard and F.M. 1179
N 30° 37' 00"
W 96° 23' 54"

The Traditions subdivision is intermixed primarily with grass, juniper and oak. The potential for fire spread is broken up by the golf course, on which the grass is kept watered and cut short. The homes are built with noncombustible materials and few have combustible attachments. The primary concerns in this area are access and surrounding fuels.

Mitigation Strategies:

- Ingress/egress plan
- Evacuation route markings
- Fuels reduction: mechanical throughout area

Hazard Rating List

The following data was collected from Risk Assessments for Response Zones 1 through 5.

Response Zone 1:
Nine **high-risk** neighborhoods
Four **moderate-risk** neighborhoods

Response Zone 2:
Six **high-risk** neighborhoods
Four **moderate-risk** neighborhoods

Response Zone 3:
Three **high-risk** neighborhoods
Seven **moderate-risk** neighborhoods
One **low-risk** neighborhood

Response Zone 4:
Six **high-risk** neighborhoods
Three **moderate-risk** neighborhoods

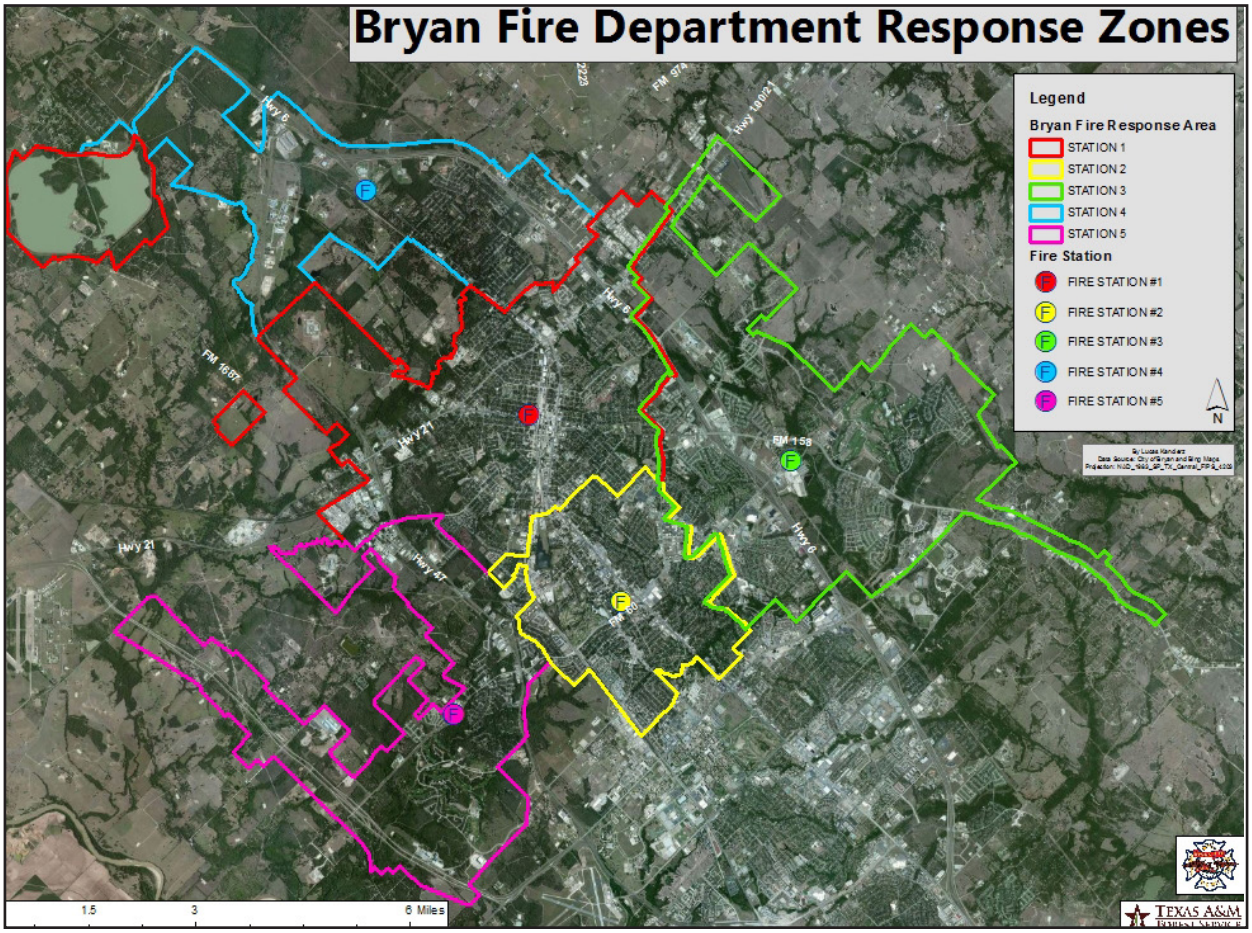
Response Zone 5:
Eight **high-risk** neighborhoods
Three **moderate-risk** neighborhoods

City of Bryan
general wildfire risk

The City of Bryan has a generally urban environment but there are pockets of wildland fuels within the city and bordering the outskirts that pose threats.

The most likely areas for wildfire ignition will have sufficient grasses in order to allow wildfire to spread.

These threats will most likely come from outside the city (from the west, north and east) but some pockets within the city limits also have the potential to ignite and spread.



NEIGHBORHOOD	SCORE	RESPONSE ZONE	RISK
Old Hearne Road Mobile Home Park	85	Response Zone 4	**High**
Newton Street and Highway 21	84	Response Zone 1	**High**
Clear Leaf and Crystal Brook	84	Response Zone 1	**High**
Live Oak Mobile Home Park	83	Response Zone 4	**High**
Rockwood Estates	81	Response Zone 5	**High**
Bittle Lane	80	Response Zone 1	**High**
New York Street	79	Response Zone 1	**High**
Bonham Drive and Wilkes Street	77	Response Zone 4	**High**
Westwood Estates	76	Response Zone 5	**High**
Greenbriar Mobile Home Park	75	Response Zone 5	**High**

NEIGHBORHOOD	SCORE	RESPONSE ZONE	RISK
Castle Heights	75	Response Zone 3	**High**
Finfeather Acres	74	Response Zone 2	**High**
Villa West	73	Response Zone 2	**High**
Clear Leaf Mobile Home Park	71	Response Zone 1	**High**
Riverside Estates Mobile Home Park	71	Response Zone 5	**High**
Midtown Industrial Area	70	Response Zone 2	**High**
Suncrest Street	70	Response Zone 1	**High**
Leonard Road (East) and Highway 47	68	Response Zone 5	**High**
Old Oaks Drive	67	Response Zone 3	**High**
Pepper Tree	67	Response Zone 2	**High**

NEIGHBORHOOD	SCORE	RESPONSE ZONE	RISK
Louis Street	66	Response Zone 1	**High**
Rock Hollow Place	65	Response Zone 5	**High**
Woodville Road Community	65	Response Zone 4	**High**
Scanlin Street	65	Response Zone 1	**High**
Lightfoot Lane and Texas Avenue	64	Response Zone 4	**High**
Oak Meadow	63	Response Zone 5	**High**
Cottage Grove	61	Response Zone 2	**High**
Brookside #2	60	Response Zone 2	**High**
Teton Drive/Glacier Drive	60	Response Zone 4	**High**
Leonard Road and Highway 47	60	Response Zone 5	**High**

NEIGHBORHOOD	SCORE	RESPONSE ZONE	RISK
Copperfield	60	Response Zone 3	**High**
Waco Street	60	Response Zone 1	**High**
Inwood Drive	59	Response Zone 2	**Moderate**
Autumn Lake	58	Response Zone 5	**Moderate**
Rosewood/La Brisa	58	Response Zone 5	**Moderate**
Kim Street and Candy Lane	57	Response Zone 4	**Moderate**
Coulter Drive	56	Response Zone 1	**Moderate**
Jordan Loop	55	Response Zone 1	**Moderate**
Rosemary	54	Response Zone 2	**Moderate**
Red Robin	53	Response Zone 3	**Moderate**
Cole Street	52	Response Zone 1	**Moderate**
Traditions	52	Response Zone 5	**Moderate**
Wheeler Ridge	50	Response Zone 3	**Moderate**

NEIGHBORHOOD	SCORE	RESPONSE ZONE	RISK
Rabbit Lane	49	Response Zone 4	**Moderate**
Austin's Colony	49	Response Zone 3	**Moderate**
Brookside #1	49	Response Zone 2	**Moderate**
Siena	48	Response Zone 3	**Moderate**
Stevens Road	47	Response Zone 4	**Moderate**
Tiffany Park	47	Response Zone 3	**Moderate**
Oak Forest Drive	47	Response Zone 3	**Moderate**
Colson Road Industrial Park	39	Response Zone 1	**Moderate**
Tanglewood Drive and Midwest Street	39	Response Zone 2	**Moderate**
Austin Estates	34	Response Zone 3	**Moderate**
Miramont	24	Response Zone 3	**Low**

Mitigation Strategies

Public Education

Public education campaigns are designed to heighten community awareness for wildfire risks. They may be general and cover the entire city or they may be specific and targeted for a certain area or issue (i.e. an awareness campaign on combustible attachments for a high risk-area). Texas A&M Forest Service has a large selection of public education materials on Ready, Set, Go!, Firewise landscaping, home hardening, fuels management and basic fire behavior that can be used by the City of Bryan or the city may choose to develop its own materials.

Additional opportunities for public education include:

- Wildfire Awareness Week (second week of April)
- National Night Out (October)
- Citizen Fire Academy
- Fire Safety House
- Kid Safe Program
- Ready, Set, Go! (or other) town hall meetings with Texas A&M Forest Service
- School programs
- Bryan Fire Department and City of Bryan social media sites
- Bryan Fire Department web page and City of Bryan website
- Targeted outreach with Code Enforcement and Neighborhood Enforcement Team to high-risk areas
- Partnerships with local media outlets

Hazardous Fuels Reduction

Fuels reduction projects are intended to clear overgrown vegetation, which can reduce the rate of spread and intensity of a wildfire and keep it out of the crowns of trees. In addition, these projects usually provide a safer environment for firefighters to work and extinguish a fire. Fuels reduction projects along evacuation routes may also give evacuees and incoming resources a safer ingress/egress.

Methods of treatment can vary. Treatment options include:

- Mechanical (mulcher, chipper)
- Hand clearing (chainsaws, handsaws)
- Herbicide application
- Prescribed fire

Some methods may be more effective than others, depending on the fuel types. Some methods may also be preferred when working around neighborhoods. The scope of each project will vary, but generally fuels reduction projects are completed along the border of neighborhoods and/or breaks in fuels (i.e. roads). Generally, fuels reduction projects are 100 to 200 feet wide depending on the fuel type.

Fuels Management Program

By establishing a self-sustaining fuels management program in the city, the Bryan Fire Department can continuously identify and mitigate high-risk fuels. Fuels reduction projects can slow the spread of wildfire and create a safer atmosphere for firefighters to protect structures.

Equipment and training needs should be identified by the fire department before a fuels management program is implemented.

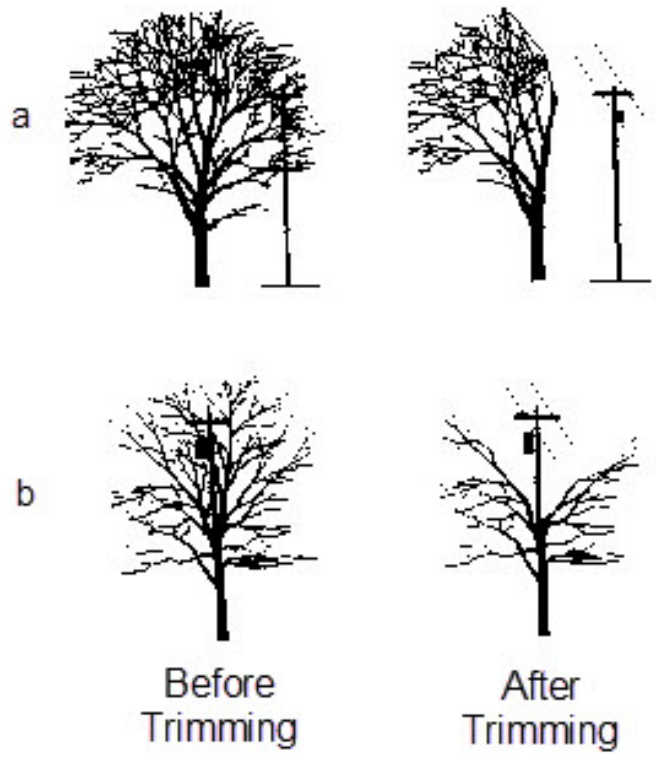
Considering the fuel types in the City of Bryan, mulchers, chippers and chainsaws would be beneficial for fuels reduction. Such equipment could target oak, cedar and yaupon. Grazing, prescribed fire and herbicide treatments would be more beneficial in the grass fuel types.

Fuels management crews should invest time and training in wildfire behavior, fuels treatment methods, prescribed fire and best management practices. Texas A&M Forest Service can offer all these courses, either through one of its wildfire academies (**http://ticc.tamu.edu/Training/training.htm**) or by contacting a local TFS office.

Tree trimming

To minimize and eliminate threats of power outages and fires, Bryan Texas Utilities developed and implemented a proactive tree-trimming program to periodically prune trees away from power lines in the BTU rights-of-way on private property.

BTU employs a contracted work force to prune trees and control other types of vegetation on its rights-of-way; this work is known as "line clearance." The contracted workers are trained and certified to work close to high-voltage power lines. Tree pruning is done by workers who either climb trees using special equipment or, where possible, use an aerial lift or "bucket truck" to mechanically elevate themselves into position to access and prune limbs close to electrical wires. Sufficient branching will be removed from "target" trees to ensure limbs will not contact the wires before the next scheduled maintenance event.



A tree's location in the right-of-way relative to the wires will, in part, determine how it will appear subsequent to pruning. The work often will result in the two crown profiles (a. "side trim" or b. "through trim") as illustrated above. Trees growing directly below the lines that will require radical pruning to secure the necessary clearance should be removed.

Whenever possible, small volunteer trees with no ornamental value will be removed if they are growing directly under the line and would eventually have to be "topped" to prevent contact with the line. At times, dead and/or unstable "hazard" or "danger" trees may have to be removed.

The power line rights-of-way (or corridors) where the workers will be trimming trees were established through the granting of easements – legal documents giving BTU the right to enter private property to build lines and maintain the rights-of-way to assure system reliability and safety.

The line clearance contractor prunes trees in accordance with specifications and instructions from BTU. Whenever possible, best management practices developed by the Utility Arborist Association and the International Society of Arboriculture are followed. BTU's Utility Arborist administers the line clearance contract.

Following line clearance work on private property, the contractor will remove brush, logs and other clearing debris from the right-of-way. Generally, the brush will be chipped; logs will be hauled off intact or left on-site if the property owner wishes.

Every four to five years (the "trim cycle"), BTU will inspect the right-of-way and perform any necessary tree pruning to keep the line safe and operable until the next scheduled visit.

Source: Bryan Texas Utilities

Code Enforcement

Code Enforcement may involve adopting new codes or enforcing previously adopted codes. The International Code Council WUI code is designed to create safer living conditions in the Wildland Urban interface. This code may give a jurisdiction the opportunity to enforce vegetation management, ignition-resistant construction, sprinkler systems, storage of combustible materials and land use limitations.

Adopting and enforcing certain parts of the International WUI Code could be beneficial to the City of Bryan, particularly the sections of code that reference combustible attachments and vegetation management. High-risk neighborhoods would especially benefit from this during wildfire response. The goal of these codes is to develop neighborhoods that are more resilient to wildfires.

Bryan adopted the International Fire Code, which addresses some of these issues. For example, the following could help mitigate potential fire hazards:

Waste material: Accumulations of wastepaper, wood, hay, straw, weeds, litter or combustible or flammable waste or rubbish of any type shall not be permitted to remain on a roof or in any court, yard, vacant lot, alley, parking lot, open space, or beneath a grandstand, bleacher, pier, wharf, manufactured home, recreational vehicle or other similar structure. (*Section 304.1.1*)

Vegetation: Weeds, grass, vines or other growth that is capable of being ignited and endangering property shall be cut down and removed by the owner or occupant of the premises. Vegetation clearance requirements in wildland urban interface areas shall be in accordance with the International Wildland Urban Interface Code. (*Section 304.1.2*)

Bryan municipal code also addresses some of these issues. For example, the following could help mitigate potential fire hazards:

High weeds and grass: Grass or weeds over 12 inches high is a violation of the City of Bryan Code of Ordinances. High grass contributes to blight conditions, creates an insect and rodent harborage and becomes a nuisance. It can also make grass fires more dangerous for firefighters and homeowners. A fee will be charged to the property owner if the city has to mow the property. (*Code of Ordinances - Ch. 50, Sec. 88*)

Open storage: Any items not designed for storage or use outside and/or not resistant to weather cannot be placed or stored outside. Those items should be stored within a structure or removed from the property. (*Code of Ordinances-Ch. 130, Sec. 11*)

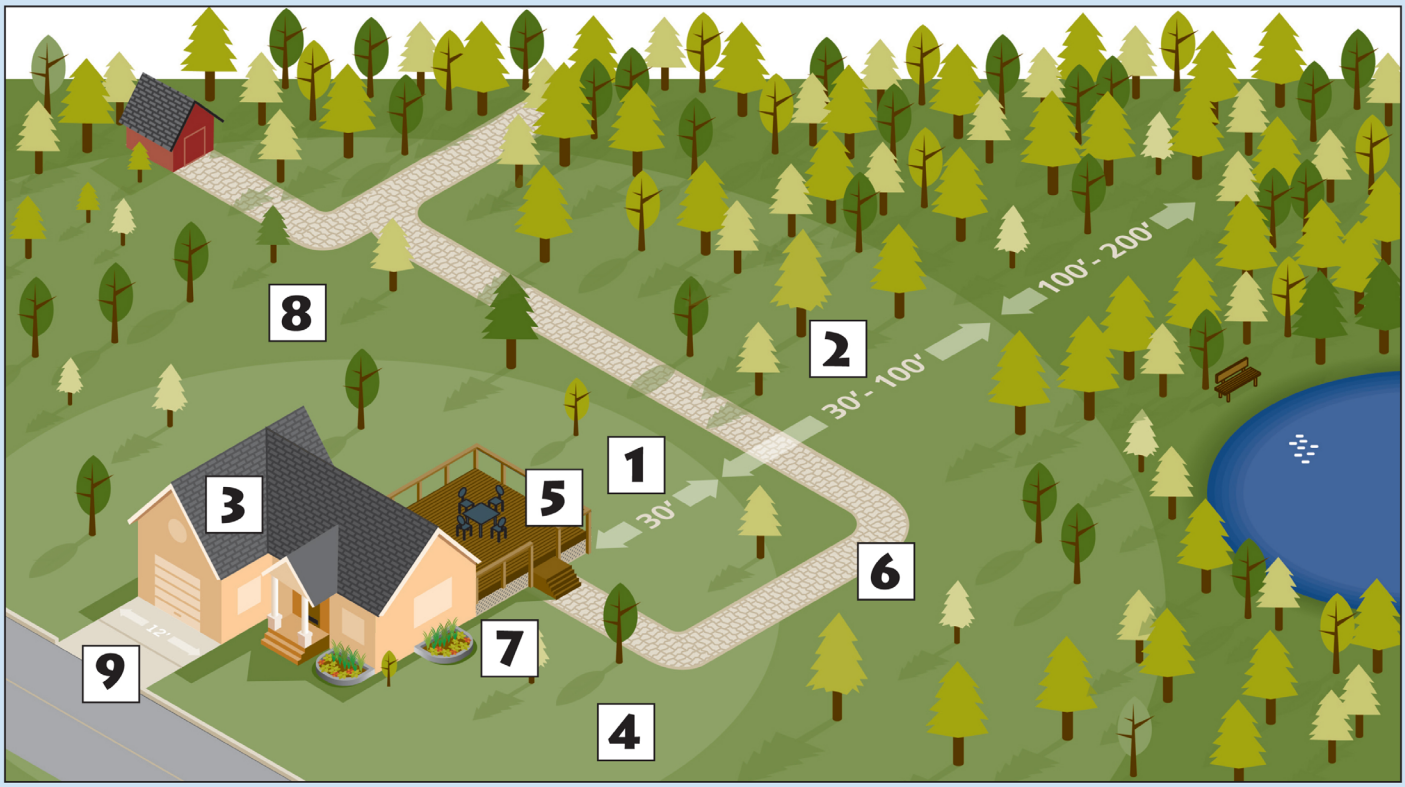
Junk vehicles: Junk vehicles are defined as those that are inoperable and do not have current registration or inspection stickers. If a car has been inoperable for 30 continuous days regardless of the fact that it has current registration and inspection, it is still considered a junk vehicle. Covering a vehicle with a tarp is not a remedy for this violation and does not protect it from the enforcement of this ordinance. (*Code of Ordinances - Ch. 38, Sec. 108*)

Defensible Space

The area immediately surrounding a home is critical to its survival in a wildfire. Thirty feet is the absolute minimum recommended defensible space zone.

The Home Ignition Zone (HIZ) extends to 200 feet from the home. The fuel loading and continuity in the HIZ is a critical part of the risk assessment process and the results should direct defensible space mitigation projects. Vegetation placement, lawn care and use of fire-resistant materials (such as rock) will play an important role during a wildfire. While home hardening – the practice of making your home fire-resistant – is important for everyone, it is especially important for those homeowners who cannot mitigate the entire HIZ.

The primary type of mitigation project regarding defensible space is public education.



1 Maintain at least 30 feet of nonburnable area around your home and outbuildings.

2 Thin and prune trees within 100 feet of any structure.

3 Clean roof and gutters often.

4 Keep lawn , flowers and garden well watered and trimmed.

5 Keep plants and leaves from growing or collecting under your deck; enclose with a screen.

6 Use walkways and paths to create fire breaks.

7 Keep a water hose connected to an outside water source and long enough to go around your house.

8 Store firewood and propane tanks at least 30 feet from any structures.

9 Make your driveway at least 12 feet wide for emergency vehicles.

Evacuation Planning

Evacuation plans can be created for high-risk neighborhoods, especially those with minimal egress routes, large populations or special populations. Plans should incorporate routes of ingress for emergency responders.

Emergency management, law enforcement, fire department, public works and the mayor's office may all be involved in the evacuation process.

The Ready, Set, Go! program, which can be accessed at texasfirewise.org, provides information on how to prepare for wildfire, stay aware of current conditions and evacuate early when necessary.

General Evacuation Checklist

Planning:

- Determine area(s) at risk:
  - Determine population of risk area(s).
  - Identify any special needs facilities and populations in risk area(s).
- Determine evacuation routes for risk area(s) and check the status of these routes.
- Determine traffic control requirements for evacuation routes.
- Estimate public transportation requirements and determine pickup points.
- Determine temporary shelter requirements and select preferred shelter locations.

Advance Warning:

- Provide advance warning to special needs facilities and advise them to activate evacuation, transportation and reception arrangements. Determine if requirements exist for additional support from local government.
- Provide advance warning of possible need for evacuation to the public, clearly identifying areas at risk.
- Develop traffic control plans and stage traffic control devices at required locations.
- Coordinate with special needs facilities regarding precautionary evacuation. Identify and alert special needs populations.
- Ready temporary shelters selected for use.
- Coordinate with transportation providers to ensure vehicles and drivers will be available when and where needed.
- Coordinate with school districts regarding closure of schools.

Evacuation:

- Advise neighboring jurisdictions and the local Disaster District that evacuation recommendation or order will be issued.
- Disseminate evacuation recommendation or order to special needs facilities and populations. Provide assistance in evacuating, if needed.
- Disseminate evacuation recommendation or order to the public through available warning systems, clearly identifying areas to be evacuated.
- Provide amplifying information to the public through the media. Emergency public information should address:
  - What should be done to secure buildings being evacuated

- What evacuees should take with them
- Where evacuees should go and how should they get there
- Provisions for special needs population and those without transportation
- Staff and open temporary shelters.
- Provide traffic control along evacuation routes and establish procedures for dealing with vehicle breakdowns on such routes.
- Provide transportation assistance to those who require it.
- Provide security in or control access to evacuated areas.
- Provide Situation Reports on evacuation to the local Disaster District.

Depending on the situation and availability of facilities, one or more of the following approaches will be used to handle evacuees arriving with pets:

- Provide pet owners information on nearby kennels, animal shelters and veterinary clinics that have agreed to temporarily shelter pets.
- Direct pet owners to a public shelter with covered exterior corridors or adjacent support buildings where pets on leashes and in carriers may be temporarily housed.
- Set up temporary pet shelters at fairgrounds, rodeo or stock show barns, livestock auctions and other similar facilities.

Special Considerations for Livestock:

- Livestock are sensitive and responsive to wildfire anywhere within their sensory range.
- Normal reactions vary from nervousness to panic to aggressive and resistive escape attempts.
- Livestock often are injured or killed by fleeing from a wildfire into fences, barriers and other fire risks.
- Once the flight syndrome kicks in, it is retained long after the smoke, heat and noise stimuli are removed.
- Some animal species such as alpacas, llamas and especially horses become virtually unmanageable in the face of oncoming wildfire.
- In situations like this, experienced handlers (as many as possible), proper equipment and a firm and prompt evacuation approach is needed.
- If time is limited because of fire ground speed, open possible escape routes and recapture animals later.
- In the case of a fast-moving fire, some landowners spray paint their phone numbers on the sides of livestock before setting them free. Others attach identification tags to animals.
- If you choose to leave a halter on your animal, consider attaching identification, such as a luggage tag.
- Firefighters may cut fences and open gates if time and safety concerns allow.

Return of Evacuees:

- If evacuated areas have been damaged, reopen roads, eliminate significant health and safety hazards and conduct damage assessments.
- Determine requirements for traffic control for return of evacuees.
- Determine requirements for and coordinate provision of transportation for return of evacuees.
- Advise neighboring jurisdictions and local Disaster District that return of evacuees will begin.
- Advise evacuees through the media that they can return to their homes and businesses; indicate preferred travel routes.
- Provide traffic control for return of evacuees.
- Coordinate temporary housing for evacuees who are unable to return to their residences.
- Coordinate with special needs facilities regarding return of evacuees to those facilities.
- If evacuated areas have sustained damage, provide the public information that addresses:
  - Documenting damage and making expedient repairs
  - Caution in reactivating utilities and damaged appliances
  - Cleanup and removal/disposal of debris
  - Recovery programs
- Terminate temporary shelter and mass care operations.
- Maintain access controls for areas that cannot be safely reoccupied.

In addition to Emergency Facilities (Page 23) and Schools (Pages 26-28), nursing homes also should be considered when evacuating special populations.

Local nursing homes include:

Brazos Oaks Assisted Living
8733 North Highway 6 North
- 16 beds; emergency power for eight hours (diesel power)

Carriage Inn
4247 F.M. 158
- 85 rental apartments (one to two people/apartment); independent living; no emergency power backup except for lighting

Crestview Court Nursing Home
2505 E. Villa Maria Road
- 85 beds; emergency power for four hours (diesel)

Special populations to consider for smoke management and evacuation needs include schools, hospitals and nursing homes.

Crestview Place Apartments
2505 East Villa Maria Road
- 247 occupants between Place and Terrace; 44 apartments; no emergency power backup

Crestview Terrace Apartments
2501 E. Villa Maria Road
- 100 apartments; no emergency power backup

The Grand Court
2410 Memorial Drive
- 180 rental apartments (one to two people/apartment); independent and assisted living; no emergency power backup except for lighting

Isle at Watercrest
4081 Eastchester Drive

Lamp Stand Health and Rehab
2001 E. 29th St.
- 144 beds; emergency power for 24 to 48 hours

Millican House
2601 East Villa Maria Road
- 30 beds; emergency power backup; three hours for lighting only

St. Joseph Manor
2333 Manor Drive
- 48 nursing beds; 33 Alzheimer's beds; emergency power for 65 hours at 25 percent load; 40 hours at 50 percent; shares power with Manor Assisted Living and Rehab Center

St. Joseph Manor Assisted Living
2345 Manor Drive
- 42 beds; emergency power for 65 hours at 25 percent; 40 hours at 50 percent

St. Joseph Rehabilitation Center
1600 Joseph
- 60 beds; emergency power for 65 hours at 25 percent; 40 hours at 50 percent

Sherwood Health Care Facility
1401 Memorial
- 246 beds; emergency power for indefinite hours; gas and/or propane

Watercrest at Bryan
3801 East Crest Drive
- Gated community

Structure Protection Planning

Structure protection planning can involve home assessments or structure triage planning. It can be generalized for a neighborhood or target a specific block of homes that are at a greater risk to wildland fire. The goal is to have a general plan in place of how homes will be protected (including number of resources needed, access issues, tactical considerations and defendable/non-defendable list).

The Firescope publication *Wildland Urban Interface Structure Protection* suggests the following tactics may be implemented after a fire behavior forecast is made and assigned structures are triaged.

Check and Go

"Check and Go" is a rapid evaluation to check for occupants requiring removal or rescue.
Structure Triage Category – Threatened Non-Defensible

- This tactic is most appropriate when there is no Safety Zone or Temporary Refuge Area present and the forecasted fire spread, intensity and projected impact time of the fire front prohibit resources from taking preparation action to protect the structure.
- Complete a rapid evaluation to check for occupants and evaluate life threat.
- Used when fire spread, intensity, lack of time or inadequate defensible space prohibit firefighting resources from safely taking action to protect the home when the fire front arrives.
- Evaluate the structure for follow-up action when additional resources become available, the fire front passes or fire behavior intensity is reduced.

Prep and Go

"Prep and Go" implies that some preparation of the structure may be safely completed prior to resources leaving the area.
Structure Triage Category – Threatened Non-Defensible

- A tactic used when a Safety Zone and Temporary Refuge Area are not present and/or when fire spread and intensity are too dangerous to stay in the area when the fire front arrives but there is adequate time to prepare a structure for defense ahead of the fire front.
- Utilized for structures where potential fire intensity makes it too dangerous for fire resources to stay when the fire front arrives.
- There is some time to prepare a structure ahead of the fire; resources should engage in rapid, prioritized fire protection preparations and foam the structure prior to leaving.
- Resources should leave with adequate time to avoid the loss of Escape Routes.
- Advise residents to leave and notify supervisors of any residents who choose to stay so that you can follow up on their welfare after the fire front passes.
- As with Check and Go, Prep and Go is well suited for engine strike teams and task forces.

PREP AND DEFEND

"Prep and Defend" is a tactic used when a Safety Zone and Temporary Refuge Area are present and adequate time exists to safely prepare a structure for defense prior to the arrival of the fire front.
Structure Triage Category – Threatened Defensible

- An ideal multiple resource tactic especially in common neighborhoods where efforts may be coordinated

over a wide area. A tactic used when it is possible for fire resources to stay when the fire front arrives. Fire behavior MUST be such that it is safe for firefighters to remain and engage the fire.
- Adequate escape routes to a safety zone must be identified. A safety zone or Temporary Refuge Area must exist on site.
- Adequate time must exist to safely prepare the structure for defense prior to the arrival of the fire front.

Fire Front Following

"Fire Front Following" is a follow-up tactic employed when Check and Go, Prep and Go or Bump and Run tactics are initially used.

- A tactic used to come in behind the fire front.
- This action is taken when there is insufficient time to safely set up ahead of the fire or the intensity of the fire would likely cause injury to personnel located in front of the fire.
- The goal of "Fire Front Following" is to search for victims, control the perimeter, extinguish spot fires around structures, control hot spots and reduce ember production.

Bump and Run

"Bump and Run" is a tactic where resources typically move ahead of the fire front in the spotting zone to extinguish spot fires and hot spots, and to defend as many structures as possible.

- Bump and Run may be effective in the early stages of an incident when the resource commitment is light and structure protection is the priority.
- Bump and Run may be used on fast-moving incidents when there are adequate resources available but where an effort must be made to control or steer the head and shoulders of the fire to a desired end point.
- Perimeter control and structure protection preparation are secondary considerations with the Bump and Run tactic.
- Resources must remain mobile during Bump and Run and must constantly identify escape routes to Safety Zones and Temporary Refuge Areas as they move with the fire front.
- Control lines in front of the fire should be identified and prepared with dozers and fire crews enabling the bump and run resources to direct the fire to a logical end point. This is a frontal attack strategy and a watch out situation.

Anchor and Hold

"Anchor and Hold" is a tactic utilizing control lines and large water streams from fixed water supplies in an attempt to stop fire spread. The goal is to extinguish structure fires, protect exposures and reduce ember production.

- Anchor and hold can be referred to as taking a stand to stop the progression of the fire.
- Anchor and hold tactics are more effective in urban neighborhoods where the fire is spreading from house to house.
- Establishing an anchor and hold line requires considerable planning and effort and utilizes both fixed and mobile resources.

Tactical Patrol

"Tactical Patrol" is a tactic where the key element is mobility and continuous monitoring of an assigned area.

Tactical Patrol can be initiated either:

- After the main fire front has passed and flames have subsided but when the threat to structures still remains.
- In neighborhoods away from the interface where there is predicted to be significant ember wash and accumulated ornamental vegetation.
- Vigilance, situational awareness and active suppression actions are a must.

Wildland Capacity Building

Capacity building should address training, personal protective equipment and apparatus or equipment needs within the department. This can include National Wildfire Coordinating Group (NWCG) classes, wildland engines, dozers, prescribed burning opportunities, etc.

Fire Department Assistance Programs

Rural Volunteer Fire Department Assistance Programs (HB 2604)

The Rural VFD Assistance Program (2604) provides grants for qualified fire departments to assist in the purchase of PPE, equipment and training. The program is designed to fund a full spectrum of cost-share projects and continues to make a significant impact on firefighters and communities.

GSA Wildland Fire Program

The Rural VFD Assistance Program The U.S. General Services Administration permits non-federal organizations to purchase wildfire suppression equipment. The purpose is to help fire departments acquire standardized equipment, supplies and vehicles in support of wildland fire suppression efforts. Texas A&M Forest Service provides enrollment sponsorship.

Firesafe Program

The Firesafe program provides low-cost wildland and structural protective clothing, hose, nozzles and other water-handling accessories to rural and small community fire departments.

VFD Vehicle Liability Insurance

The Texas Volunteer Fire Department Motor Vehicle Self Insurance Program (risk pool) provides low-cost vehicle liability insurance to qualified volunteer fire departments.

Rural VFD Insurance Program

The Rural VFD Insurance Program provides grants to qualified fire departments to assist in the purchase of workers' compensation insurance, life insurance and disability insurance for their members.

TIFMAS Grant Assistance Program

The TIFMAS grant assistance program provides grants to qualified fire departments to assist in the purchase of training, equipment and apparatus.

Helping Hands Program

The Helping Hands Program provides liability relief to industry, businesses, cities and others to donate surplus fire and emergency equipment. Texas A&M Forest Service then distributes it to departments around the state.

Department of Defense Firefighter Property Program (FPP)

In partnership with the Department of Defense, Texas A&M Forest Service administers the Firefighter Property Program (FFP), which provides excess military property to emergency service providers.

Fire Quench Program

Fire Quench is a Class A Foam distributed to Texas A&M Forest Service offices throughout the state and made available for sale to local fire departments. Fire Quench is sold in 55-gallon drums and 5-gallon pails.

http://texasfd.com

Texas A&M Forest Service

Training

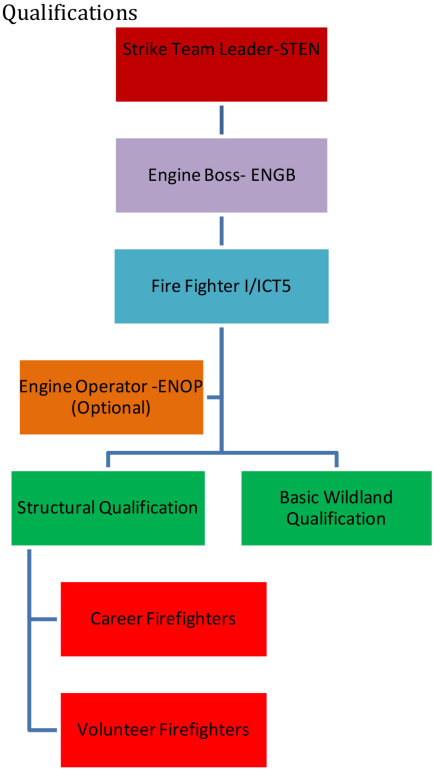
In calendar year 2012, the Bryan Fire Department logged the following continuing education and specialized training hours:

- Fire training (including street drills) – 6,098 hours
- EMS training – 4,296 hours
- Hazardous materials training – 837 hours
- Rescue – 2257.5 hours
- Fire marshal's office – 131 hours

The Bryan Fire Department is highly motivated to invest in wildland training and equipment so firefighters can respond to wildland incidents in the safest and most efficient manner. The NWCG typically sets standards for wildland firefighting, but Texas fire departments must meet certain criteria to participate in the Texas Intrastate Fire Mutual Aid System (TIFMAS).

Texas Intrastate Fire Mutual Aid System (TIFMAS)

TIFMAS Organization Chart and Position Qualifications



Training Recommendations

Basic Wildland Qualification

Recognized National Standard to meet this qualification – S130/190, L180, I100

Approved Basic Wildland Training to meet the TIFMAS Wildland qualification:

1. S130/S190, L180, I100 delivered at TFS sanctioned academies
2. TFS contracted Fire in the Field (FIF) 100 (I-100, S-190, S-130, and L-180) with Skills day.
3. TIFMAS Adjunct Instructor delivered (S130/S190, L180, I100) basic wildland fire training with a skills proficiency day.
4. TFS Training Section delivered S130/S190, L180, and I100.
5. Approved TFS sponsored training events
6. S130/S190, L180, I100 delivered by TEEX wildland approved instructors
7. SFFMA Curriculum with Wildland Certification completed on or after June 2008
8. Basic wildland training (S130/S190, L180) delivered by instructors with current Red Card qualifications meeting the 901-1 standards for instructors.

Recognized Certifications include but are not limited to:

1. NWCG S130/S190/L180 Course certification
2. TIFMAS S130/S190/L180 Course certification
3. SFFMA Wildland Certification completed as of June 2008
4. TCFP Basic Wildland (FFI) certification

Other recommended training:
TIFMAS Engine Module

Structural Qualification

Recognized National Standard to meet this qualification - NFPA 1001 Standards for Firefighter

Recognized Certifications include but are not limited to:

1. TCFP Basic Firefighter
2. SFFMA – NFPA Fire Fighter I/II (Was Advanced Firefighter).

Engineer – Pump Operator (ENOP) Qualification

Pre-requisites:

1. All Hazards-structural qualification
2. Basic Wildland qualification <u>and complete one of the following</u>
   - TCFP 60 hour Pump Operator Certification <u>or</u>
   - SFFMA 40 hour Driver/Operator class <u>or</u>
   - TFS/NWCG 40 hour Engine Operator course

<u>and complete</u>

TIFMAS Engine Operator (ENOP) task book
<u>and receive a</u>

Positive position task book review

Wildland Firefighter I (FFI)/ICT 5 Qualification
Pre-requisites: 1. All Hazards-structural 2. Basic Wildland and complete • Crosswalk G 131 for FFI/ICT5 or • NWCG S131, S 133 and complete NWCG Task Book PMS 311-14 and receive a Positive position task book review Other recommended NWCG training: 1. S211 Portable Pumps and Water Use 2. S212 Wildland Fire Chain Saws

Engine Boss (ENGB) Qualification
Pre-requisites: 1. All Hazards-structural qualification 2. Basic Wildland qualification 3. FFI-ICT5 qualification 4. Meet NFPA 1021 Fire Officer I standards 5. Current position of Driver/Operator or higher at home jurisdiction 6. NIMS Certifications through I-300 and complete • Crosswalk G231 course for Engine Boss or • NWCG S230, S231, S290 and complete NWCG Task Books PMS 311-13 and receive a Positive position task book review Recognized Certifications for NFPA 1021for Fire Officer I include but are not limited to: 1. TCFP Fire Officer I certificate 2. SFFMA Fire Officer I certificate completed as of June 2008 with Pro Board or IFSAC certification is recognized 3. Note Fire Officer I: • Completed prior to 12-31-11- course certificate will be recognized • Completed 1-1-2012 or after must have a TCFP, IFSAC, or Pro Board Certificate to be recognized Other recommended NWCG training: 1. S234 Ignition Operations 2. S270 Basic Air Operations 3. L280 Followership to Leadership

Source: Texas Intrastate Fire Mutual Aid System Business Manual

Strike Team Leader (STEN) Qualification
Pre-requisites: 1. All Hazards-structural qualification 2. Basic Wildland 3. FFI-ICT5 qualification 4. Engine Boss qualification 5. Meet NFPA 1021 Fire Officer II standards 6. Current position of Company Officer or higher at home jurisdiction and complete • Crosswalk G330 course for Strike Team Leader or • NWCG S330 Strike Team Leader and S215 Fire Operations in the Urban Wildland Interface and complete NWCG Task Book 311-10 and receive a Positive position task book review. Recognized Certifications for NFPA 1021for Fire Officer II include but are not limited to: 1. TCFP Fire Officer II certificate 2. SFFMA Fire Officer II certificate completed as of June 2008 with Pro Board or IFSAC certification is recognized 3. Note: • Completed prior to 12-31-11- course certificate will be recognized • Completed 1-1-2012 or after must have a TCFP, IFSAC, or Pro Board Certificate to be recognized Other recommended NWCG training: L380 Fireline Leadership

The NWCG requires firefighters to complete classes alongside position-specific task books. The task books outline specific required assignments. The trainee is evaluated by a qualified trainer on wildland incidents. Once the trainee completes the tasks and gains experience on wildland incidents, the task book is completed and the individual is qualified to respond in that capacity. NWCG task books can be found at: **http://www.nwcg.gov/pms/taskbook/taskbook.htm**

The following is a list of recommended training for the Bryan Fire Department:

S-130/190 (includes **L-180** and **I-100)** – Basic Firefighter/Introduction to Wildland Fire Behavior
S-131 – Firefighter Type 1
S-133 – Look Up, Look Down, Look Around
L-280 – Followership to Leadership
S-215 – Fire Operations in the Wildland Urban Interface
S-290 – Intermediate Wildland Fire Behavior

S-200 – Initial Attack Commander (ICT4)
S-234 – Ignitions Operations
S-230 – Crew Boss (Single Resource)
S-330 – Task Force/Strike Team Leader

O-305 – All-Hazard Incident Management Team Training

Texas wildfire academy class schedules can be found at **http://ticc.tamu.edu/Training/TrainingMain.htm**

NWCG Engine Types

Using the Fire Equipment Working Team and National Fire Protection Association, the NWCG categorizes information on fire engines into logical groups and provides common options often requested by fire managers. The Incident Command System uses this engine type system based on the equipment.

	STRUCTURE ENGINES		WILDLAND ENGINES				
Components	1	2	3	4	5	6	7
Pump Rating							
minimum flow (gpm)	1000+	250+	150	50	50	30	10
at rated pressure (psi)	150	150	250	100	100	100	100
Tank Capacity Range (gal)	400+	400+	500+	750+	400–750	150–400	50–200
Hose (feet)							
2-1/2 inch	1200	1000	~	~	~	~	~
1-1/2 inch	400	500	500	300	300	300	~
1 inch	~	~	500	300	300	300	200
Ladders (ft)	48	48	~	~	~	~	~
Master Stream (GPM)	500	~	~	~	~	~	~
Personnel (minimum)	4	3	2	2	2	2	2

Wildland engine types are described below.

Type 3 — An engine that features a high-volume and high-pressure pump. The Gross Vehicle Weight Rating (GVWR) is generally greater than 20,000 pounds.

Type 4 — A heavy engine with large water capacity. Chassis GVWR is in excess of 26,000 pounds.

Type 5 — Normally an initial attack engine on a medium duty chassis. GVWR of the chassis is in the 16,000 to 26,000 pound range.

Type 6 — Normally an initial attack engine on a medium duty chassis. GVWR of the chassis is in the 9,000 to 16,000 pound range.

Type 7 — A light duty vehicle usually on a 6,500 to 10,000 pound GVWR chassis. The vehicle has a small pump and is a multipurpose unit used for patrol, mop up or initial attack.

Source: U.S. Forest Service Wildland Fire Engine Guide

Type 3 engine

Type 6 engine

Recommended Equipment

The Bryan Fire Department works closely with Brazos County resources to suppress wildfires. While this has been and will continue to be effective, it would be beneficial for BFD to invest in a Type 6 or Type 3 engine. This would give the department an additional asset in case county resources are not available.

Recommended Protective Equipment

- Nomex coveralls
- Nomex pants (should be made of flame-resistant Aramid cloth)
- Nomex shirt (should be made of flame-resistant Aramid cloth)
- Nomex jacket (should be made of flame-resistant Aramid cloth)
- Wildland gloves
- Wildland hardhat
- Eye protection
- Ear/neck/face protectors
- Fire shelter
- Wildland fire pack
- Chainsaw chaps

Wildland Firefighting Tools

Pulaski Tool

This ax-and-hoe combination tool is designed for fire-line digging and chopping. Cutting edges: 3-3/8" (hoe); 4-1/2" (ax); handle 36" long. Forest Service Spec 5100-355. (NFES #0146)

McLeod Tool

Fire-line digging tool is a rake-and-hoe combination. Handle is 48" long. Forest Service Spec 5100-353. (NFES #0296)

Collapsible Firefighting Rake

Collapsible metal rake is designed for fire-line construction. Features stainless steel tines that extend to 16" in width. Features a foam-grip handle. Lengths: 59-1/2" (extended) and 49-2/5" (collapsed). Weight: 3.3 lbs. REC Drawing No. 90-5700C. (NFES #0659)

- Drip Torch

Swatter

Source: U.S. General Services Administration

Suppressing Wildfire in Texas

Engines

Smaller than a typical municipal fire engine, wildland fire engines are specially-designed to handle remote, off-road areas and difficult terrain. The trucks carry 50 to 800 gallons of water as well as a complement of hand tools and hoses. Generally, they're staffed by a crew of two to five wildland firefighters.

Heavy Equipment

Bulldozers fitted with safety cages are critical tools for containing wildfires. Large, commercial bulldozers often are used on the open plains in South and West Texas, while smaller tractor-plow units are more common in forested areas in Central and East Texas. Both dozers and tractor plows are used to put a control line — often called a fire line or fire break — around the flames. Doing so removes all the vegetation, or fuel, that would spread the fire.

Water Tenders

Because wildland firefighters don't have access to fire hydrants, they must bring the water they need with them.

Tenders are capable of ferrying large quantities of water — up to 5,000 gallons — to fire engines working on the fireline, allowing crews to fight the fire without stopping. When empty, these water-shuttling trucks can return to a nearby city or town where hydrants are available or they can draft from a lake, pond or stream in the area.

Hand Crews

A hand crew consists of highly-skilled wildland firefighters who use hand tools and chainsaws to clear the vegetation in front of an advancing fire. These crews are used in areas where heavy equipment can't go, such as remote areas with rugged terrain. Generally, there are about 20 people on the crew, though that number can vary slightly.

Aircraft

Firefighting aircraft are a valuable tool for wildland firefighters. The specially-equipped helicopters and airplanes can be used to drop water or fire retardant, but they don't always extinguish the fire. Helicopters often drop water, which can help put out a blaze. Air tankers, however, often drop retardant, a move that slows down the spread of flames and cools off the surrounding area, allowing ground crews to get closer and make more progress in containing the fire.

Mitigation Funding Sources

FEMA Hazard Mitigation Grant Program

The Hazard Mitigation Grant Program provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.
http://www.fema.gov/hazard-mitigation-grant-program

Texas A&M Forest Service – Integrated Hazardous Fuels Program (Mitigation and Prevention Department)

One of the tools in hazard reduction efforts is the removal of heavy vegetation growth under controlled conditions to reduce the fuels available for future wildfires. Vegetation is generally removed using mechanical methods – such as mulching or chipping – or prescribed (controlled) fires under manageable conditions. The local TFS office can provide assistance in determining the best treatment methods for the area.
http://texasforestservice.tamu.edu/main/article.aspx?id=8510

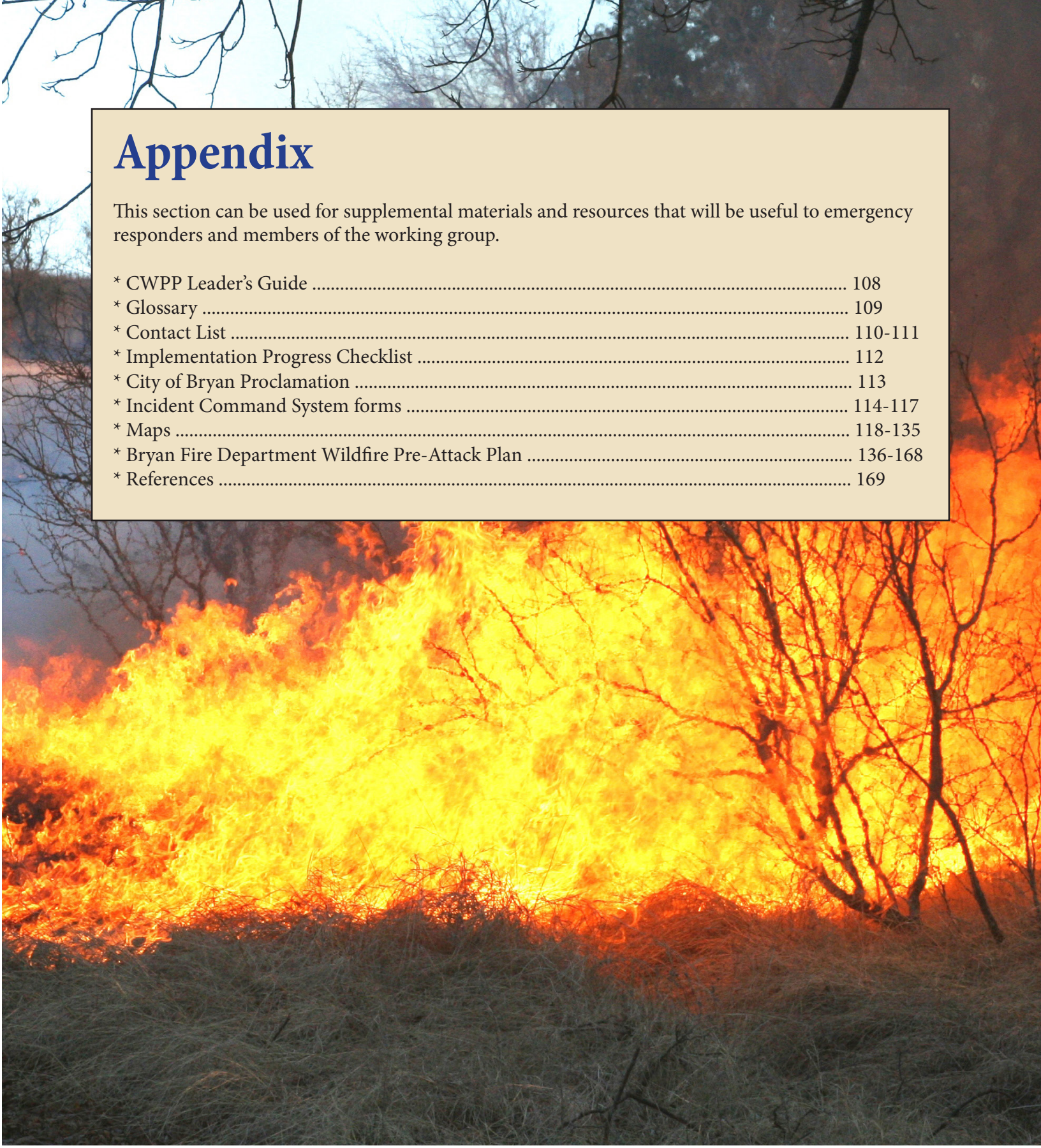
Texas A&M Forest Service Capacity Building

Texas A&M Forest Service provides eligible fire departments with programs designed to enhance their ability to protect the public and fire service personnel from fire and related hazards. Ten highly successful programs are currently administered to help fire departments discover and achieve their potential. Citizens are better served by well-trained and equipped fire department personnel.
http://texasfd.com

Texas Intrastate Fire Mutual Aid System

Texas Intrastate Fire Mutual Aid System is maintained by Texas A&M Forest Service. The program includes training, qualification and mobilization systems to make statewide use of local resources. The program was first used during Hurricane Ike, and has since been used in response to the Presidio flooding, the April 9, 2009, wildfire outbreak in North Texas, Hurricane Alex and the 2011 wildfire season. The system was successful in all incidents.

TIFMAS, a product of Senate Bill 11 enacted in 2007, does not require departments to send resources to incidents. It is a voluntary process. During the 2011 wildfire season, TIFMAS mobilized 13 times with a total of 207 departments, 1,274 firefighters and 329 engines.
http://texasforestservice.tamu.edu/main/article.aspx?id=9216



Appendix

This section can be used for supplemental materials and resources that will be useful to emergency responders and members of the working group.

* CWPP Leader's Guide 108
* Glossary 109
* Contact List 110-111
* Implementation Progress Checklist 112
* City of Bryan Proclamation 113
* Incident Command System forms 114-117
* Maps 118-135
* Bryan Fire Department Wildfire Pre-Attack Plan 136-168
* References 169

A Leader's Guide to Developing A Community Wildfire Protection Plan

Phase 1: Plan

- ☐ **Engage local Texas A&M Forest Service.** Contact local Wildland Urban Interface Specialist at www.texasfirewise.com
- ☐ **Contact fire association/local law enforcement and fire services.**
- ☐ **Contact state and federal partners.**

If the above are supportive, then continue with:

- ☐ **Adopt Community Wildfire Protection Plan.** Discuss adopting CWPP into annex of emergency management plan and mitigation action plan.
- ☐ **Declare proclamation.** Present proclamation to city council.

NOTES

- ☐ **Form core working group.** Possible partners:

▶ ***City Officials***
- Fire chief
- Emergency Management Coordinator (EMC)
- Fire marshal
- City planner
- Local utility
- Ag extension agent
- GIS specialist
- Disaster District Coordinator

▶ ***Local Texas A&M Forest Service***

▶ ***Law Enforcement***
- Local and municipal
- State police

▶ ***Federal partners***
- US Forest Service (USFS)
- National Park Service (NPS)
- US Army Corps of Engineers (USACE)
- Conservation Service (NRCS)
- Resource Conservation & Development (RC&D)

▶ ***Identify other stakeholders to invite in the CWPP process.***
- Private stakeholders
- Industry stakeholders
- Municipal stakeholders

Phase 2 : Assess

- ☐ **Identify priority areas with fire service and federal agencies.**
  - This can be accomplished with a one-on-one meeting or a group meeting.
  - Develop a base map of Communities At Risk (CARs).
- ☐ **Assemble** fire department response area maps.
- ☐ **Assemble** checklist of topics to cover during assessments.
- ☐ **Interview** fire department to identify needs, concerns and update contact information.
- ☐ **Conduct** assessments in cooperation with fire department.
- ☐ **Identify** safety issues.
- ☐ **Identify** recommendations/ projects.
- ☐ **Compile** assessment results.
- ☐ **Finalize** CAR map.
- ☐ **Prioritize** recommendations/ projects.
- ☐ **Develop** local CWPP draft.
- ☐ **Deliver** draft CWPP to fire department for edits.

Phase 3 : Finalize

- ☐ **Assemble draft city CWPP** using information gathered from risk assessments and fire department CWPPs.
- ☐ **Research and identify** potential funding sources.
  - ▶ Reconvene core group for second meeting.
  - ▶ Present findings from assessments.
- ☐ **Prioritize projects** within city plan.
  - Fuels reduction
  - Education
  - Structural ignitability
- ☐ **Finalize** city CWPP with edits from core group.
- ☐ **Present** for public opinion.
- ☐ **Deliver** draft to core group participants.
- ☐ **Present** final copy to city council.
- ☐ **Plan** signing/recognition ceremony.

Source: Texas A&M Forest Service

Download A Leader's Guide to Developing Community Wildfire Protection Plans at

texasfirewise.com

Glossary

Community Emergency Operations Center (CEOC) - A multi-jurisdictional facility that offices Brazos County, City of Bryan, City of College Station and Texas A&M University emergency management personnel.

Defensible space — The area immediately encircling a home and its attachments.

Extended attack — Suppression activity for a wildfire that has not been contained or controlled by initial attack or contingency forces and for which more firefighting resources are arriving, en route or being ordered by the initial attack incident commander. *(National Wildfire Coordinating Group definition)*

Fuel loading — The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel and is usually dry weight. *(National Wildfire Coordinating Group definition)*

Healthy Forests Restoration Act — Signed into law in 2003, this act authorizes Community Wildfire Protection Plans as a tool to reduce hazardous fuels and maintain healthy forests.

Home hardening — Retrofitting process that reduces a home's risk to wildfire. This involves using non-combustible building materials and keeping the area around your home free of debris.

Home Ignition Zone (HIZ) — An area of up to 200 feet immediately surrounding a home.

Incident Action Plan (IAP) — Contains objectives reflecting the overall incident strategy, specific tactical actions and supporting information for the next operational period. When written, the plan may have a number of attachments, including incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan and incident map. *(National Wildfire Coordinating Group definition)*

Incident Command System (ICS) - A standardized on-scene emergency management concept specifically designed to allow its user(s) to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. *(National Wildfire Coordinating Group definition)*

Initial attack — Fire that is generally contained by the attack units first dispatched, without a significant augmentation of reinforcements, and full control is expected within the first burning period. *(National Wildfire Coordinating Group definition)*

Mitigation Action Plan — A document that outlines a procedure for mitigating adverse environmental impacts.

Mobile Command Post (MCP) — Often used as an Incident Command Post, Bryan Fire Department's Mobile Command Post is housed at Station One, 300 West William J. Bryan Parkway. It has seven work stations and a conference room. It has wireless capabilities, Brazos Valley Wide Area Communications System (BVWACS) radio access and VHF radio access. Satellite connectivity also is available.

Pre-Attack Plan — A resource for first responders that includes information specific to the community where an incident is taking place. Pre-Attack Plans may include possible Incident Command Post locations, shelter locations, radio frequencies, maps, high-risk areas and contingency plans.

Structural ignitability — A home's design, construction materials and immediate surroundings are factors that contribute to how easily a home will ignite when wildfire threatens.

Wildland Urban Interface (WUI) — Areas where human habitation and development meet or are intermixed with wildland fuels (vegetation).

Contact List

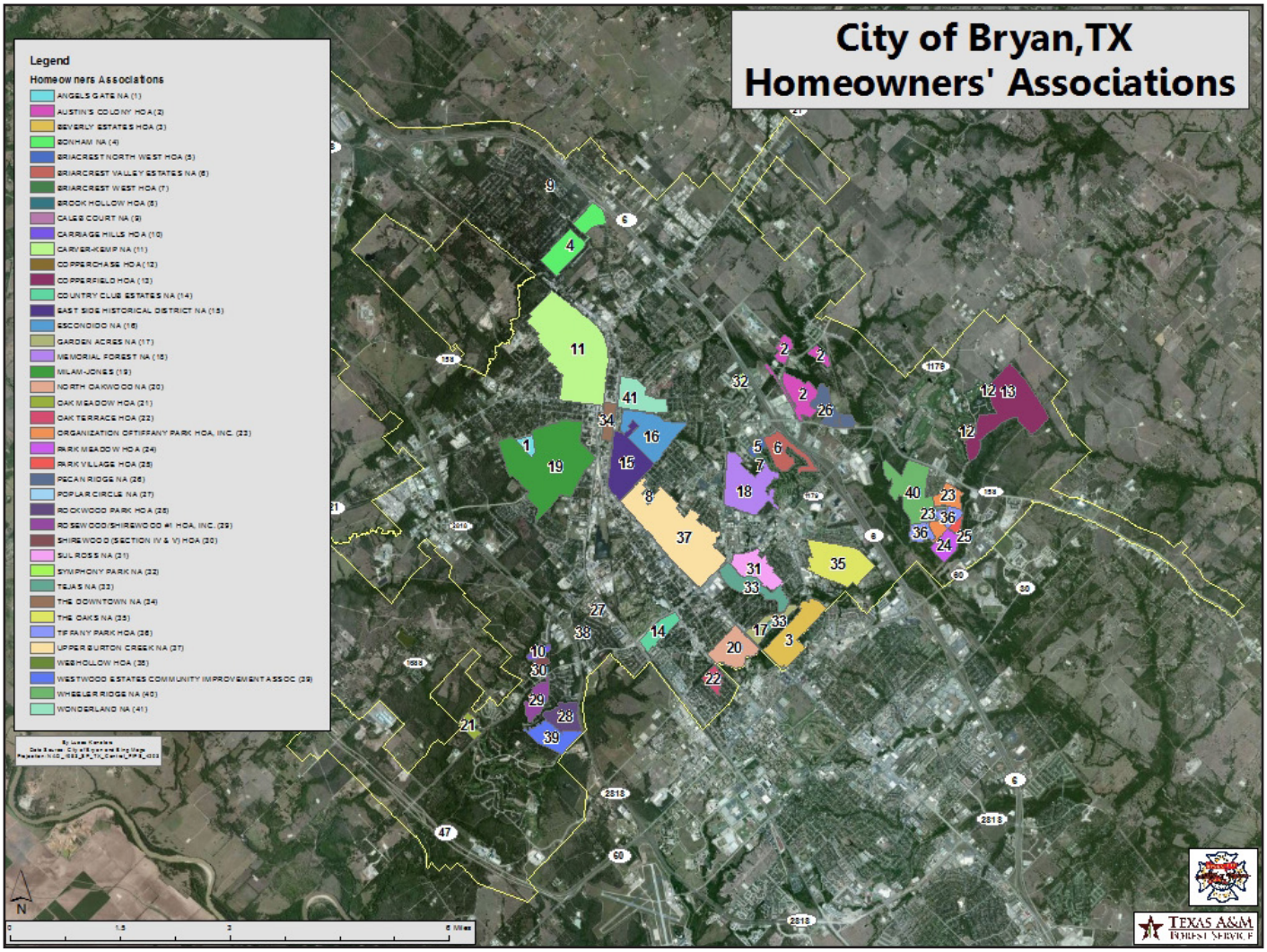
District Coordinator, Texas Department of Public Safety,
Division of Emergency Management
979-412-0003

Texas A&M Forest Service contacts:
Regional Fire Coordinator
200 Technology Way, Suite 1162
College Station, TX 77845-3424
979-458-6507

Assistant Chief Regional Fire Coordinator
700 South Reynolds Street
La Grange, Texas 78945
979-968-5555

LaGrange Dispatch
979-968-5555

Homeowners' Associations:



1. Angel's Gate Neighborhood Association (District 1)

2. Austin's Colony Homeowners Association (District 3)

3. Beverly Estates Homeowners Association (District 4)

4. Bonham Neighborhood Association (District 2)

5. Briarcrest North West Homeowners Association (District 3)

6. Briarcrest Valley Estates Neighborhood Association (District 3)

7. Briarcrest West Homeowners Association (District 3)

8. Brook Hollow Homeowners Association (District 4)

9. Caleb Court Neighborhood Association (District 2)

10. Carriage Hills Homeowners Association (District 5)

11. Carver-Kemp Neighborhood Association (District 2)

12. Copperchase Homeowners Association (District 3)

13. Copperfield Homeowners Association (District 3)

14. Country Club Estates Neighborhood Association (District 5)

15. East Side Historical District Neighborhood Association (District 3)

16. Escondido Neighborhood Association (District 3)

17. Garden Acres Neighborhood Association (District 4)

18. Memorial Forest Neighborhood Association (Districts 3 and 4)

19. Milam-Jones Neighborhood Association (District 1)

20. North Oakwood Neighborhood Association (District 5)

21. Oak Meadow Homeowners Association (District 5)

22. Oak Terrace Homeowners Association (District 5)

23. Organization of Tiffany Park Homeowners, Inc. (District 3)

24. Park Meadow Homeowners Association (District 3)

25. Park Village Homeowners Association (District 3)

26. Pecan Ridge Neighborhood Association (District 3)

27. Poplar Circle Neighborhood Association (District 5)

28. Rockwood Park Homeowners Association (District 5)

29. Rosewood/Shirewood #1 HOA, Inc. (District 5)

30. Shirewood (Section IV and V) Homeowners Association (District 5)

31. Sul Ross Neighborhood Association (District 4)

32. Symphony Park Neighborhood Association (District 3)

33. Tejas Neighborhood Association (District 4)

34. The Downtown Neighborhood Association (District 1)

35. The Oaks Neighborhood Association (District 4)

36. Tiffany Park Homeowners Association (District 3)

37. Upper Burton Creek Neighborhood Association (District 4)

38. Webhollow Homeowners Association (District 5)

39. Westwood Estates Community Improvement Association (District 5)

40. Wheeler Ridge Neighborhood Association (District 3)

41. Wonderland Neighborhood Association (Districts 3 and 4)

Implementation Progress Checklist

Mitigation Strategies	Completed (√)	Date
Zone 1 Fuels Reduction Ingress/Egress Plan Public Education Structure Protection Plan		
Zone 2 Fuels Reduction Ingress/Egress Plan Public Education Structure Protection Plan		
Zone 3 Fuels Reduction Ingress/Egress Plan Public Education Signage Structure Protection Plan		
Zone 4 Fuels Reduction Ingress/Egress Plan Public Education Structure Protection Plan		
Zone 5 Evacuation Route Markings Fuels Reduction Ingress/Egress Plan Public Education Structure Protection Plan		

Incident Status Summary (ICS-209)

1: Today's Date	2: Today's Time	3: Initial | Update | Final | |	4: Incident Number	5: Incident Name

6: Incident Kind (WF – Full Suppression) (WF – Point or Zone Protection) (WF – Monitor/Confine/Contain)	7: Start Date Time	8: Cause	9: Incident Commander	10: Incident Command Organization	11: State-Unit

12: County	13: Latitude and Longitude Lat: Long: Ownership at origin:	14: Short Location Description (in reference to nearest town – i.e. 8 miles south of Show Low, AZ):

15: Size/Area Involved (i.e. Acres)	16: % Contained or MMA	17: Expected Containment Date:	18: Line to Build (indicate chains, feet, meters, or miles)	19: Estimated Costs to Date:	20: Declared Controlled Date: Time:

21: Injuries this Reporting Period:	22: Injuries to Date:	23: Fatalities	24: Structure Information			
			Type of Structure	# Threatened	# Damaged	# Destroyed
25: Threat to Human Life/Safety: Evacuation(s) in progress ---- ____ No evacuation(s) imminent -- ____ Potential future threat -------- ____ No likely threat ---------- ____			Residence			
			Commercial Property			
			Outbuilding/Other			

26: Projected incident movement / spread in 12, 24, 48 and 72 hour time frames:
12 hours:
24 hours:
48 hours:
72 hours:

27: Values at Risk: include communities, critical infrastructure, natural, and cultural resources in 12, 24, 48, and 72 hour time frames:
12 hours:
24 hours:
48 hours:
72 hours:

28: Critical Resource Needs (amount, type, kind, and number of operational periods in priority order in 12, 24, 48 and 72 hour time frames): **ex. 3 CRW1 (4); 1 HEL1 (5);**
12 hours:
24 hours:
48 hours:
72 hours:

29: Major problems and concerns (control problems, social/political/economic concerns or impacts, etc.) Relate critical resources needs identified above to the Incident Action Plan.

30: Current Weather for Current Operational Period Peak Gusts (mph): Max Temperature: Wind Direction: Min Relative Humidity:	31: Fuels/Materials Involved: (Insert primary Fire Behavior Fuel Model – i.e. 1 Short Grass (1 Foot))

32: Today's observed fire behavior (leave blank for non-fire events):

33: Significant events today (closures, evacuations, significant progress made, etc.):

Revised March 2009

INCIDENT OBJECTIVES

1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED

4. OPERATIONAL PERIOD (DATE/TIME)

5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)

6. WEATHER FORECAST FOR OPERATIONAL PERIOD

7. GENERAL SAFETY MESSAGE

8. ATTACHMENTS (✓ IF ATTACHED)

- ☐ ORGANIZATION LIST (ICS 203)
- ☐ ASSIGNMENT LIST (ICS 204)
- ☐ COMMUNICATIONS PLAN (ICS 205)
- ☐ MEDICAL PLAN (ICS 206)
- ☐ INCIDENT MAP
- ☐ TRAFFIC PLAN
- ☐ _____
- ☐ _____
- ☐ _____

9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)

202 ICS (1/99) NFES 1326

UNIT LOG	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED

4. UNIT NAME/DESIGNATORS.	5. UNIT LEADER (NAME AND POSITION)	6. OPERATIONAL PERIOD

7. **PERSONNEL ROSTER ASSIGNED**

NAME	ICS POSITION	HOME BASE

8. **ACTIVITY LOG** (CONTINUE ON REVERSE)

TIME	MAJOR EVENTS

NFES 1337

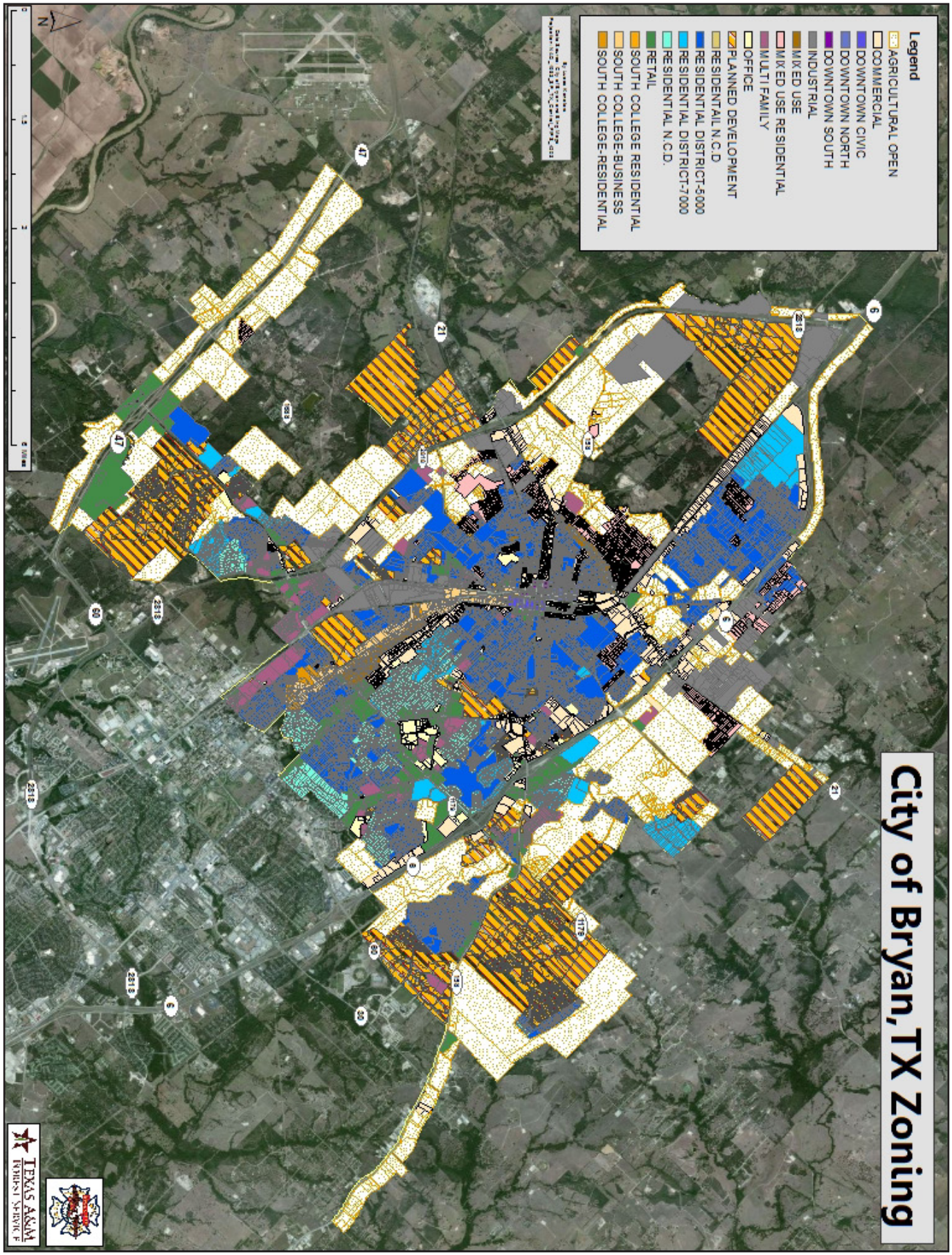
OPERATIONAL PLANNING WORKSHEET

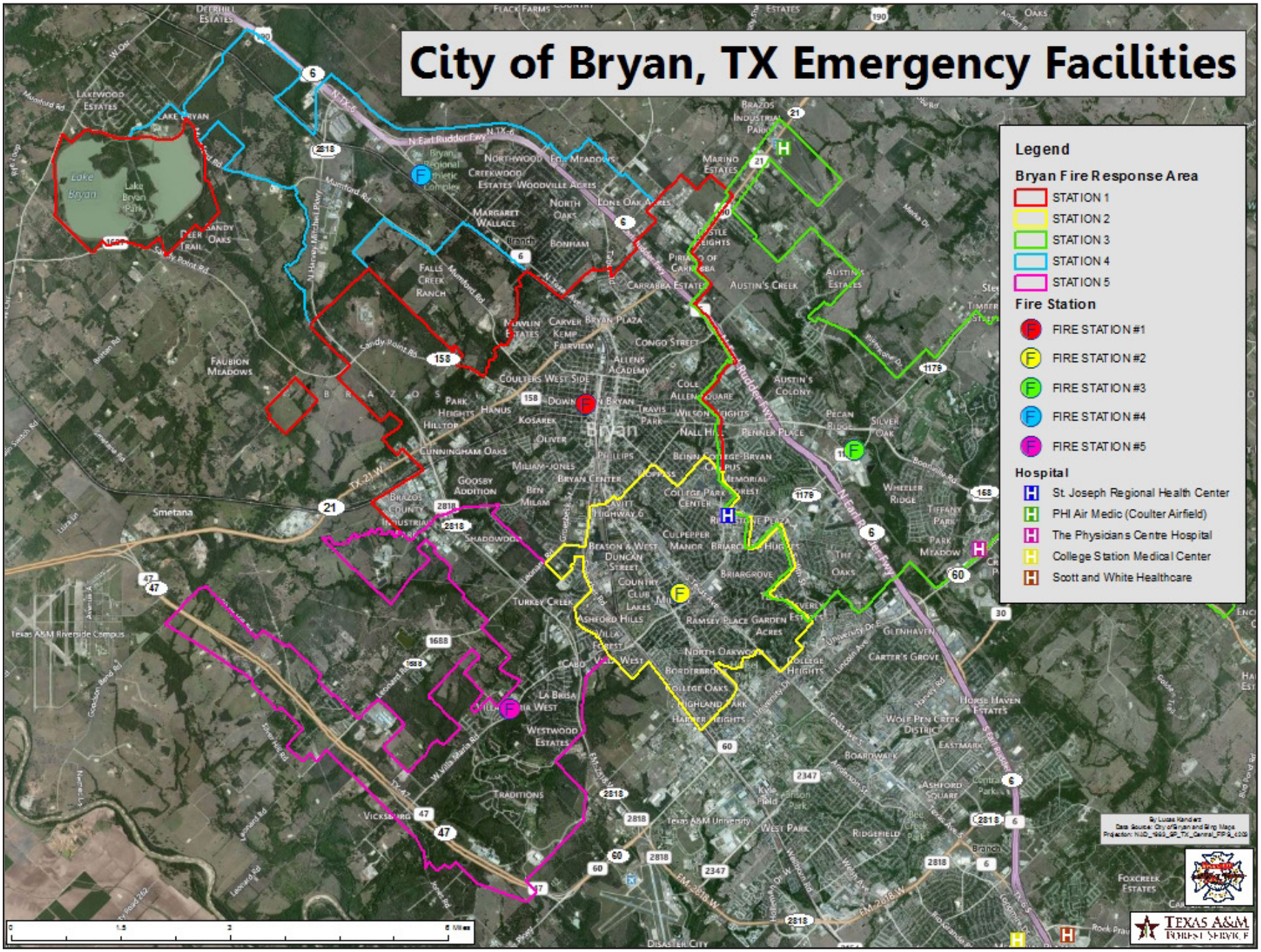
1. INCIDENT NAME	2. DATE PREPARED / TIME PREPARED	3. OPERATIONAL PERIOD (DATE/TIME)

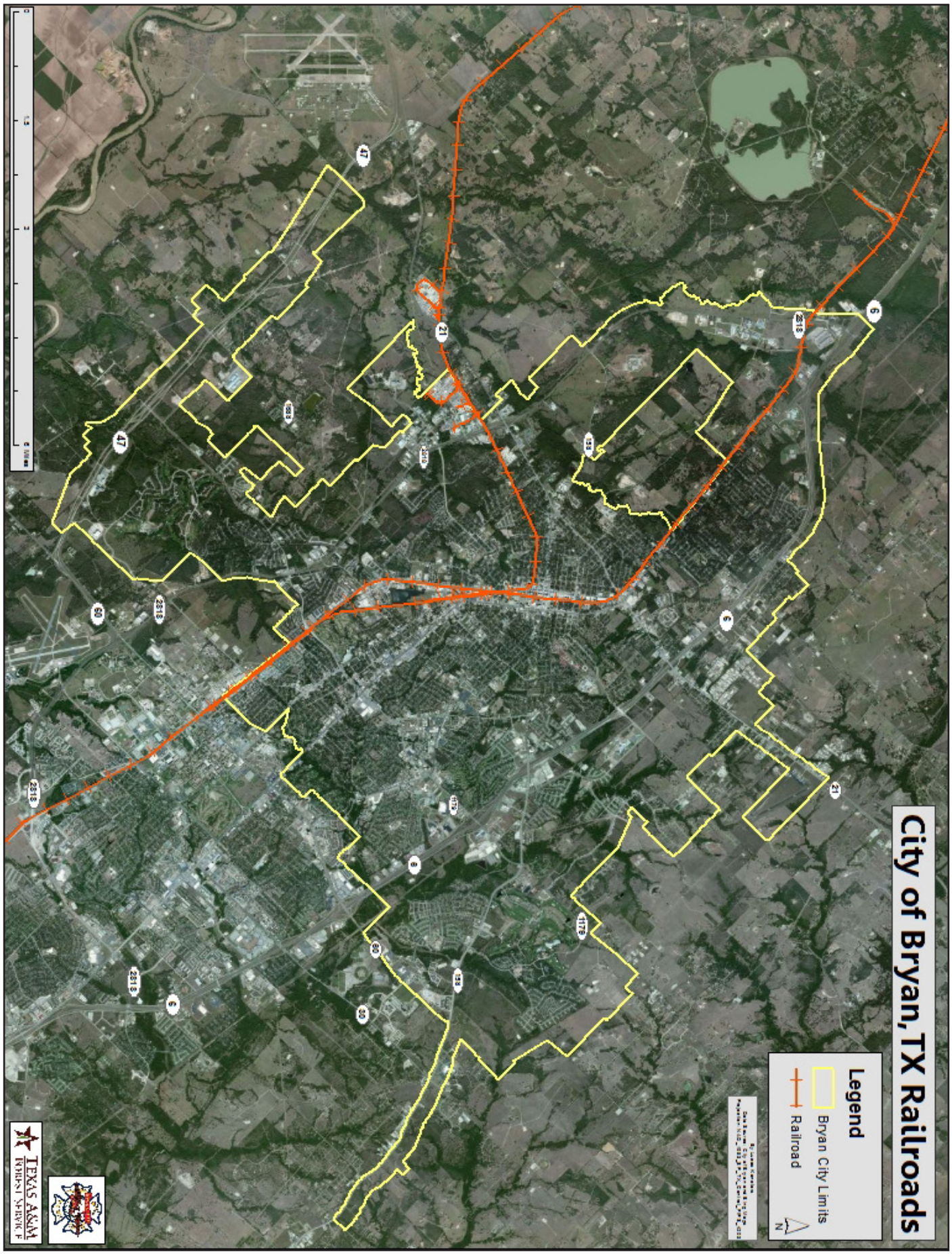
4. DIVISION OR OTHER LOCATION	5. WORK ASSIGNMENTS	6. RESOURCES BY TYPE (SHOW STRIKE TEAM AS ST)						7. REPORTING LOCATION	8. REQUESTED ARRIVAL TIME
		RESOURCE							
		TYPE							
		REQ							
		HAVE							
		NEED							
		REQ							
		HAVE							
		NEED							
		REQ							
		HAVE							
		NEED							
		REQ							
		HAVE							
		NEED							
		REQ							
		HAVE							
		NEED							
		REQ							
		HAVE							
		NEED							
		REQ							
		HAVE							
		NEED							
		REQ							
		HAVE							
		NEED							
	9. TOTAL RESOURCES REQUIRED	SINGLE RESOURCES / STRIKE TEAMS						10. PREPARED BY (NAME AND POSITION)	
	TOTAL RESOURCES ON HAND								
215 ICS 9-86	TOTAL RESOURCES NEEDED								

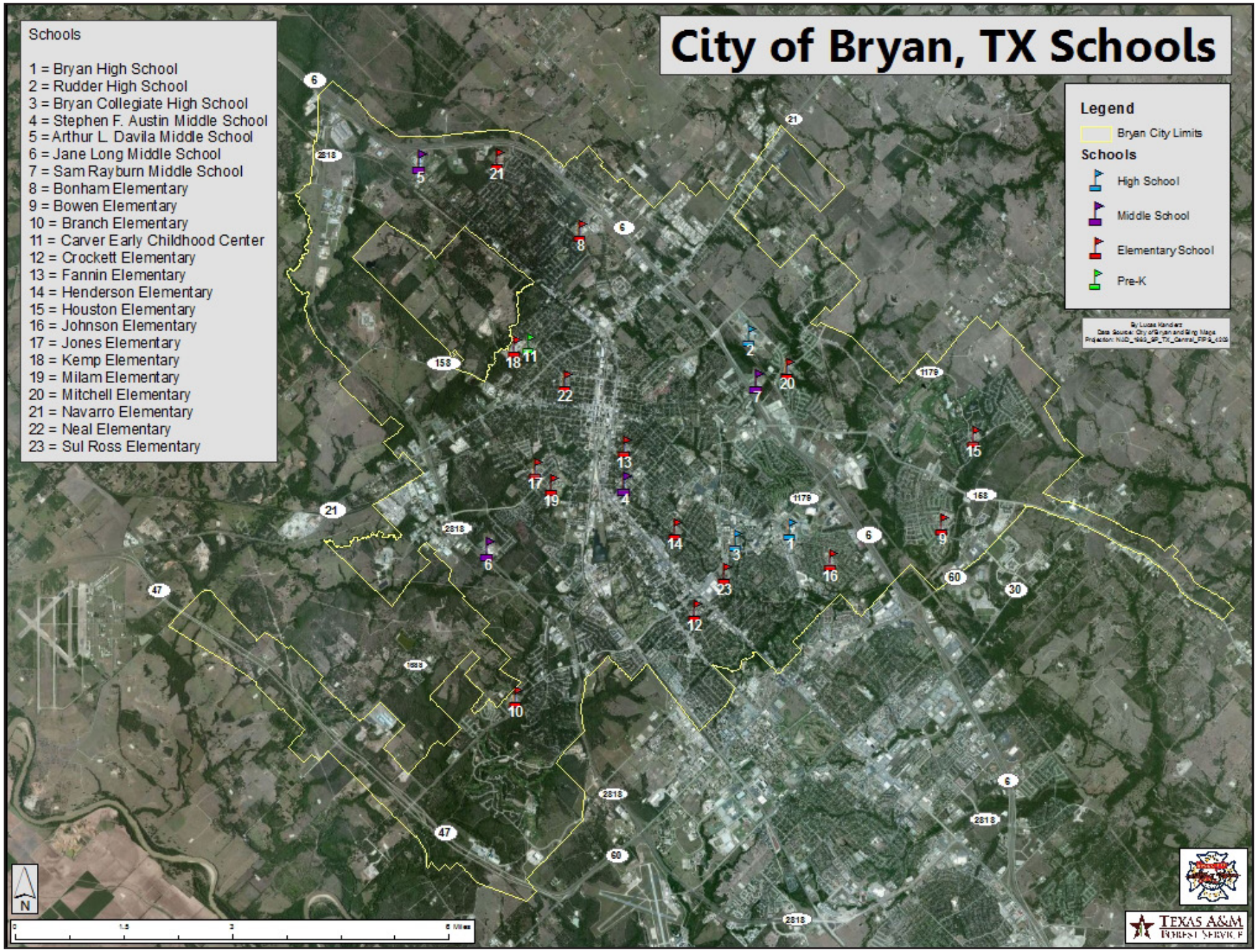
NFES 1338

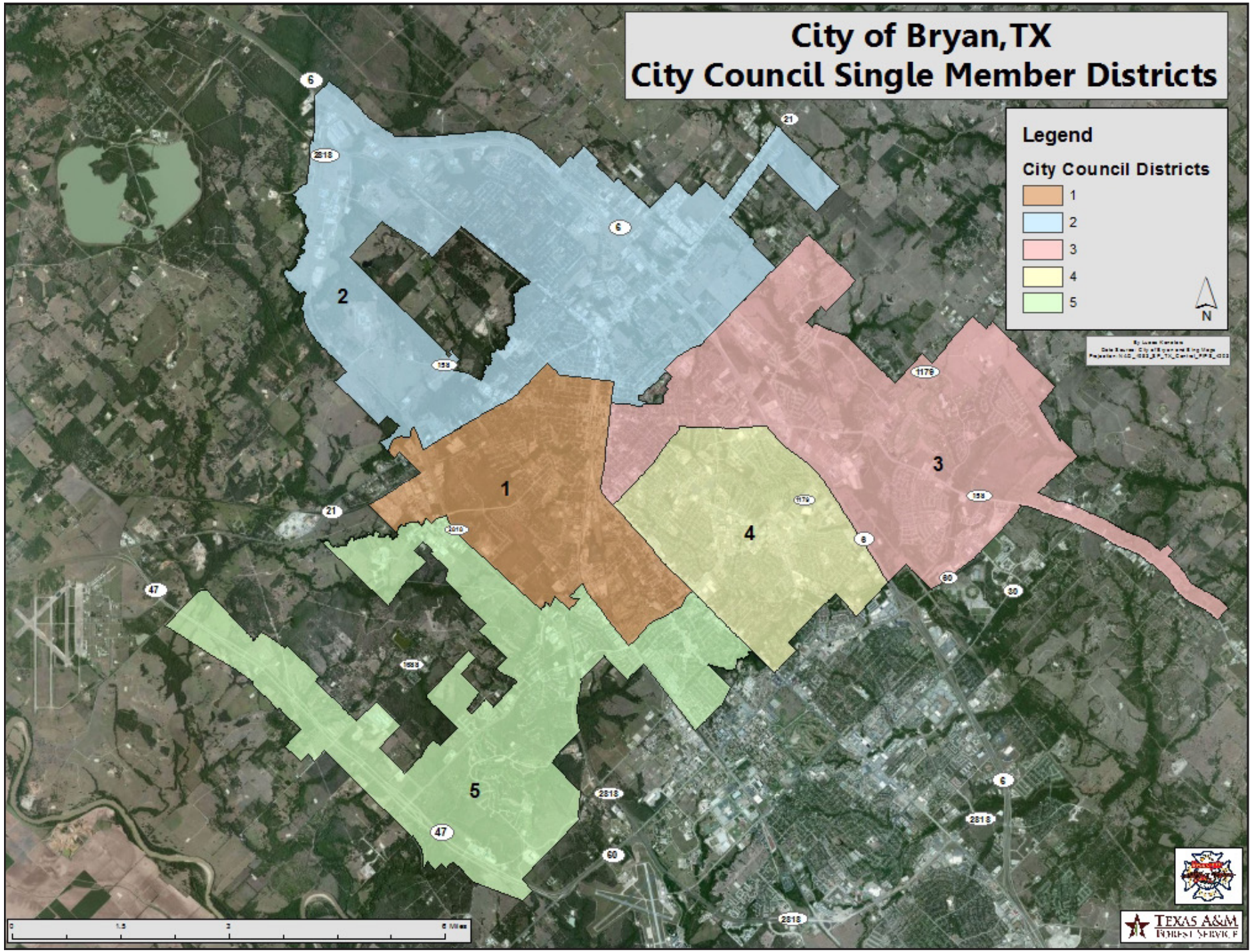
Maps

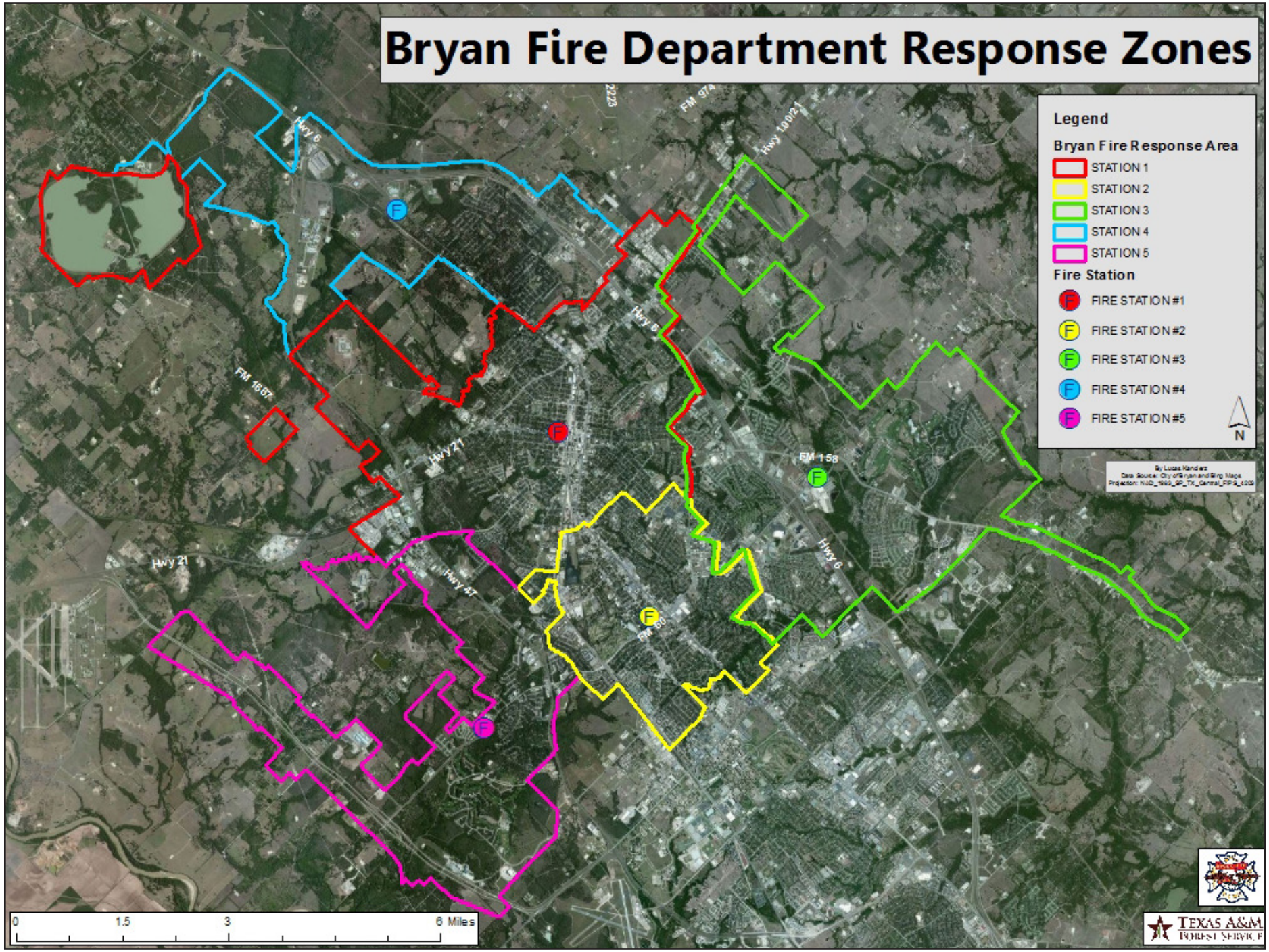

City of Bryan, TX Zoning
Legend
AGRICULTURAL OPEN
COMMERCIAL
DOWNTOWN CIVIC
DOWNTOWN NORTH
DOWNTOWN SOUTH
INDUSTRIAL
MIXED USE
MIXED USE RESIDENTIAL
MULTI FAMILY
OFFICE
PLANNED DEVELOPMENT
RESIDENTAIL N.C.D
RESIDENTIAL DISTRICT-5000
RESIDENTIAL DISTRICT-7000
RESIDENTIAL N.C.D.
RETAIL
SOUTH COLLEGE RESIDENTIAL
SOUTH COLLEGE-BUSINESS
SOUTH COLLEGE-RESIDENTIAL
N
TEXAS A&M
INSTITUTE

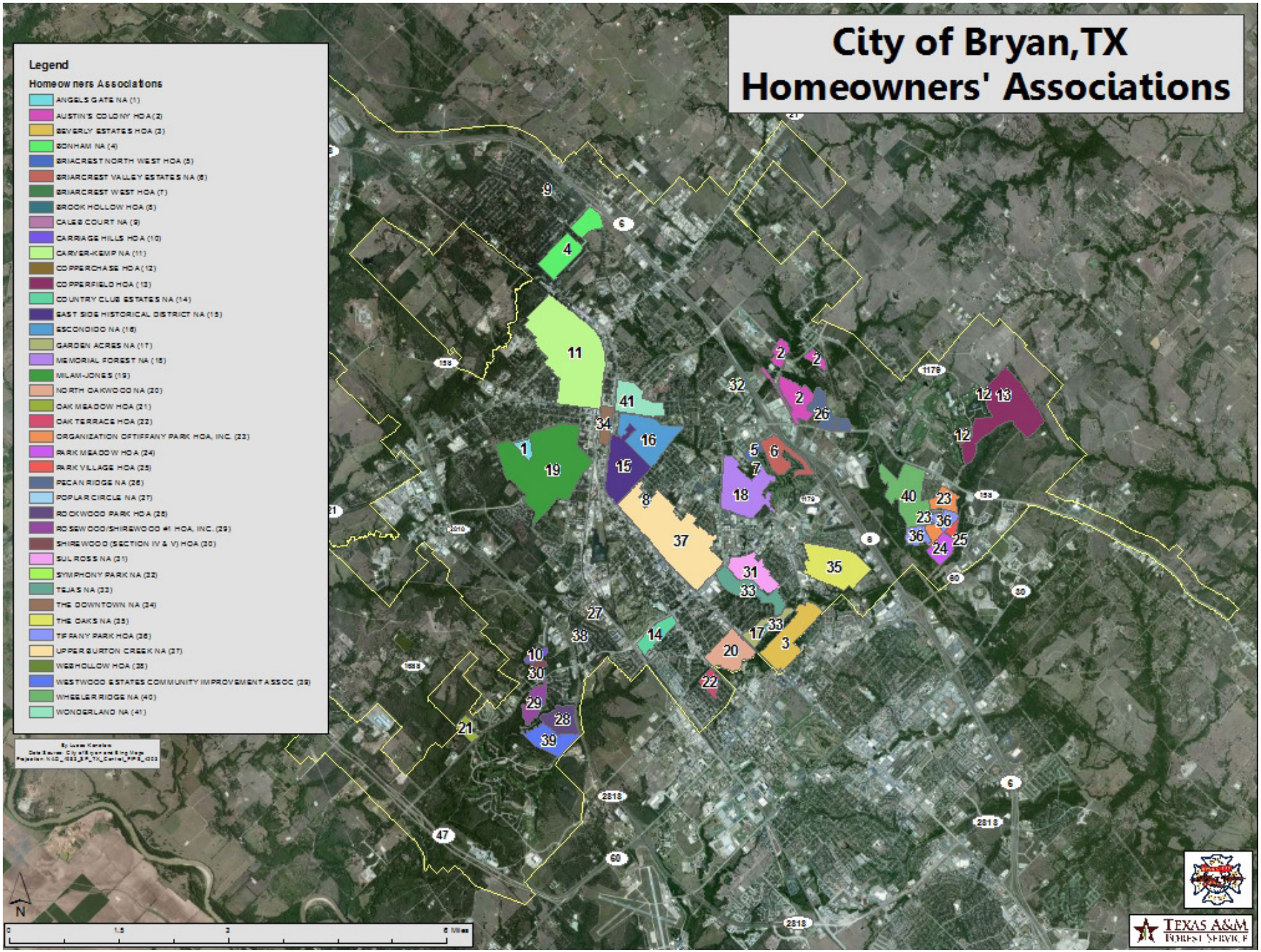

City of Bryan, TX Emergency Facilities
Legend
Bryan Fire Response Area
STATION 1
STATION 2
STATION 3
STATION 4
STATION 5
Fire Station
FIRE STATION #1
FIRE STATION #2
FIRE STATION #3
FIRE STATION #4
FIRE STATION #5
Hospital
St. Joseph Regional Health Center
PHI Air Medic (Coulter Airfield)
The Physicians Centre Hospital
College Station Medical Center
Scott and White Healthcare
By: Lucas Kandera
Data Source: City of Bryan and Bing Maps
Projection: NAD_1983_SP_TX_Central_FIPS_4203
TEXAS A&M FOREST SERVICE

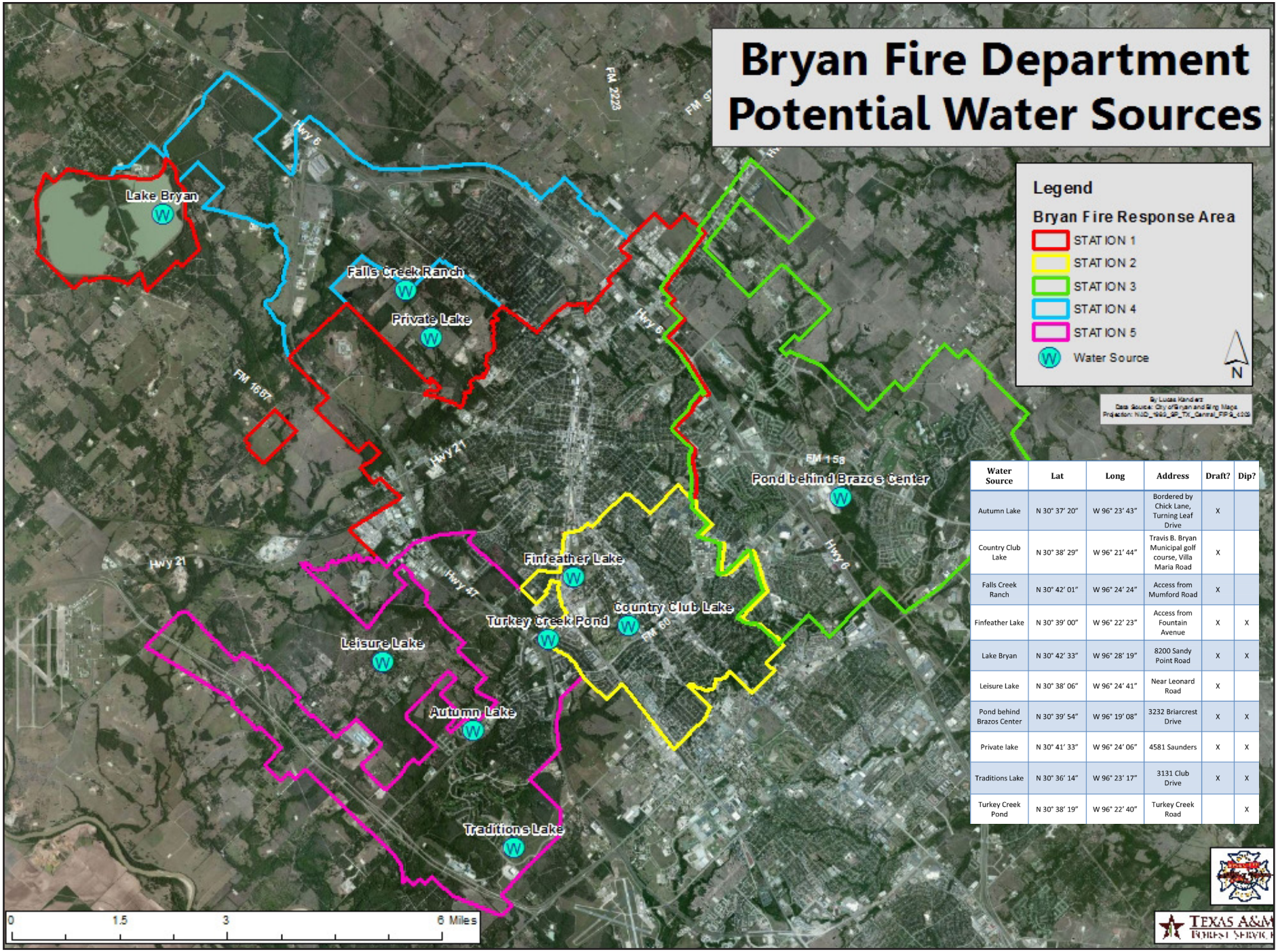

City of Bryan, TX Railroads
Legend
Bryan City Limits
Railroad
N
TEXAS A&M
FOREST SERVICE


City of Bryan, TX Schools
Schools
1 = Bryan High School
2 = Rudder High School
3 = Bryan Collegiate High School
4 = Stephen F. Austin Middle School
5 = Arthur L. Davila Middle School
6 = Jane Long Middle School
7 = Sam Rayburn Middle School
8 = Bonham Elementary
9 = Bowen Elementary
10 = Branch Elementary
11 = Carver Early Childhood Center
12 = Crockett Elementary
13 = Fannin Elementary
14 = Henderson Elementary
15 = Houston Elementary
16 = Johnson Elementary
17 = Jones Elementary
18 = Kemp Elementary
19 = Milam Elementary
20 = Mitchell Elementary
21 = Navarro Elementary
22 = Neal Elementary
23 = Sul Ross Elementary
Legend
Bryan City Limits
Schools
High School
Middle School
Elementary School
Pre-K
N
TEXAS A&M
FOREST SERVICE

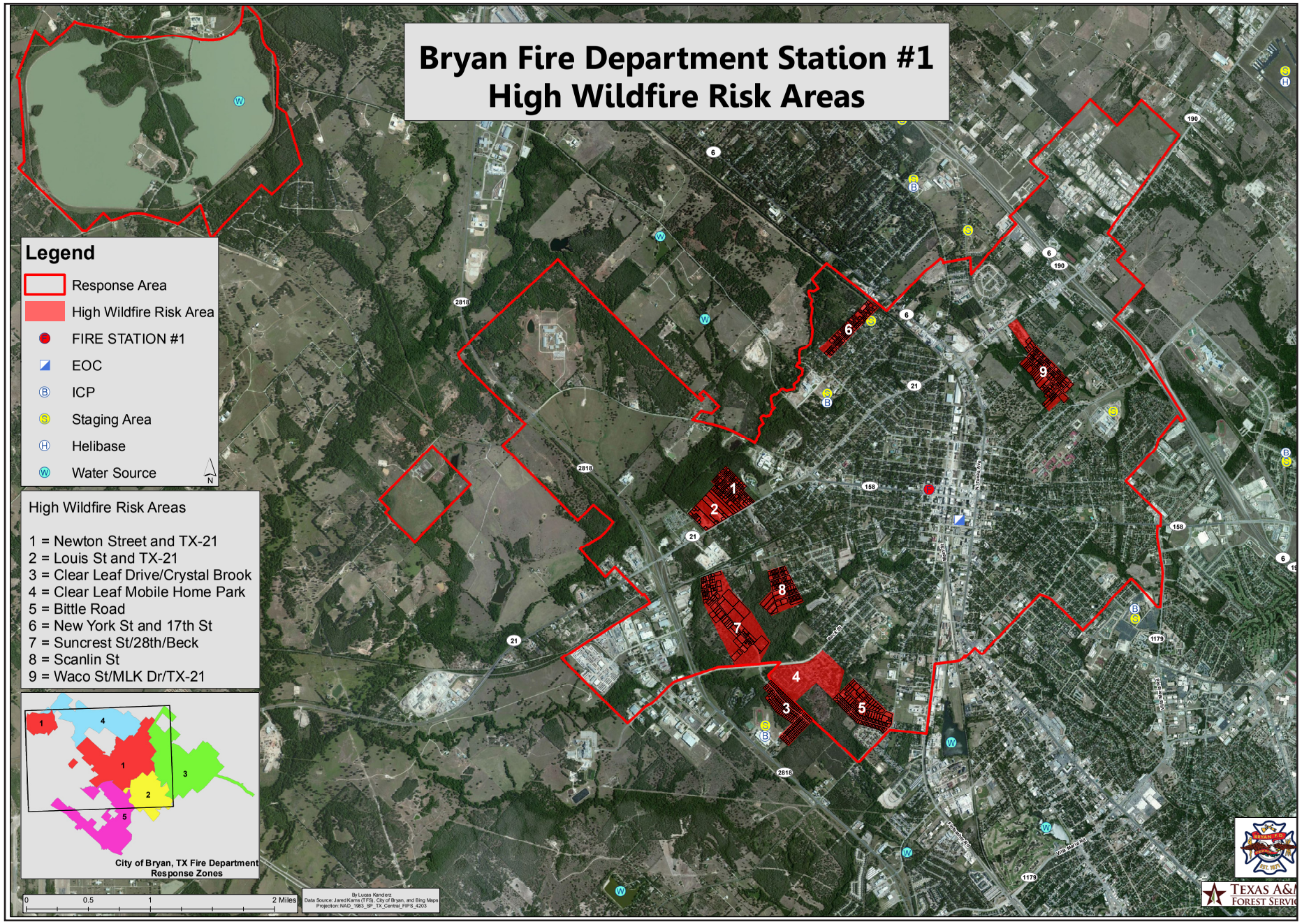

City of Bryan, TX
City Council Single Member Districts
Legend
City Council Districts
1
2
3
4
5
N
Texas A&M Forest Service

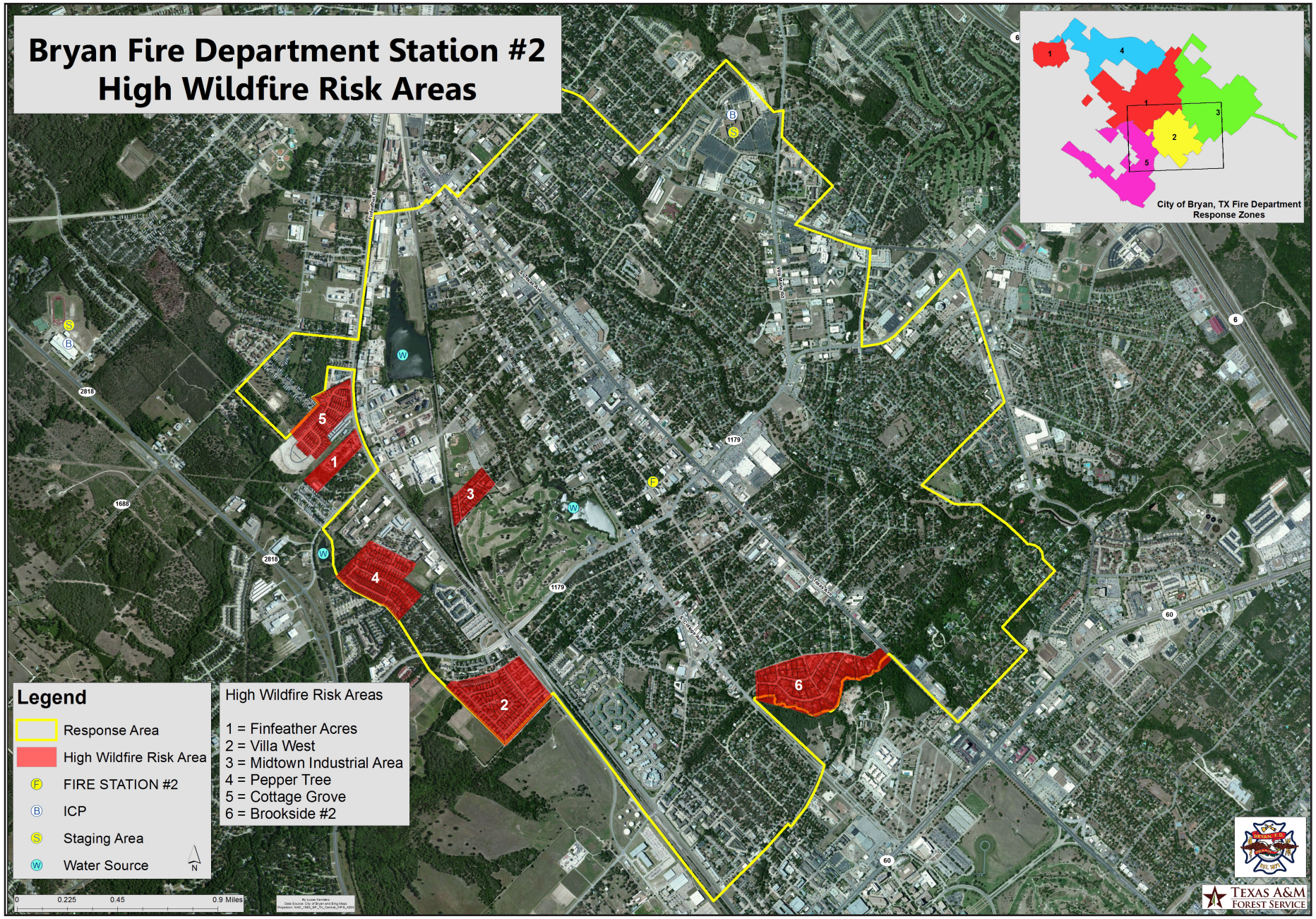

Bryan Fire Department Response Zones
Legend
Bryan Fire Response Area
STATION 1
STATION 2
STATION 3
STATION 4
STATION 5
Fire Station
FIRE STATION #1
FIRE STATION #2
FIRE STATION #3
FIRE STATION #4
FIRE STATION #5
N
By Lucas Kandarz
Data Source: City of Bryan and Bing Maps
Projection: NAD_1983_SP_TX_Central_FIPS_4203
Hwy 6
FM 974
Hwy 190/21
Hwy 6
FM 1687
Hwy 21
FM 158
Hwy 6
Hwy 21
Hwy 47
FM 60
0
1.5
3
6 Miles
TEXAS A&M
FOREST SERVICE

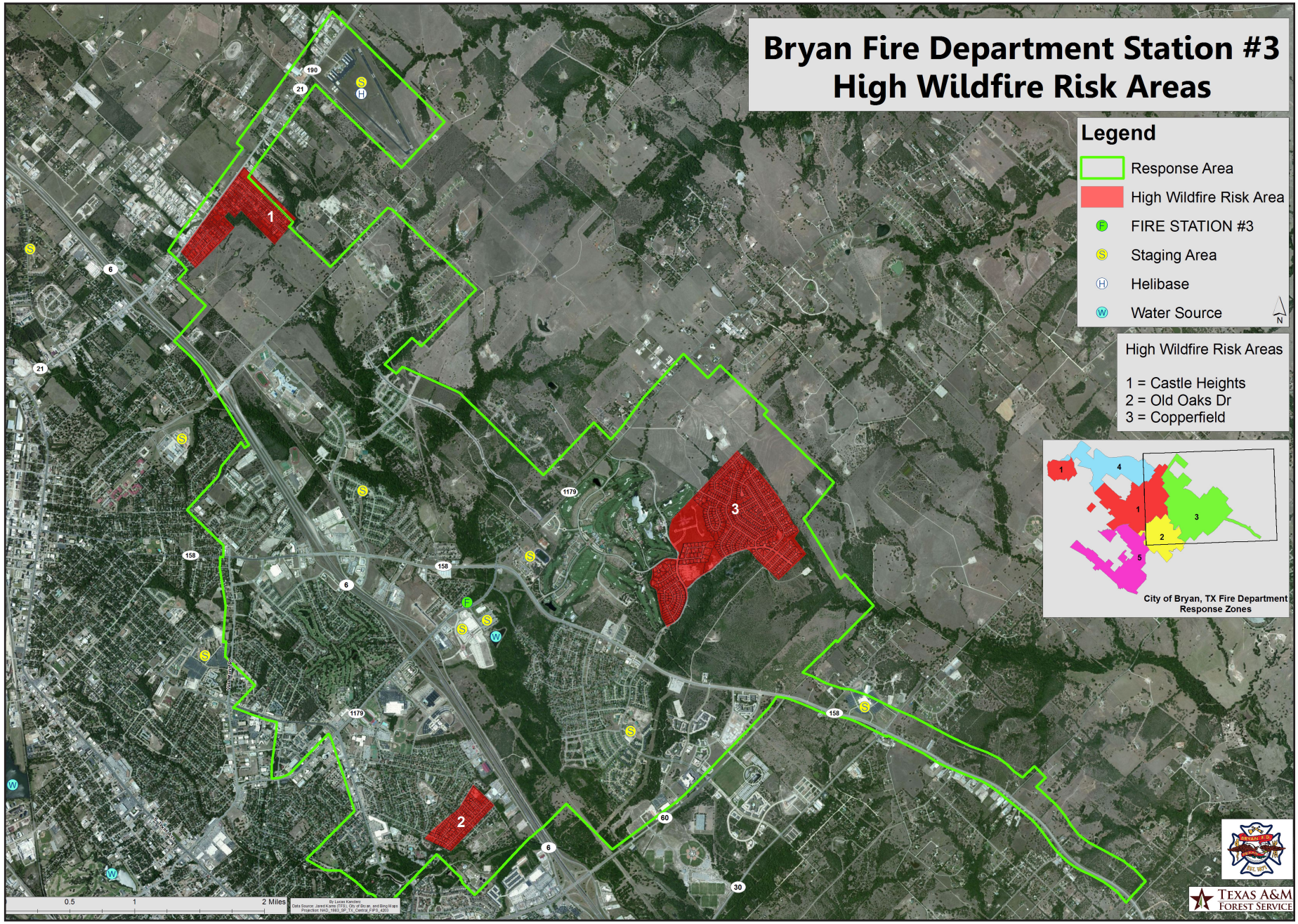

City of Bryan,TX
Homeowners' Associations
Legend
Homeowners Associations
ANGELS GATE NA (1)
AUSTIN'S COLONY HOA (2)
BEVERLY ESTATES HOA (3)
BONHAM NA (4)
BRIARCREST NORTH WEST HOA (5)
BRIARCREST VALLEY ESTATES NA (6)
BRIARCREST WEST HOA (7)
BROOK HOLLOW HOA (8)
CALEB COURT NA (9)
CARRIAGE HILLS HOA (10)
CARVER-KEMP NA (11)
COPPERCHASE HOA (12)
COPPERFIELD HOA (13)
COUNTRY CLUB ESTATES NA (14)
EAST SIDE HISTORICAL DISTRICT NA (15)
ESCONDIDO NA (16)
GARDEN ACRES NA (17)
MEMORIAL FOREST NA (18)
MILAM-JONES (19)
NORTH OAKWOOD NA (20)
OAK MEADOW HOA (21)
OAK TERRACE HOA (22)
ORGANIZATION OFTIFFANY PARK HOA, INC. (23)
PARK MEADOW HOA (24)
PARK VILLAGE HOA (25)
PECAN RIDGE NA (26)
POPLAR CIRCLE NA (27)
ROCKWOOD PARK HOA (28)
ROSEWOOD/SHIREWOOD #1 HOA, INC. (29)
SHIREWOOD (SECTION IV & V) HOA (30)
SULROSS NA (31)
SYMPHONY PARK NA (32)
TEJAS NA (33)
THE DOWNTOWN NA (34)
THE OAKS NA (35)
TIFFANY PARK HOA (36)
UPPER BURTON CREEK NA (37)
WEBHOLLOW HOA (38)
WESTWOOD ESTATES COMMUNITY IMPROVEMENT ASSOC (39)
WHEELER RIDGE NA (40)
WONDERLAND NA (41)
N
0
1.5
3
6 Miles
TEXAS A&M
FOREST SERVICE

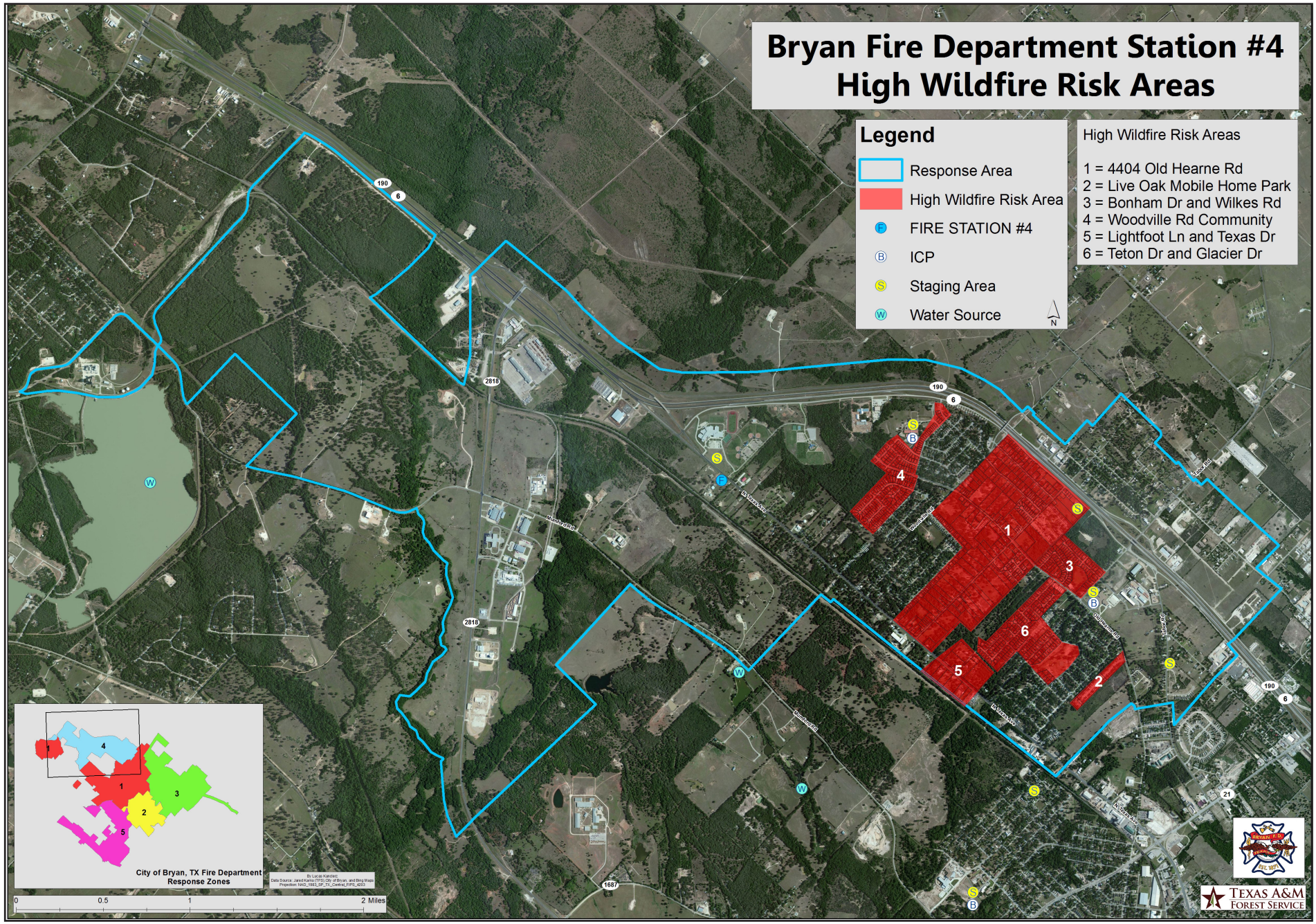


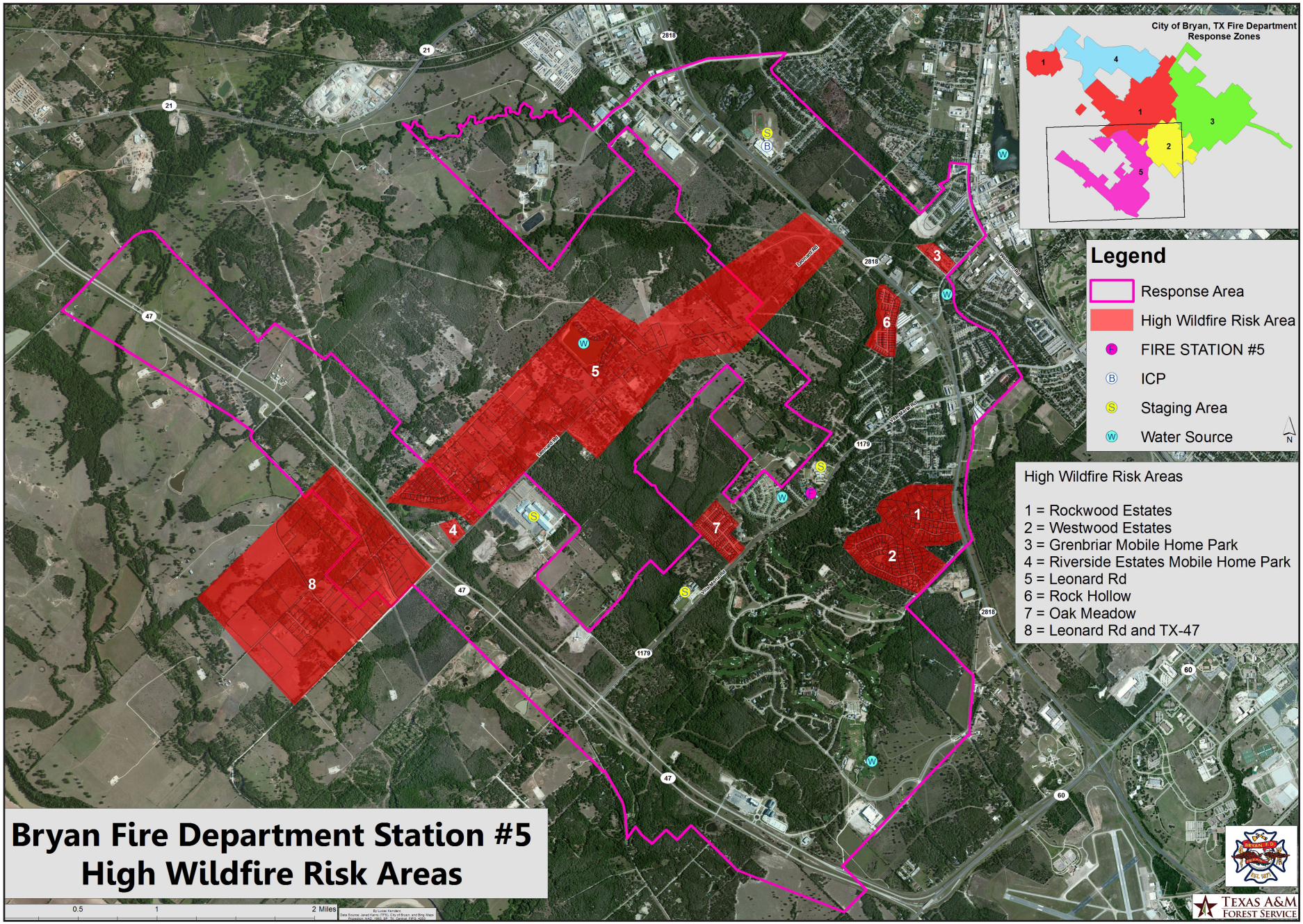
Water Source	Lat	Long	Address	Draft?	Dip?
Autumn Lake	N 30° 37' 20"	W 96° 23' 43"	Bordered by Chick Lane, Turning Leaf Drive	X	
Country Club Lake	N 30° 38' 29"	W 96° 21' 44"	Travis B. Bryan Municipal golf course, Villa Maria Road	X	
Falls Creek Ranch	N 30° 42' 01"	W 96° 24' 24"	Access from Mumford Road	X	
Finfeather Lake	N 30° 39' 00"	W 96° 22' 23"	Access from Fountain Avenue	X	X
Lake Bryan	N 30° 42' 33"	W 96° 28' 19"	8200 Sandy Point Road	X	X
Leisure Lake	N 30° 38' 06"	W 96° 24' 41"	Near Leonard Road	X	
Pond behind Brazos Center	N 30° 39' 54"	W 96° 19' 08"	3232 Briarcrest Drive	X	X
Private lake	N 30° 41' 33"	W 96° 24' 06"	4581 Saunders	X	X
Traditions Lake	N 30° 36' 14"	W 96° 23' 17"	3131 Club Drive	X	X
Turkey Creek Pond	N 30° 38' 19"	W 96° 22' 40"	Turkey Creek Road		X


Bryan Fire Department Station #1
High Wildfire Risk Areas
Legend
Response Area
High Wildfire Risk Area
FIRE STATION #1
EOC
ICP
Staging Area
Helibase
Water Source
N
High Wildfire Risk Areas
1 = Newton Street and TX-21
2 = Louis St and TX-21
3 = Clear Leaf Drive/Crystal Brook
4 = Clear Leaf Mobile Home Park
5 = Bittle Road
6 = New York St and 17th St
7 = Suncrest St/28th/Beck
8 = Scanlin St
9 = Waco St/MLK Dr/TX-21
City of Bryan, TX Fire Department
Response Zones
0
0.5
1
2 Miles
By Lucas Kanderz
Data Source: Jared Kams (TFS), City of Bryan, and Bing Maps
Projection: NAD_1983_SP_TX_Central_FIPS_4203
TEXAS A&M
FOREST SERVICE

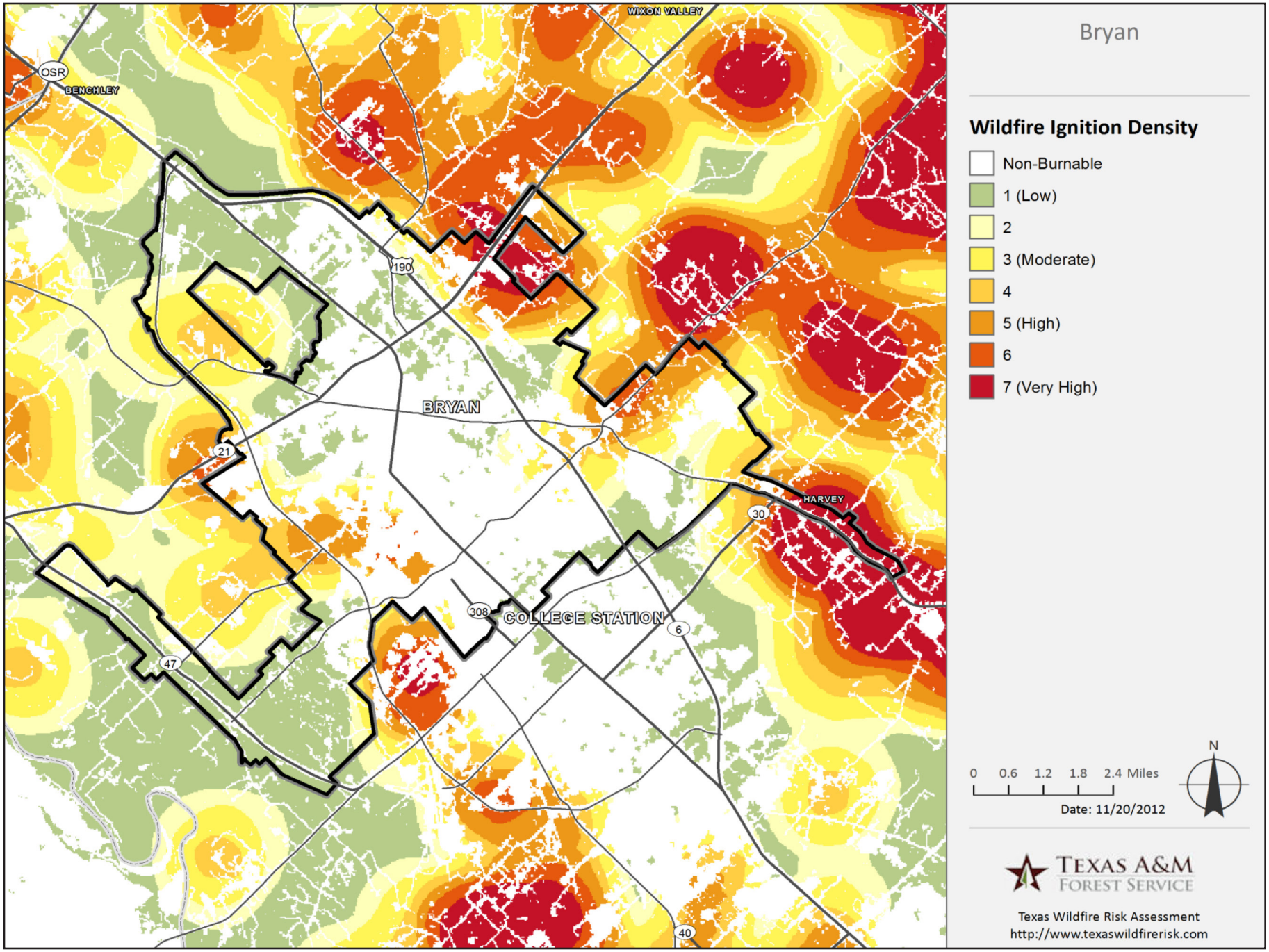

Bryan Fire Department Station #2
High Wildfire Risk Areas
City of Bryan, TX Fire Department
Response Zones
Legend
Response Area
High Wildfire Risk Area
FIRE STATION #2
ICP
Staging Area
Water Source
High Wildfire Risk Areas
1 = Finfeather Acres
2 = Villa West
3 = Midtown Industrial Area
4 = Pepper Tree
5 = Cottage Grove
6 = Brookside #2
0 0.225 0.45 0.9 Miles
TEXAS A&M FOREST SERVICE

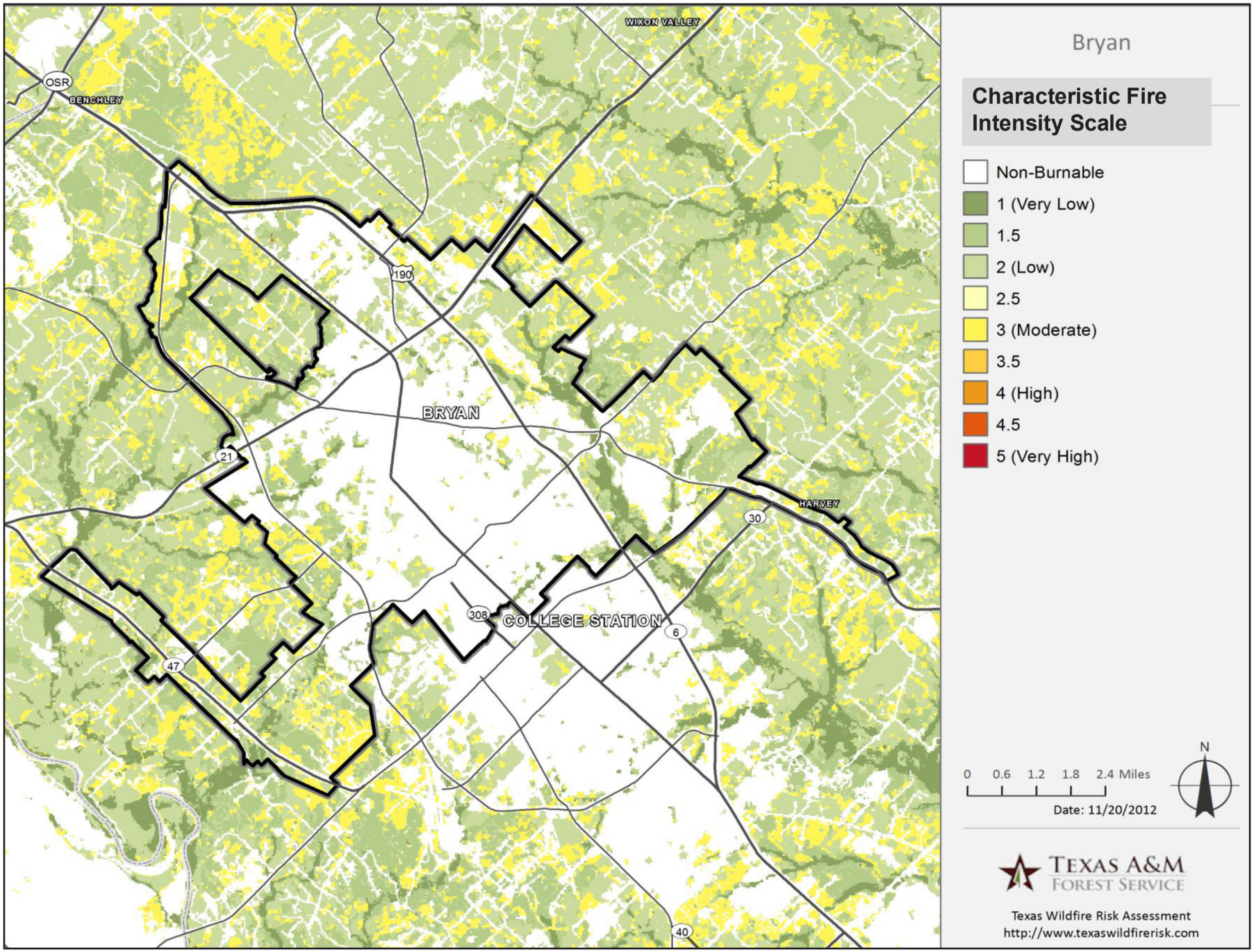

Bryan Fire Department Station #3
High Wildfire Risk Areas
Legend
Response Area
High Wildfire Risk Area
FIRE STATION #3
Staging Area
Helibase
Water Source
N
High Wildfire Risk Areas
1 = Castle Heights
2 = Old Oaks Dr
3 = Copperfield
City of Bryan, TX Fire Department
Response Zones
1
2
3
4
5
0.5
1
2 Miles
By Lucas Hatcher
Data Source: Jared Kiene (FFS), City of Bryan, and Bing Maps
Projection NAD_1983_SP_TX_Central_FIPS_4203
TEXAS A&M
FOREST SERVICE

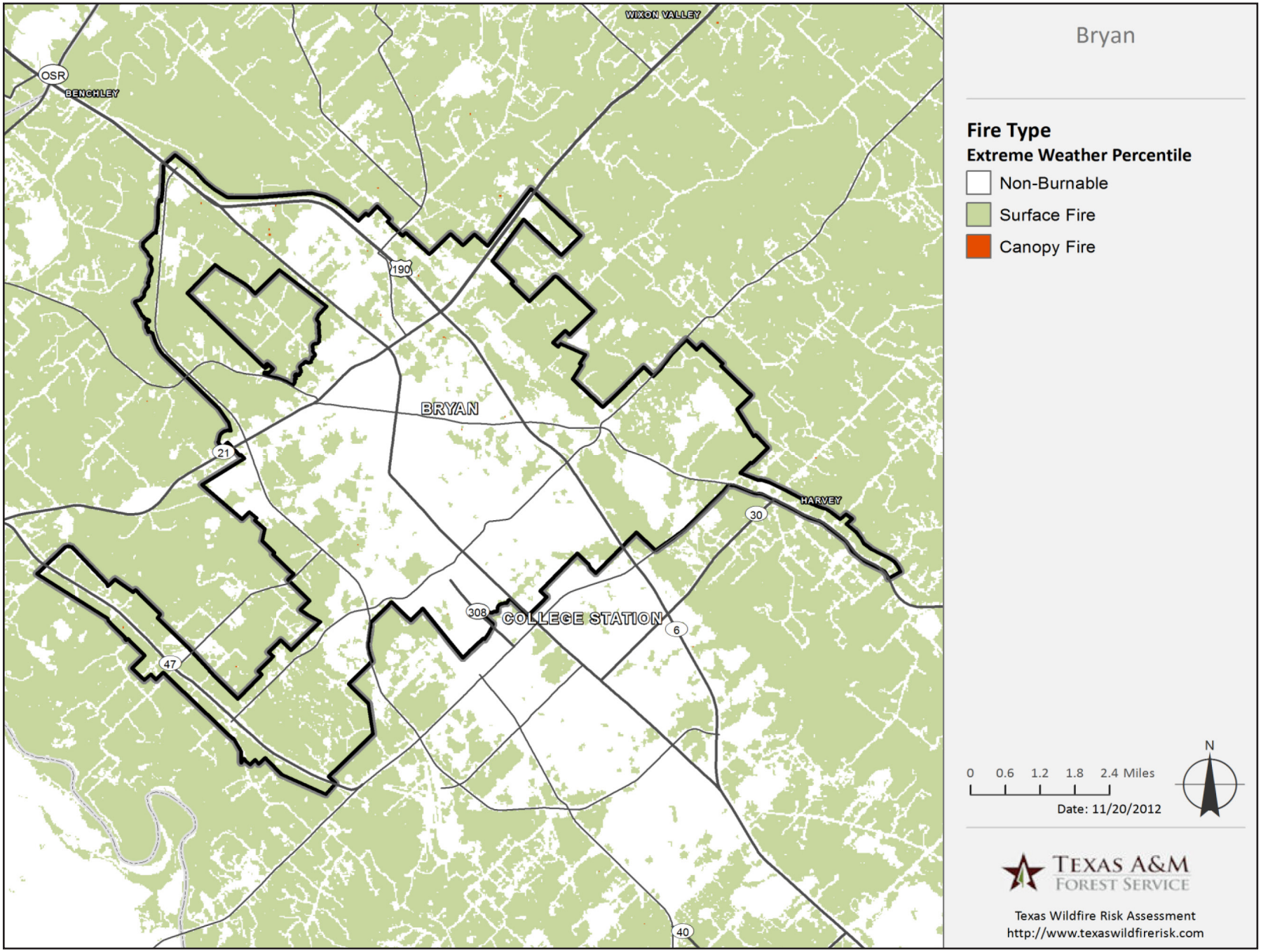

Bryan Fire Department Station #4
High Wildfire Risk Areas
Legend
Response Area
High Wildfire Risk Area
FIRE STATION #4
ICP
Staging Area
Water Source
High Wildfire Risk Areas
1 = 4404 Old Hearne Rd
2 = Live Oak Mobile Home Park
3 = Bonham Dr and Wilkes Rd
4 = Woodville Rd Community
5 = Lightfoot Ln and Texas Dr
6 = Teton Dr and Glacier Dr
City of Bryan, TX Fire Department
Response Zones
0
0.5
1
2 Miles
TEXAS A&M
FOREST SERVICE

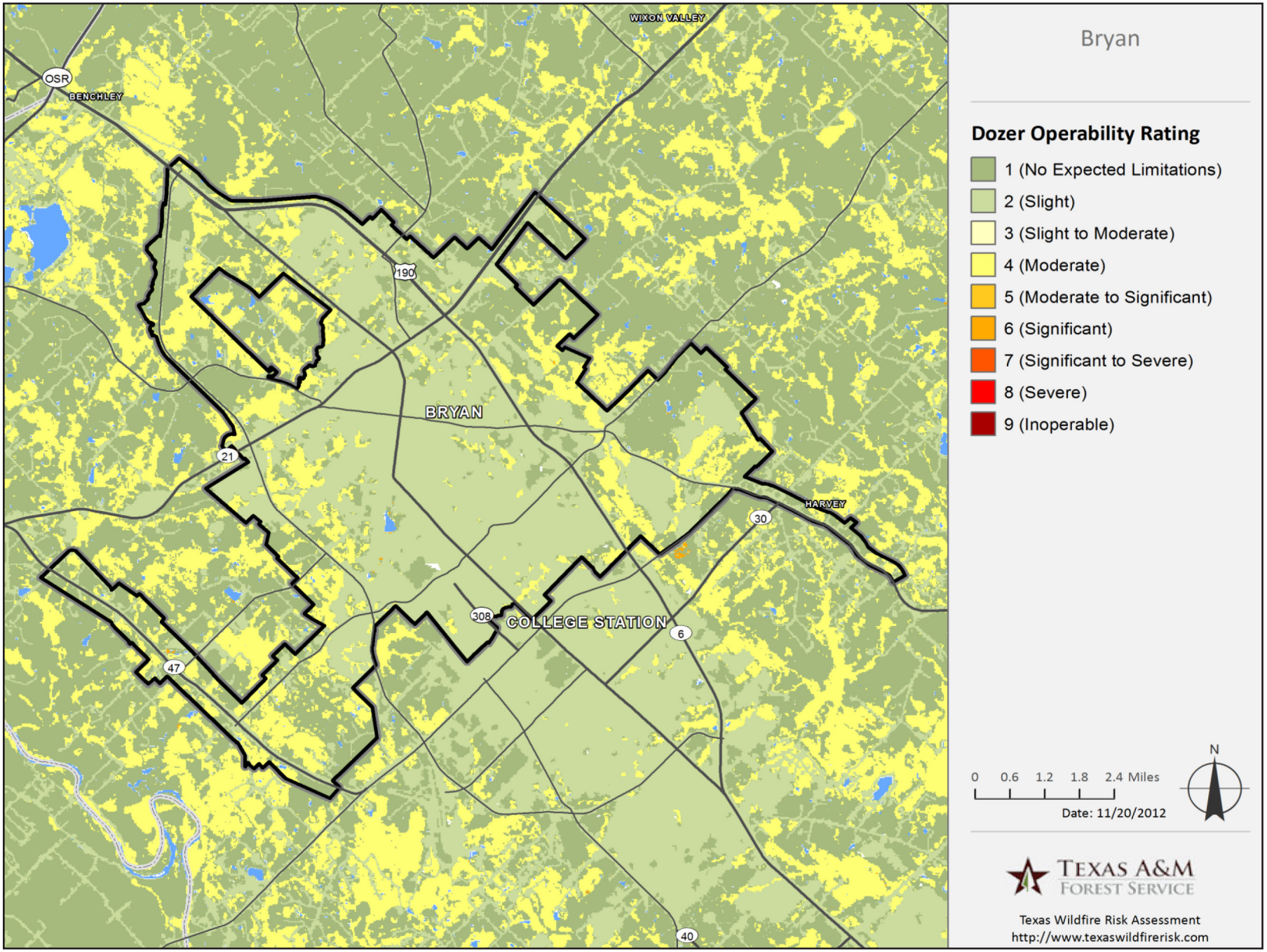

Bryan Fire Department Station #5
High Wildfire Risk Areas
City of Bryan, TX Fire Department
Response Zones
Legend
Response Area
High Wildfire Risk Area
FIRE STATION #5
ICP
Staging Area
Water Source
High Wildfire Risk Areas
1 = Rockwood Estates
2 = Westwood Estates
3 = Grenbriar Mobile Home Park
4 = Riverside Estates Mobile Home Park
5 = Leonard Rd
6 = Rock Hollow
7 = Oak Meadow
8 = Leonard Rd and TX-47
0.5
1
2 Miles
TEXAS A&M
FOREST SERVICE

Bryan
Wildfire Threat
Non-Burnable
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
WIXON VALLEY
OSR
BENCHLEY
190
BRYAN
21
HARVEY
30
308
COLLEGE STATION
6
47
40
0 0.6 1.2 1.8 2.4 Miles
Date: 11/20/2012
N
TEXAS A&M
FOREST SERVICE
Texas Wildfire Risk Assessment
http://www.texaswildfirerisk.com


Bryan
Wildfire Ignition Density
Non-Burnable
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
WIXON VALLEY
OSR
BENCHLEY
190
BRYAN
21
HARVEY
30
308
COLLEGE STATION
6
47
40
0 0.6 1.2 1.8 2.4 Miles
Date: 11/20/2012
N
TEXAS A&M
FOREST SERVICE
Texas Wildfire Risk Assessment
http://www.texaswildfirerisk.com


Bryan
Characteristic Fire Intensity Scale
Non-Burnable
1 (Very Low)
1.5
2 (Low)
2.5
3 (Moderate)
3.5
4 (High)
4.5
5 (Very High)
0 0.6 1.2 1.8 2.4 Miles
Date: 11/20/2012
N
Texas A&M Forest Service
Texas Wildfire Risk Assessment
http://www.texaswildfirerisk.com
WIXON VALLEY
OSR
BENCHLEY
190
BRYAN
21
HARVEY
30
308
COLLEGE STATION
6
47
40


Bryan
Fire Type
Extreme Weather Percentile
Non-Burnable
Surface Fire
Canopy Fire
0 0.6 1.2 1.8 2.4 Miles
Date: 11/20/2012
N
Texas A&M Forest Service
Texas Wildfire Risk Assessment
http://www.texaswildfirerisk.com
WIXON VALLEY
OSR
BENCHLEY
190
BRYAN
21
HARVEY
30
308
COLLEGE STATION
6
47
40


Bryan
Dozer Operability Rating
1 (No Expected Limitations)
2 (Slight)
3 (Slight to Moderate)
4 (Moderate)
5 (Moderate to Significant)
6 (Significant)
7 (Significant to Severe)
8 (Severe)
9 (Inoperable)
WIXON VALLEY
OSR
BENCHLEY
190
BRYAN
21
HARVEY
30
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6
47
40
0 0.6 1.2 1.8 2.4 Miles
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