Draft Environmental Assessment

Bastrop County Pine Valley Estates Hazardous Fuels Reduction Project

HMGP-5288-0003-TX

Bastrop County, Texas

November 2021

U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 6
800 North Loop 288
Denton, TX 76209

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Table of Contents

TABLES

FIGURES

APPENDICES

Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
ASTM	American Society for Testing and Materials
BMP	Best Management Practice
BSA	Brownfield Site Assessment
CAA	Clean Air Act
CEQ	President's Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWPP	Community Wildfire Protection Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESD	Emergency Services District
FEMA	Federal Emergency Management Agency
FMAG	Fire Management Assistance Grant
FONSI	Finding of No Significant Impact
HMGP	Hazard Mitigation Grant Program
IPaC	Information for Planning and Conservation
LCMS	Langford Community Management Services, Inc.
NEPA	National Environmental Policy Act
NETR	Nationwide Environmental Title Research
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
ROW	Right-of-Way
SHPO	State Historic Preservation Officer
TAMU	Texas A & M University
TCEQ	Texas Commission on Environmental Quality
TDEM	Texas Division of Emergency Management
THC	Texas Historical Commission
TPWD	Texas Parks and Wildlife Department
TPDES	Texas Pollutant Discharge Elimination System
USACE	U. S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WUI	Wildland Urban Interface
WSC	Water Supply Corporation

SECTION 1 INTRODUCTION

Bastrop County has experienced three major wildfires in the last 10 years: The Wilderness Ridge Fire, the Bastrop County Complex Fire, and the Hidden Pines Fire. In total, these fires have claimed over 1,800 homes and businesses and caused over 450 million dollars in damages. The Bastrop County Complex Fire is still considered the most destructive wildfire in Texas history. All these fires were in an area known as the Lost Pines. This is an ecosystem that is dominated by loblolly pines with an intermix of oak, yaupon, and eastern red cedar. Areas that were not directly burned by these major wildfires are impacted by a century of untreated understory. The density of the vegetation in these areas has created large amounts of fuel for wildfire. The layering effect creates a pathway for flames to reach the higher foliage of large trees and increases the risk of crown fires, which is what Bastrop County experienced in 2011. As this area has populated in the last three decades, there has become a clear proliferation of houses, businesses, barns, and outbuildings, known as the Wildland-Urban Interface (WUI). A WUI is the zone where structures and other human development meet or mix with wildland or vegetative fuels. Unmanaged forests within the WUI, along with the long-term drought conditions that killed many trees, have left the pine forest vulnerable. During periods of drought, the residents of the Lost Pines and surrounding areas face risk of property damage, injury, and loss of life from wildfires. Wildland fire in heavy fuel laden composites is especially destructive unless a rapid initial attack is possible by suppression forces, such as local fire departments; however, no matter how well equipped a fire department might be, the ecosystem of the Lost Pines is defined by a radical topography and inaccessibility. The essential risk to be mitigated is the area of spread of a fire event, as much as the destructive force of the fire itself. The proposed project would reduce wildfire hazards by reducing the rate at which wildfires can spread and helping prevent devastating crown fires. The removal of dense vegetation in the project area will reduce the risk of damage by wildfire to property owners within the project boundary, as well as adjacent neighborhoods. Local fire departments and existing critical infrastructure will benefit, as well. The overall goal is to save lives, save property, and help reduce the risk of another catastrophic fire, like those in 2009, 2011, and 2015.

Bastrop County, in conjunction with the Texas A&M Forest Service and the Fire Citizen Advisory Panel, prepared a Community Wildfire Protection Plan (CWPP) (FireCAP2008). The CWPP, developed in accordance with the Healthy Forest Restoration Act of 2003, assessed wildfire risk throughout the County and prioritized actions that would mitigate wildfire risk. The CWPP identifies more than 70 communities as being at high risk of wildfire, including the proposed project site. In addition, Bastrop County has used the Texas A&M Risk Assessment Portal to identify Community Protection Zones (CPZ). These are areas where mitigation is needed most due to a high population density near large fuel loads. Bastrop County has worked diligently the last several years to identify those neighborhoods with the greatest risk.

The Pine Valley Subdivision Project is in South Central Bastrop County and is one of the communities identified in the CWPP. Most of the project site has a continuous overstory of loblolly pine and oak. The understory consists of dense thickets of yaupon and eastern red cedar. There is a single point of entrance and exit off Hwy 304 into the subdivision. In the event of a major fire, this would be the only means of escape, which emphasizes the need to slow the spread of any potential fires.

Bastrop County, Texas, through the Texas Division of Emergency Management (TDEM), applied for funding under FEMA's Hazard Mitigation Grant Fire Management Assistance Grant Program (HMGP FMAG) to ascertain whether any conditions exist that require mitigation for compliance by National Environmental Policy Act (NEPA). HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

This Environmental Assessment has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality regulations to implement NEPA (40 Code of Federal Regulations Parts 1500-1508), and FEMA's procedures for implementing NEPA (FEMA Instruction 108-1-1). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this EA is to analyze the potential environmental impacts of the proposed project. FEMA will use the findings in this EA to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

SECTION 2 PURPOSE AND NEED FOR ACTION

Purpose

FEMA's HMGP provides funds to state and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of HMGP is to reduce loss of life and property due to natural disasters and to enable risk mitigation measures to be implemented during the immediate recovery from a declared disaster.

Need

The project need is to address the wildfire risk in the project area in order to save lives and property. Over 60% of this project is in a Community Protection Zone (CPZ). Community Protection Zones represent those areas considered highest priority for mitigation planning activities and are based on an analysis of where people live, housing density data, and surrounding fire behavior potential. If allowed to persist in its current condition, the residents of the Pine Valley Estates and surrounding areas would face risk of property damage, injury, and loss of life from wildfires. The overall goal is to save lives, property, and help reduce the risk of another catastrophic fire, like those that occurred in 2009, 2011, and 2015.

SECTION 3 ALTERNATIVES

This section describes the alternatives considered, including the proposed action.

3.1 NO ACTION ALTERNATIVE

Under the no action alternative, no work would be conducted to reduce hazardous fuels on targeted parcels within central Bastrop County. Residents and homes in Pine Valley Estates would remain at an elevated risk to be affected by catastrophic wildfire.

Because existing wildfire hazards in Bastrop County would not be reduced under the no action alternative, the probability of loss of human life and property in a wildfire would continue to be unacceptably high. A major wildfire could have severe temporary impacts on environmental resources (*i.e.*, air quality, water quality, and emergency services). Fighting a major wildfire would also require large quantities of water at a time when water resources in the area may be already strained by drought.

Under the no action alternative, minor short-term impacts that may occur under the proposed action would be avoided because there would be no work conducted to remove hazardous fuels. The impacts avoided would include temporary increases in noise, truck traffic, and minor short-term impacts to air quality. For the reasons described in this section, the no action alternative would not meet the purpose and need of the proposed project.

3.2 PROPOSED ACTION

Bastrop County proposes to implement a hazardous fuel reduction project within Pine Valley Estates. The 1,200-acre project site consists of 210 lots with modest homes. It is estimated that 250-300 acres will be treated. The average lot size is 5.75 acres with some larger tracts to the south of the subdivision. These larger tracts are agricultural properties and would not require any fuel reduction activities. Most of the homes in this subdivision are located deep within their lots and have varying degrees of fire resistibility and defensible space. The proposed action is intended to minimize the spread of and damage from fires and to assist firefighters in combating wildfires. The goal of the vegetation modification is twofold: (1) in areas of heavy fuel concentrations that are more than 30 feet from a structure, the area will be treated mechanically to reduce fuel concentration; and (2) in larger areas of continuous fuels adjacent to structures, fuel breaks will be established. Shaded fuel breaks are natural or manmade changes in fuel characteristics that affect fire behavior. Fires burning into them can be more easily controlled. In both cases, the goal will be to lower the occurrence of heavy under-and mid-story fuels, thereby reducing the intensity of surface fires and lowering the probability of fires transitioning into the crowns of the stand. The guiding objective is to lower the area's wildfire risk.

In pine dominated sites, which tend to be areas of heavy fuel concentration, the treatment would include the removal of encroaching brush species such as yaupon holly and eastern red cedar. In these areas, dead vegetative material such as branches, standing loblolly pines, and debris would be removed. Trees targeted for retention would be pine and hardwood species; however, some trees of these species would be selectively removed only when necessary, to achieve the desired canopy cover. The lower limbs of larger and taller trees, including hardwoods and pines, would be removed up to 8 feet above the ground. The same techniques would be used to establish shaded fuel breaks. Shaded fuel breaks would be anchored on both ends to a less combustible fuel type or a natural or manmade barrier. This treatment prescription would result in a mosaic pattern consisting of areas of reduced fuels and areas of untreated or vacant lots throughout the community. This approach would reinforce the effectiveness of properties that have created defensible spaces around homes (within 30 feet of structures), as well as separate the built community from the large adjacent blocks of wildland fuels.

The focus of this project will be on private property (see **Figure 2** Project Sites Maps and Project Locations, **Appendix B**), but some areas of Right of Way (ROW) may undergo hazardous fuel reduction, where needed. These roads would include the following as shown on **Figures 1 and 2** Project Sites Maps, **and** Project Areas to be Mitigated (Photographs), **Appendix A**.

- Pine Valley Cove (center point 29.959503, -97.318176)
- Pine Canyon Drive (center point 29.967409, -97.324870)
- Pine Valley Spur (center point 29.959290, -97.307243)
- Pine Valley Loop (center point 29.949569, -97.315620)
- Lakeview Drive (center Point 29.952886, -97.311802)
- Foster Road (center point 29.955265, -97.300443)

Any areas of ROW requiring hazardous fuel reduction would be treated 15 feet from the edge of the roadway on both sides of the road or to the property line, whichever distance they reach first. Bastrop County will use a mechanical thinning process that uses skid steers with attached mulching

heads. These low impact machines will grind up the undesirable vegetation, leaving mulch on the ground. All stumps will be left at ground level and will not be excavated or otherwise mechanically removed. The County will hire full-time, temporary personnel and will use county-owned equipment to complete this project. Due to the age of the county-owned equipment, leased equipment may be used if necessary. There will be no fuel reduction activities performed within 30 feet of a structure, in areas where practical mitigation methods will not prevent harm to significant natural or cultural resources, or on private property without valid consent and right-of-entry from the property owner. Cut, trimmed, dead, and downed vegetation would be mulched daily. Mulched material left on the ground would be no more than two inches deep. Appropriate measures (e.g., adequate setbacks or silt fencing) would be taken to prevent mulch from washing into surface waters. During project implementation, additional equipment that will be used will include forestry-type mowers, chainsaws, chippers, trucks, and trailers. This project will not use herbicides or bio-controls.

The County will maintain the ROWs on all county roads within the project area and will mow them annually or as needed depending on rainfall and vegetative growth. Each landowner will be responsible for maintenance of their treated parcels in accordance with a variety of objectives they may have for their property. The County would provide guidance on maintenance activities and best management practices (BMPs) to landowners. Guidance provided by the County would be consistent with the Lost Pines Habitat Conservation Plan (LPHCP). The County will monitor treatment sites for 3 years after hazardous fuels reduction work is completed.

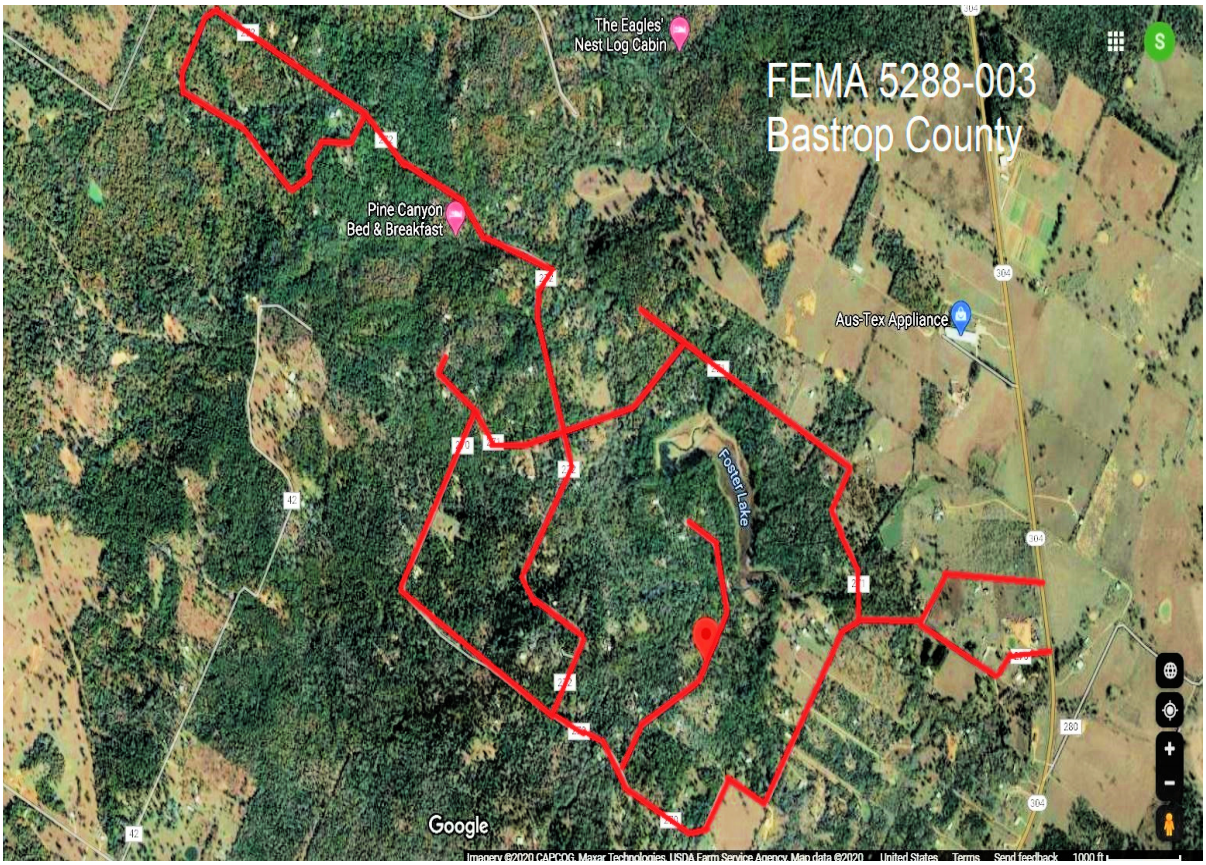


Figure 1 Project Sites Map (Google Maps)

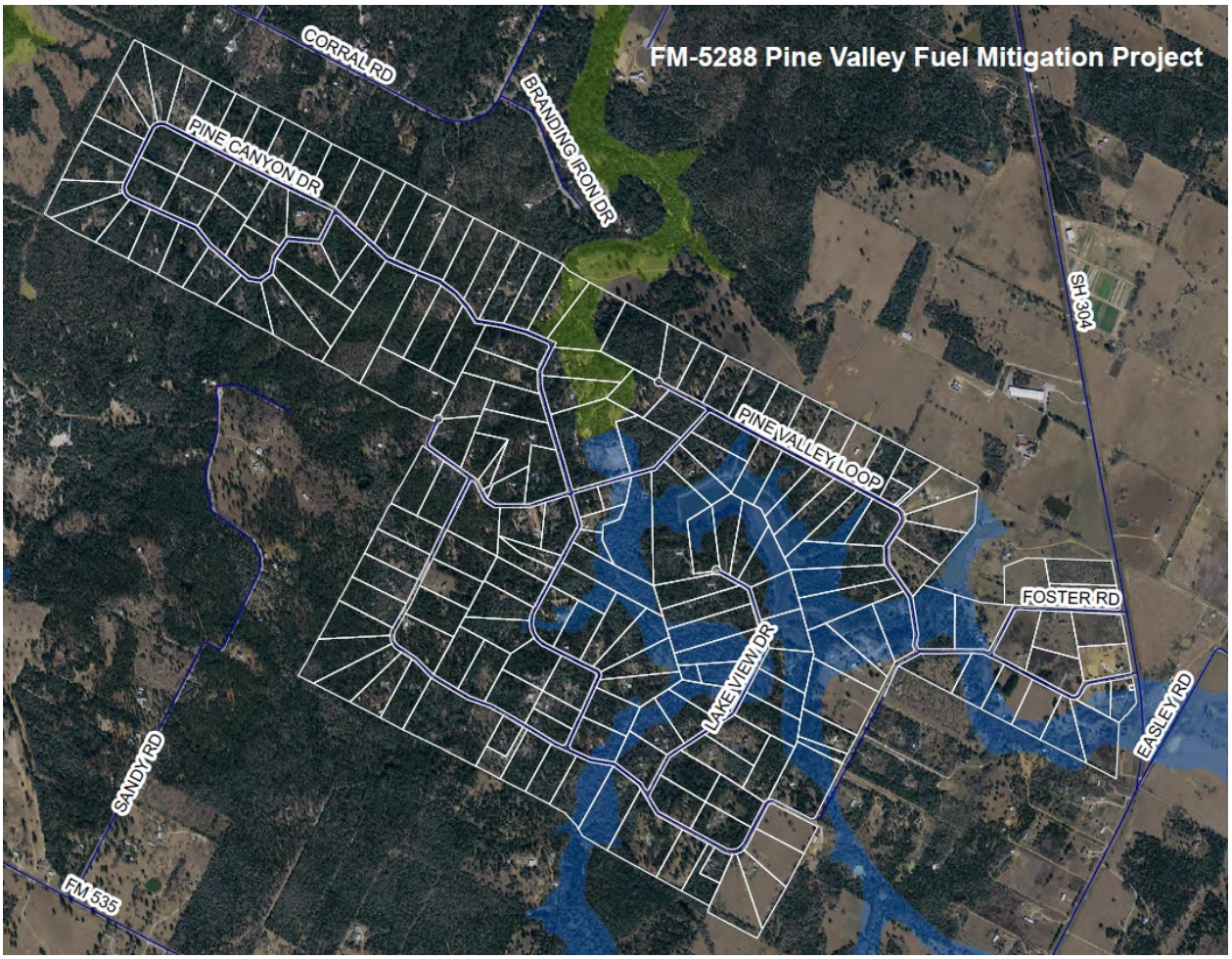


Figure 2 Project Sites Map

3.3 ALTERNATIVE CONSIDERED BUT DISMISSED

During project planning, Bastrop County considered other action alternatives for meeting the purpose and need. The County considered prescribed burning instead of mechanical treatment as a means to reduce fuel loads and thus reduce the threat of a catastrophic crown fire in the project area. Prescribed burning was dismissed as a viable alternative because the proximity of heavy fuel loads to existing homes and businesses makes prescribed burning infeasible and risky. In addition, prescribed burning is not eligible for FEMA funding, so funds through FEMA's HMGP would not be available for this alternative action. Therefore, the County dismissed this alternative and it is not analyzed further in this EA.

SECTION 4 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section describes the environment potentially affected by the no action and proposed action alternatives, evaluates potential environmental impacts, and recommends measures to avoid or reduce those impacts.

4.1 RESOURCES NOT AFFECTED AND NOT CONSIDERED FURTHER

This section provides an overview of the environmental resources that would not be affected by the no action or proposed action alternatives and have been eliminated from further consideration in this EA.

4.1.1. Geology and Seismicity

Based on the nature and location of the project area, the proposed action would have no effect on seismicity and is very unlikely to be affected by seismic events. Seismicity is not considered further in this analysis. Vegetative fuel reduction and hazard mitigation actions involving vegetation management are surface activities that do not affect geology and are not affected by geology. Therefore, geology and seismicity are not considered further in this analysis.

4.1.2 Wild and Scenic Rivers

The National Wild and Scenic Rivers System (P.L. 90-542; 16 U.S.C. 1271 et seq.) was created in 1968 to preserve rivers with outstanding natural, cultural, and recreational value in a free-flowing condition. The project area is not located near any river segment designated as "wild and scenic." The Rio Grande, located along the Texas border, is the only wild and scenic river in Texas. The proposed project would not cause any impacts to wild and scenic rivers because the project site is not located within the Rio Grande watershed (Interagency Wild and Scenic Rivers Council 2014). Wild and scenic rivers are not considered further in this analysis.

4.1.3 Coastal Resources

The Coastal Zone Management Act enables coastal states to designate state coastal zone boundaries and develop costal management programs to improve protection of sensitive shoreline resources and guide sustainable use of coastal areas. The Texas Coastal Management Program is administered by the Texas General Land Office (GLO). Bastrop County is not a coastal county and is approximately 160 miles from the nearest coastline; therefore, it is not included as part of the Texas Coastal Management Program (GLO 2014). There would be no potential impacts to coastal resources under the no action or the proposed action alternative. Coastal resources are not considered further in this analysis.

4.2 PHYSICAL RESOURCES

This section provides an overview of the affected area and potential environmental effects of the no action and proposed action alternatives on physical resources, including soils, air quality, climate change, and visual resources.

4.2.1 Soils

The project area is in the Texas Claypan region, which is characterized as a gently sloping plain dissected by broad river systems. According to the Geologic Atlas of Texas, Austin Sheet, 1981, the project area lies within the Carrizo sand formation. The Carrizo sand was formed in the Eocene age and consists primarily of sandstone and mudstone (Texas Water Development Board [TWDB] 2014a).

There are 14 soil map units in the proposed project areas as shown in **Table 1** Soil Properties in the Project Areas (USDA NRCS 2021). Dominant soils in the project areas include Jedd gravelly fine sandy loam (JeF), Edge fine sandy loam (AfC, AfE2, AtD), and Padina fine sand (PaE). The properties of these and the other soils are described in more detail in Table 1. Three of the soils located within the project areas are considered hydric: Sayers fine sandy loam (Sa), Silstid loamy fine sand (SkC), and Tabor fine sandy loam (TfB). Hydric soils may be associated with wetlands (see also Section 4.3.2).

Table 1 Soil Properties in the Project Areas (USDA NRCS 2021)
Table 1 Soil Properties in the Project Areas (USDA NRCS 2021), continued

Parameters	**PaE** Padina fine sand	RoD Rosanky fine sandy loam	**Sa** Sayers fine sandy loam	**SkC** Silstid loamy fine sand	**TfA** Tabor fine sandy loam	Tabor fine sandy loam (TfB)
Depth	>80 inches	>80 inches	>80 inches	>80 inches	>80 inches	>80 inches
Drainage	Well drained	Well drained	Somewhat excessively drained	Well drained	Moderately well drained	Moderately well drained
Permeability	Moderately high to high	Moderately high	High	Moderately high to high	Very low to moderately low	Very low to moderately low
Parent Material	Residuum weathered from eocene sandstones of the carrizo, queen city, simsboro, and sparta formations	Residuum weathered from Eocene age sandstone in the Reklaw, Weches, and Cook Mountain formations	Sandy alluvium of holocene age derived from mixed sources	Residuum weathered from sandstone in the carrizo, queen city, simsboro, and sparta formations of eocene age	Loamy and clayey alluvium of Pleistocene age derived from mixed sources	Loamy and clayey alluvium of pleistocene age derived from mixed sources
Slope	1 to 12 %	3 – 8 %	0 to 1 %	1 to 5 %	0 to 1 %	1 to 3 %
Depth to Water Table	>80 inches	>80 inches	>80 inches	>80 inches	>80 inches	>80 inches
Hydric Soils	No	No	Yes	Yes	Yes	Yes
Farmland	No	No	No	No	Yes	Yes

Prime and unique farmlands are protected under the Farmland Protection Policy Act (FPPA) (P.L.

Parameters	**AfC** Edge fine sandy loam	**AtD** Edge gravelly fine sandy loam	**CfB** Crockett fine sandy loam	**CsC2** Crockett fine sandy loam	**DeC** Robco loamy fine sand	**DoD** Dutek loamy fine sand	**GP** Gravel Pit	**JeF** Jedd gravelly fine sandy loam
Depth	>80 inches	>80 inches	54 inches	>80 inches	>80 inches	>80 inches		7 to 80 inches
Drainage	Well Drained	Well drained	Moderately well drained	Moderately well drained	Moderately well drained	Well drained		Well drained to somewhat excessively drained
Permeability	Very low to moderately high	Very low to moderately low	Moderately low to moderately high	Very low to moderately low	Low to moderately high	Moderately high to high		Slow to very slow
Parent Material	Loamy and clayey residuum derived from eocene age, stratified, sandstone and mudstone	Residuum weathered from shale and siltstone in the wilcox formation of eocene age	Loamy residuum weathered from shale of Cretaceous age	Residuum weathered from shale of tertiary age	Loamy colluvium derived from eocene sandstones of the carrizo, queen city, simsboro, and sparta formations	Sandy and loamy alluvium of Pleistocene age derived from mixed sources		Residuum weathered from sandstones in the Reklaw, Queen City, Weches, Sparta Sand and Cook Mountain formations of Eocene age
Slope	1 to 5 %	3 to 8 %	1 to 3 %	2 to 5 %	1 to 5 %	3 to 8 %		5 to 20 %
Depth to Water Table	>80 inches	>80 inches	>80 inches	>80 inches	18 to 42	>80 inches		>80 inches
Hydric Soils	No	No	No	No	No	No		No
Farmland	Yes	No	Yes	No	Yes	No	No	No

97-98, 7 U.S.C. 4201 et seq.). The FPPA applies to prime and unique farmlands and those that are of state and local importance. The FPPA establishes criteria for identifying and considering the effects of federal programs on the conversion of farmland to non-agricultural uses. According to the USDA NRCS Web Soil Surveys, most soils present within the project areas are not classified as prime or unique farmland. The FPPA states that only actions that would convert farmland to non-agricultural uses are subject to the Act. Vegetation management as proposed by Bastrop County would not convert areas with prime farmland soils to uses that would preclude their use for agriculture; therefore, the project is in compliance with FPPA. See **Figure 3**, USDA NRCS Web Soil Surveys for classification of farmland soils.

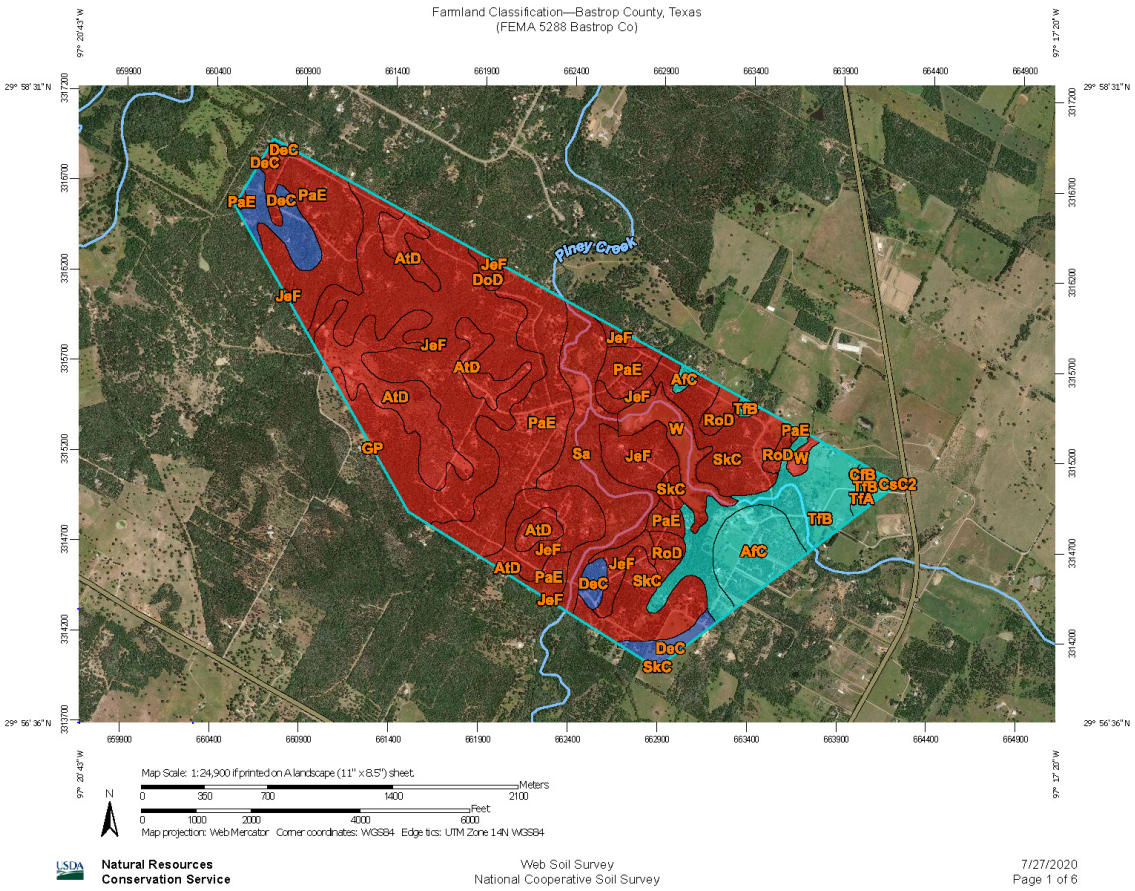


Figure 3 USDA NRCS Web Soil Survey, Classification of Farmland Soils NOTE: AfC, CfB, DeC, TfA and TfB-Farmland of Statewide Importance. All other soil types, not prime farmland.

Topography in the proposed project area is depicted on **Figure 4** Topographical Map of Project Areas (USGS). Elevations in the project area range from approximately 400 feet to 600 feet. Much of the area has an approximately 10% slope.

No Action Alternative

In the absence of a major wildfire in the proposed project area, the no action alternative would have no effect on soils because no project-related disturbances would occur; however, a major wildfire would be more likely under the no action alternative, and soils within the burnt areas could be adversely affected. A wildfire could alter the cycling of nutrients; the physical and chemical properties of soils; and the temperature, moisture, and biotic characteristics of the existing soils. These primary impacts from a wildfire can also result in decreased infiltration and increased runoff, which often causes increased erosion

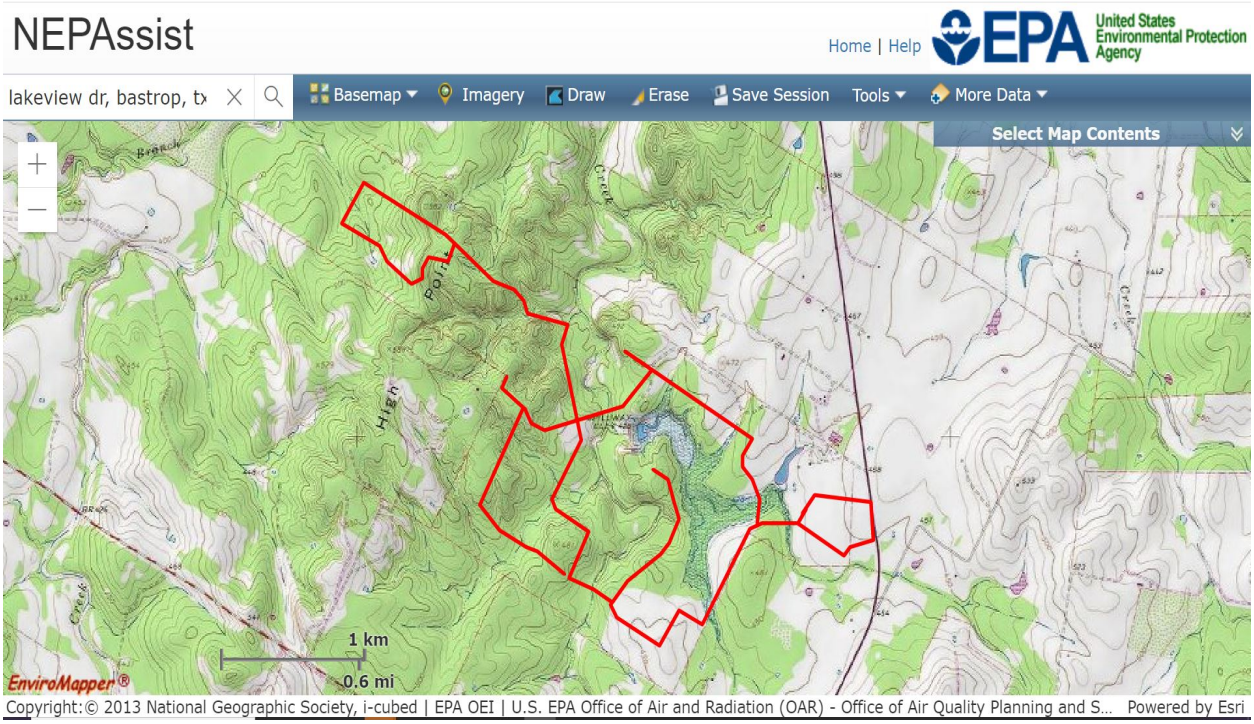


Figure 4 Topographical Map of Project Areas (USGS)

Proposed Action

The proposed project would not result in significant soil disturbance and is not expected to change the grade of the soils present. The proposed fuel reduction activities would not result in any significant soil or sediment removal or transport from the site; therefore, new bedrock would not be exposed to the surface. The proposed action would not remove stumps of cut trees, and vegetative material would be mulched and left on site at a depth of no more than 2 inches. Elevation changes within the project area are not significant; therefore, significant erosion of soils would not be likely with the minor surface-level soil disturbance that would occur from the proposed activities. The fire hazard reduction activities will also reduce the potential for the negative effects of a major wildfire on soils if a wildfire occurs. No adverse impacts to soils are anticipated under the proposed action. Short term soil disturbance may occur from the use of mechanical equipment; however, steps such as the use of rubber tracks on all machinery would be taken to reduce soil disturbance in the project area during vegetation removal, and no significant adverse impact to soils is anticipated. The proposed action would reduce the hazards associated with a major wildfire by making a wildfire easier to contain and less likely to turn into a crown fire, potentially protecting more of the existing vegetation and reducing the adverse effects of a major wildfire on soils.

4.2.2 Air Quality

The Clean Air Act (CAA; 42 U.S.C. 7401 et seq.), provides the basis for regulating air emissions. Air quality control regions have been created under the CAA. The U.S. Environmental Protection Agency (EPA) classifies air quality within each region according to whether the concentrations of certain pollutants called criteria air pollutants exceed National Ambient Air Quality Standards (NAAQS).

The proposed project area is in central Bastrop County. The EPA designates this region as being in attainment of all NAAQS. The EPA air quality monitoring stations in the region have not detected levels of pollutants in exceedance of any air quality standards (EPA 2014a).

No Action Alternative

In the absence of a major wildfire in the area, no impacts would occur under the no action alternative because current air quality would not change. No changes would occur that would affect air emissions; however, a major wildfire would be more likely under the no action alternative, and a major wildfire would cause substantial pollutant emissions.

Proposed Action

Air quality impacts associated with the proposed action would be localized, temporary, and minor occurring over a period of 2 years during implementation of the fuel reduction measures. During project implementation, the equipment used would include forestry-type mowers, chainsaws, chippers, and trucks and trailers. Under the proposed action, the use of equipment to remove vegetation could result in low levels of particulate matter and vehicle exhaust emissions such as hydrocarbons. To reduce emissions, labor crews would keep all vehicle and mechanical equipment running times to a minimum and ensure that all engines are properly maintained. Overall, the proposed project would not have a significant impact on air quality. Post-project maintenance would be conducted by landowners on an as-needed basis and is not expected to have a significant impact on air quality.

The proposed action has the potential for a long-term beneficial effect on air quality in the project area by reducing wildfire hazards and the potential for a major wildfire.

4.2.3 Climate Change

"Climate change" refers to changes in the Earth's climate caused by a general warming of the atmosphere. Its primary cause is emissions of carbon dioxide and methane. The impact climate change may have on the proposed project area is uncertain and difficult to anticipate. Climate change can affect species distribution, temperature fluctuations, sea level dynamics, and weather patterns.

No Action Alternative

In the absence of a major wildfire, the no action alternative would have no effect on climate change, as current conditions would not change. A major wildfire would be more likely under the

no action alternative, and large quantities of greenhouse gases could be released that could contribute to climate change. Climate change may result in more extended droughts in the project area and increase the risk of wildfire.

Proposed Action

Because of the small scale of the proposed action, the contribution to climate change would be minor. The proposed action would also reduce the potential emission of greenhouse gases associated with a major wildfire. The proposed action is not anticipated to affect global climate change.

4.2.4 Visual Quality and Aesthetics

The project area consists of residences located on small to large lots. Most of the project area is dominated by a closed canopy intermix of mature loblolly pine, cedar, and various oak species. Mid and understory fuels are extremely dense and are composed of undesirable species such as yaupon, mesquite, and non-native vines. **Appendix A** photographs show the existing visual conditions in the project areas.

No Action Alternative

In the absence of a major wildfire, there would be no impact on visual quality and aesthetics under the no action alternative, as current conditions would not change. A major wildfire would be more likely under the no action alternative and there would be negative visual effects for adjacent landowners who currently enjoy privacy screening or other visual quality and aesthetics from the existing vegetation immediately following the fire.

Proposed Action

This project would remove brush, dead vegetation, ladder fuels, and some trees, which would change the existing visual character of the project area. In some cases, the proposed project would open views from residential and commercial properties into wooded areas allowing for wildlife viewing. In other cases, the proposed project could reduce privacy screening and have a negative impact on visual quality and aesthetics. Because the project is aimed at removing certain tree species and understory thinning, the proposed action is not expected to have a significant impact on visual quality and aesthetics. **Figure 5** shows an example of an area after a similar hazardous fuels' reduction prescription was implemented at Welsh Tract, a county-owned property north of the City of Bastrop. Under the proposed action, wildfire hazards and the potential for significant visual alteration due to a major wildfire would be reduced.

Figure 5 Vegetation After Fuels Reduction Treatment on Welsh Tract.

4.3 WATER RESOURCES

This section provides an overview of the affected area and potential environmental effects of the no action and proposed action alternatives on water resources, including water quality, streams, wetlands, and floodplains.

4.3.1 Water Quality

The water quality effects analysis includes both the surface water of various tributaries to the Colorado River and the Carrizo-Wilcox Aquifer.

4.3.1.1 Surface Water

Sections 303(d) and 305(b) of the Clean Water Act (CWA) require all states to identify and characterize waters that do not meet, or are not expected to meet, water quality standards (U.S.C. 1313(d) and 1315(b)). The Texas Commission on Environmental Quality (TCEQ) is the regulatory agency responsible for compliance with water quality standards in Texas. The TCEQ's 2012 Integrated Report for CWA Sections 303(d) and 305(b) characterize the quality of Texas surface waters and identify those waters that do not meet water quality standards on the 303(d) list, an inventory of impaired waters (TCEQ 2014). Streams are classified by segment within their respective basin.

No Action Alternative

In the absence of a major wildfire in the proposed project area, the no action alternative would not have an adverse impact on surface water quality because inputs to receiving waters would not change. However, a major wildfire would be more likely under the no action alternative and could have substantial impacts on surface water quality. Reduced vegetation cover could lead to flooding, soil erosion and sedimentation, pollution from substances no longer filtered by riparian vegetation, and changes in water temperature.

A major wildfire may cause changes to the soil as discussed in **Section 4.2.1**, which could impact surface waters. Infiltration properties of soils may be altered when fire destroys vegetation cover within a watershed. These changes in vegetation, and subsequently the soil, often result in decreased infiltration, increased overland flow, and ultimately, increased streamflow discharges (USDA, Forest Service 2005).

Proposed Action

The proposed action would not directly affect surface waters or alter stream flows. The proposed action could cause temporary minor, localized, adverse impacts to nearby surface waters from potential erosion and sedimentation over the project implementation period of about 2 years. The operation of equipment during the proposed action would disturb soils, which could increase erosion potential during heavy rains. BMPs would be implemented to minimize transport of sediment to the Colorado River via its tributaries. Mulch created from cut vegetation would be used for temporary erosion control to prevent soil or sediment from reaching the waterways. Appropriate barriers would be used to prevent mulch from being washed into water bodies near the project area. With the implementation of these BMPs, the effect on water quality would not be significant. Water quality impacts would be localized and temporary, occurring at different locations throughout the project area over a period of 2 years. Bastrop County must coordinate with Texas Commission on Environmental Quality (TCEQ) to obtain any required permits under the Texas Pollutant Discharge Elimination System (TPDES) requirements.

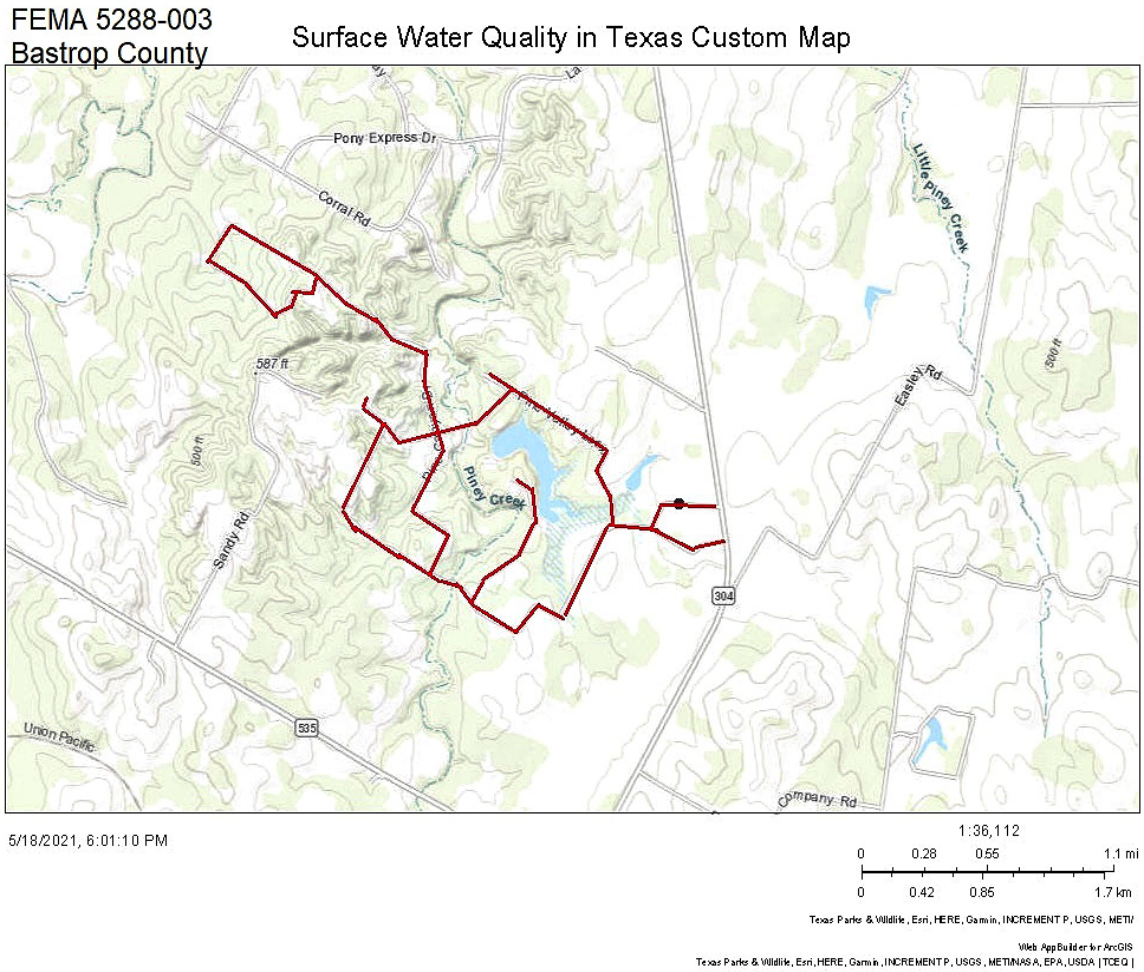


Figure 6 Surface Water Quality Map (TCEQ, Version 4.0)

4.3.1.2 Groundwater

The major aquifer underlying the proposed project area is the Carrizo-Wilcox Aquifer, which is primarily composed of sand locally interbedded with gravel, silt, clay, and lignite. The Carrizo Wilcox Aquifer is a major aquifer in the Gulf Coast Plains extending from the border with Louisiana to the border of Mexico. Water quality in the Carrizo-Wilcox Aquifer is generally good and contains less than 500 milligrams per liter of total dissolved solids (TWDB 2014b).

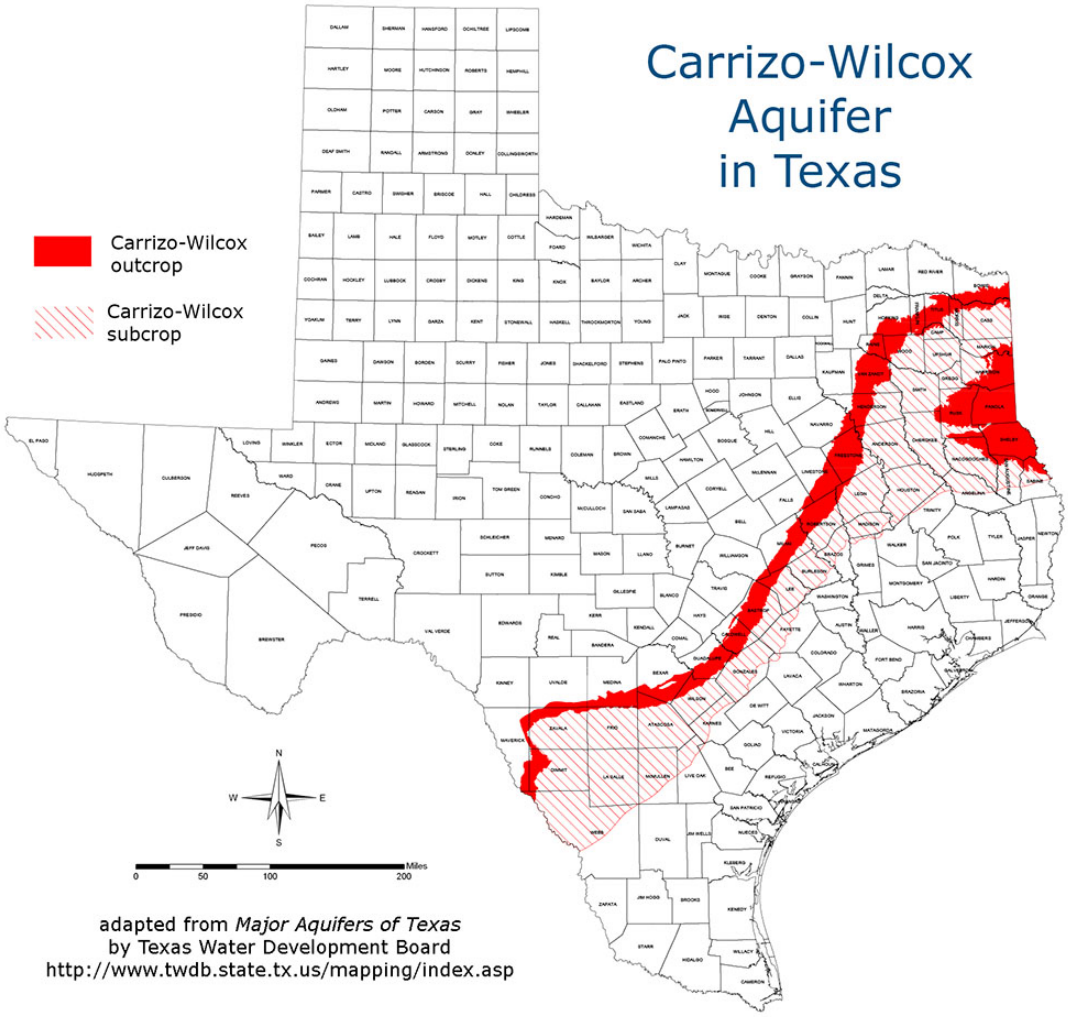


Figure 7 Carrizo-Wilcox Aquifer in Texas (TWDB)

The Carrizo-Wilcox Aquifer provides water supply for mainly agricultural and municipal uses and is an abundant source of groundwater for over 60 counties across Texas. The proposed project area lies on the Carrizo-Wilcox outcrop, which serves as the recharge area of the aquifer. The aquifer is primarily composed of sand and water infiltrating through to the aquifer generally has a high amount of natural filtration. See **Figure 7**, Carrizo-Wilcox Aquifer in Texas (TWDB). The sole source aquifer protection program is authorized by section 1424 of the Safe Drinking Water Act of 1974 (U.S.C. 300 et seq.). EPA defines a sole source aquifer as an aquifer that supplies at least 50 percent of the drinking water for the area overlying the aquifer. The Carrizo-Wilcox Aquifer is not designated as a sole source aquifer (EPA 2008). See **Figure 8**, Sole Source Aquifers Region 6 (EPA).

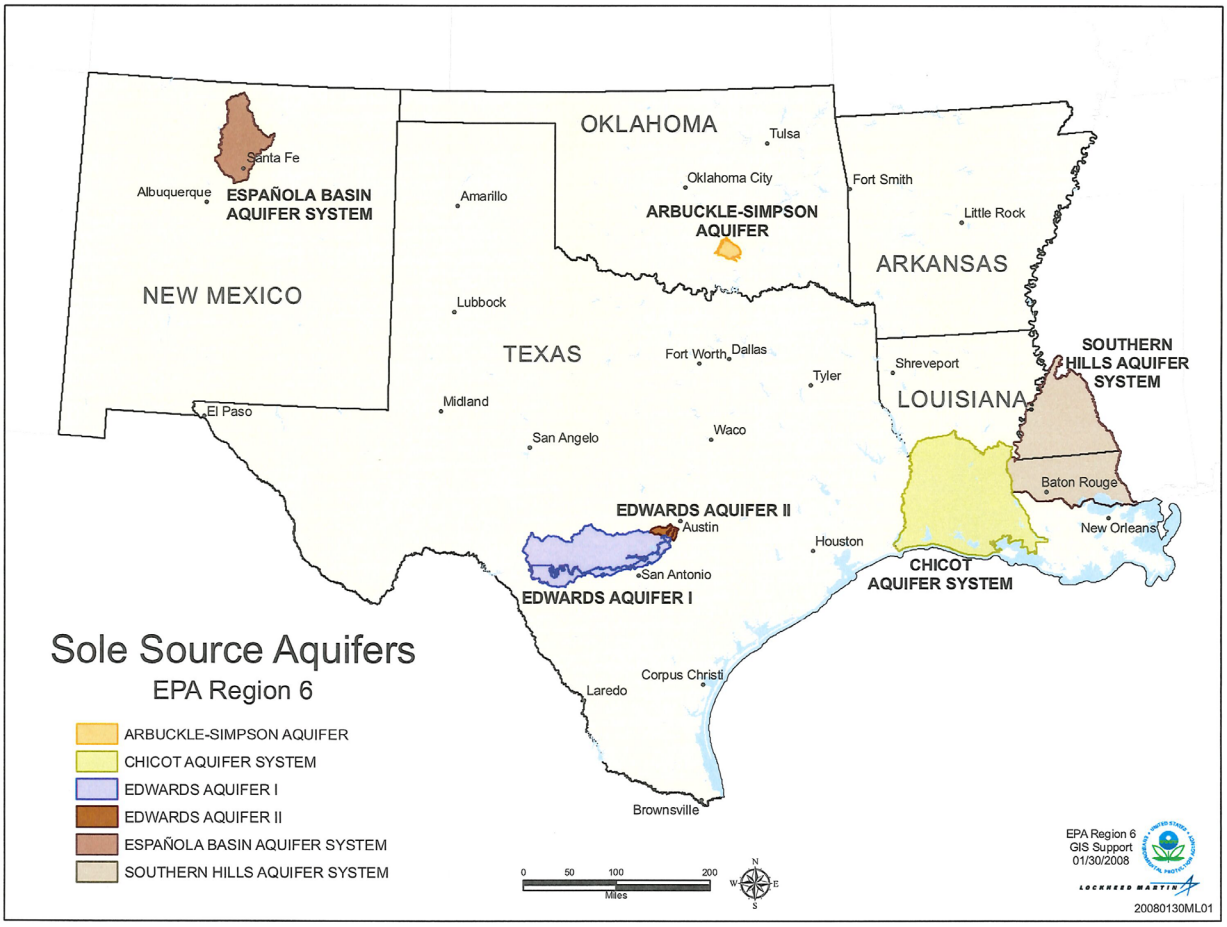


Figure 8 Sole Source Aquifers EPA Region 6 Map (EPA)

No Action Alternative

In the absence of a major wildfire in the project area, the no action alternative would have no effect on groundwater quality because current conditions would remain the same. However, a major wildfire would be more likely under the no action alternative and could cause changes to the soil as discussed in **Section 4.2.1**. These changes could impact groundwater because the infiltration properties of soils can be altered when fire destroys vegetation and litter cover within a watershed. These changes in the soil can result in decreased infiltration, increased overland flow, and ultimately decreased aquifer recharge (USDA Forest Service 2005).

Proposed Action

The proposed action would reduce the risk of catastrophic wildfire and thus would reduce the risk of impacts to groundwater from a wildfire. The proposed action would not result in the increase of impervious surfaces, nor would it affect the quality of the surface waters that infiltrate down to the aquifer; therefore, there would be no impact on the Carrizo-Wilcox Aquifer because of the proposed action.

4.3.2 Wetlands

Executive Order (EO) 11990, Protection of Wetlands, requires federal agencies to take action to minimize the loss of wetlands. Activities that disturb jurisdictional wetlands require a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act of 1977 (33 U.S.C. 1344).

FEMA regulation 44 CFR Part 9, Floodplain Management and Protection of Wetlands sets forth the policy, procedures, and responsibilities to implement and enforce EO 11990 and prohibits FEMA from funding activities in a wetland unless no practicable alternatives are available. To comply with EO 11990, FEMA uses the eight-step decision-making process in 44 CFR 9.6 to evaluate proposed actions that have potential to affect a wetland.

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map for the project area indicates that there are potential riverine wetlands and freshwater ponds present within some of the project areas. **Figure 9** USFWS NWI Map provides an overview of wetlands in proximity to the project areas. Although soils were not sampled and formal wetland delineations were not conducted, these areas are identified as potential wetlands, and this determination will be confirmed in the field prior to working within 200 feet of the potential wetlands identified here.

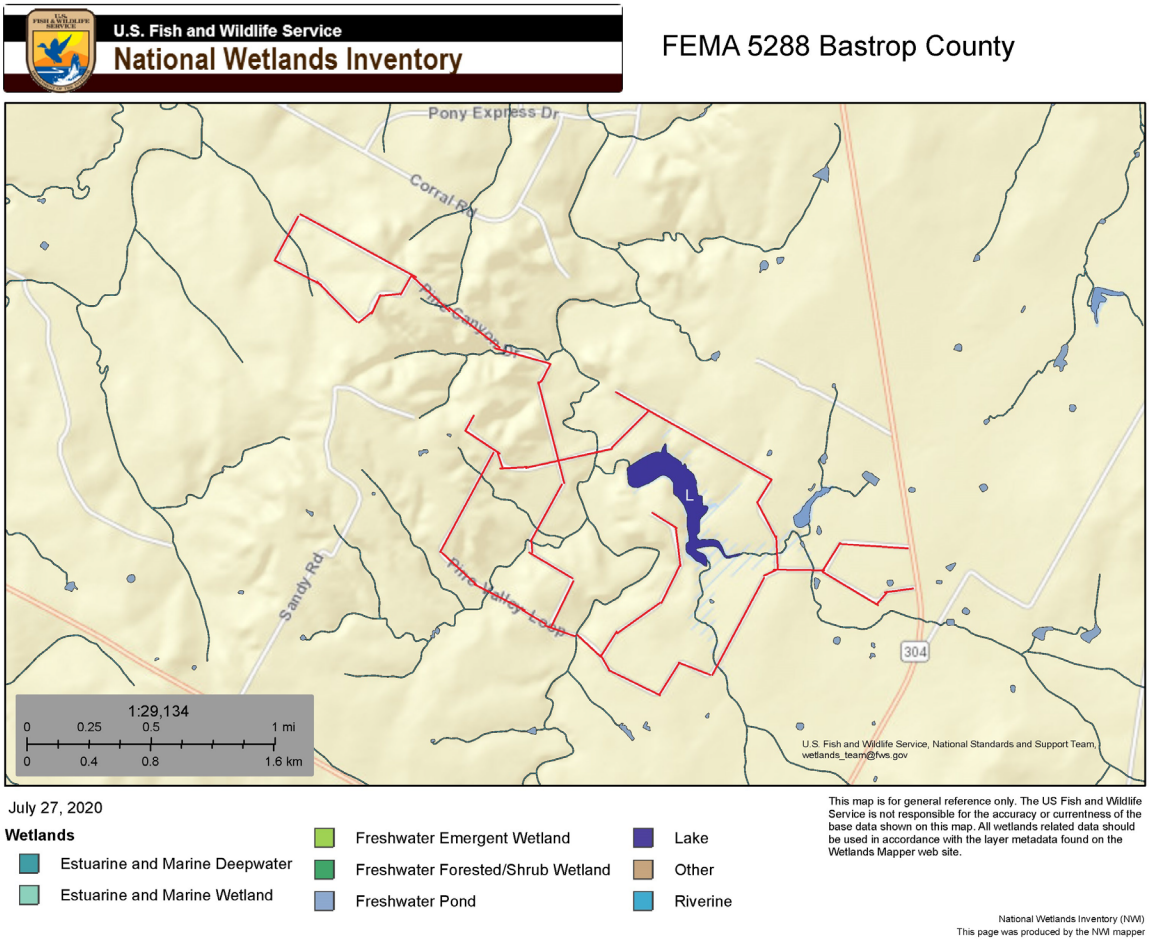
No Action Alternative

In the absence of a major wildfire in the project area, the no action alternative would have no effect on wetlands because existing conditions would not change. However, a major wildfire would be more likely under the no action alternative and could result in the destruction of vegetation in wetlands within and beyond the project area. Vegetation destruction in wetlands would damage habitat for wildlife and lessen the effectiveness of wetlands to filter pollutants and maintain water quality.

Proposed Action

Potential wetlands are located within the project area, as shown on **Figure 9**. The proposed action would not significantly affect the functions and values of wetlands. Hazardous fuels reduction activities within 200 feet of a wetland would be restricted to hand thinning and no motorized vehicles would be used.

No rootballs would be removed and stumps would be cut down to ground level, which would minimize impact to soils and the potential for erosion. No debris or mulch would be placed in a wetland or within the 200-foot buffer to prevent any potential impacts to the wetland. Vegetation removed within wetlands and within 200 feet of wetlands would not be mulched on site and would be hand-hauled outside of the 200-foot buffer. Silt fencing would be installed around wetlands to prevent mulch and sediment from flowing into the wetland during rain events. Section 404 of the CWA regulates the discharge of dredged or fill material in waters of the U.S., including wetlands. The proposed action would not result in the discharge of dredged or fill material into wetlands; therefore, the proposed project would not require a CWA Section 404 permit. The County will

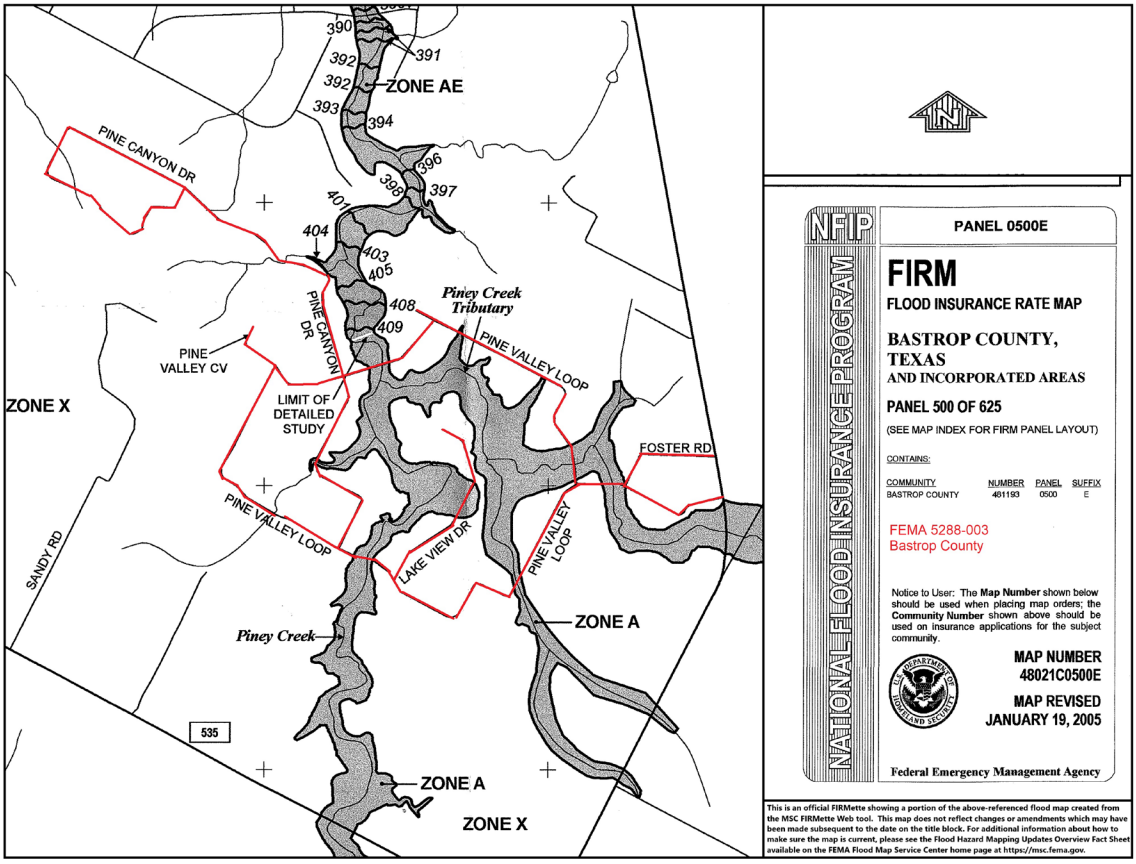


implement the BMPs identified above to avoid any potential impacts on wetlands in the project area. The full 8-step process is documented in **Appendix C**.

4.3.3 Floodplains

EO 11988, Floodplain Management, requires federal agencies to take actions to minimize occupancy of and modifications to floodplains. FEMA regulations in 44 CFR Part 9, Floodplain Management and Protection of Wetlands, set forth the policy, procedures, and responsibilities to implement and enforce EO 11988 and prohibit FEMA from funding activities in the 100-year floodplain unless no practicable alternative is available. To satisfy the requirements of EO 11988, the Water Resources Council developed an eight-step process that agencies should carry out as part of their decision-making on projects that have potential impacts to or within the floodplain. The eight steps reflect the decision-making process required in Section 2(a) of the EO and are reflected in the FEMA regulations at 44 CFR 9.3. The first step is to determine if the proposed action is in the 100-year floodplain.

FEMA Flood Insurance Rate Map (FIRM) panel 48021C0500E, dated 01/19/2006, illustrates the extent of the 100-year floodplain within the project area. See **Figure 10**, FEMA FIRM.



No Action Alternative

In the absence of a major wildfire in the project area, the no action alternative would have no effect on floodplains because existing conditions would not change. However, a major wildfire would be more likely under the no action alternative and could result in the destruction of vegetation in the 100-year floodplain within and beyond the project area. Vegetation destruction would damage habitat for wildlife, reduce the effectiveness of floodplains to filter pollutants and maintain water quality, and could result in hydrophobic soils which would increase runoff and erosion during rain events.

Proposed Action

Although portions of the proposed action are located within the 100-year floodplain, no adverse impacts to the floodplain are anticipated. Water surface elevations of water bodies in the project area will not be modified as part of this project. Bastrop County must coordinate with the local floodplain administrator, obtain required permits prior to initiating work, and comply with any conditions of the permit to ensure harm to and from the floodplain is minimized. All coordination

pertaining to these activities should be retained as part of the project file in accordance with HMGP instructions.

For actions located in the floodplain and/or wetlands, Bastrop County must issue a final public notice per 44 CFR Part 9.12(e) at least 15 days prior to the start of work. The final notice shall include the following: (1) A statement of why the proposed action must be located in an area affecting or affected by a floodplain or a wetland; (2) A description of all significant facts considered in making this determination; (3) A list of the alternatives considered; (4) A statement indicating whether the action conforms to applicable state and local floodplain protection standards; (5) A statement indicating how the action affects or is affected by the floodplain and/or wetland, and how mitigation is to be achieved; (6) Identification of the responsible official or organization for implementation and monitoring of the proposed action, and from whom further information can be obtained; and (7) A map of the area or a statement that such map is available for public inspection, including the location at which such map may be inspected and a telephone number to call for information.

An 8-Step review for floodplains has been performed. The results can be found in **Appendix C**.

4.4 BIOLOGICAL RESOURCES

Biological resources are animals and plants that inhabit an area, including threatened or endangered species, and the habitats supporting these resources. In general, biological resources include native and introduced plants that comprise the various habitats, animals present in such habitats, and natural features that support these plant and wildlife populations.

4.4.1 Threatened and Endangered Species, Migratory Birds, and Critical Habitat

Congress passed the Endangered Species Act (ESA) in 1973 to protect and recover imperiled species and the ecosystems upon which they depend. This protection includes a prohibition of take (e.g. killing, harassing, harming). The ESA is administered by the USFWS and the National Marine Fisheries Service (NMFS). Under the ESA, species may be listed as "endangered" or in danger of extinction throughout all or a significant portion of its range, or "threatened" or likely to become endangered within the foreseeable future. Under Section 7 of the ESA, FEMA is required to determine the impact that federal actions may have on federally-endangered or threatened species and consult with the USFWS or NMFS, when required.

Five endangered and threatened species and two proposed endangered and threatened species are listed in Bastrop County according to the official USFWS species list (https://ecos.fws.gov/ipac/). Federally endangered species include the Whooping Crane (*Grus americana*), Houston toad (*Bufo houstonensis*), and Navasota Ladies'-tresses (*Spiranthes parksii*). Federally threatened species include the Piping Plover (*Charadrius melodus*) and Red Knot (*Calidris canutus rufa*). The proposed endangered and threatened species that have the potential to occur in Bastrop County are respectively Texas Pimpleback (*Cyclonaias petrina*) and Texas Fawnfoot (*Truncilla macrodon*). Critical habitat has been designated for the Houston toad, but the project footprint falls outside the designated critical habitat.

The Whooping Crane is a migratory species that winters along the Texas coast and is unlikely to be found in the project area because it is covered with dense canopy and underbrush which would deter the crane from landing. Piping Plovers and Red Knots are migratory shore birds that are found around large bodies of water that have tidal mud, sand, or algal flats that the species use for foraging. This habitat type is not present in the project area. This project does fall within the habitat range for Navasota ladies' tresses, but they will not likely be encountered. Navasota ladies' tresses are found in forest openings in post oak woodlands. This project will focus on the overgrown underbrush below the canopy leaving all work outside of the microhabitat of this endangered plant. The Texas Fawnsfoot and Texas Pimpleback are found in streams, rivers, and some reservoirs, and it is highly unlikely that these species will be found in the project area due to the absence of permanent streams and rivers.

The Houston toad depends on healthy and mature forest ecosystems with mixed species composition, significant canopy cover, an open understory layer with a diverse herbaceous component, and breeding areas (ephemeral wet-weather ponds and other water features, such as stock tanks, creeks, streams, wetlands, seeps, and springs) with shaded edges. They are most commonly found within the surrounding upland habitat adjacent to breeding sites. The Houston toad uses drainages and riparian areas for dispersal and movement. The edges of breeding ponds are used by emerging juvenile toadlets after they metamorphose from their larval (tadpole) stage (USFWS, 2011a). The toad locally migrates between breeding and non-breeding habitats. The adjacent uplands support adults year-round and provide patch connectivity outward from the ponds for juvenile dispersal (USFWS, 2011b).

The Houston toad tends to occupy areas with 60 percent to100 percent canopy cover (Forstner et al, 2011). Upland forests in the Lost Pines area of Bastrop County serve as occupied and dispersal habitat for the Houston toad and cover/shade is a necessity to facilitate distribution without desiccation (LPRT, 2011). Of the few remaining populations, the largest known occurrence of the Houston toad is in Bastrop County (USFWS, 2016). The project area is outside of and approximately 5 miles south of the Lost Pines Habitat Conservation Plan area, an area that covers approximately 124,000 acres of known and potential Houston toad habitat within the county (Loomis Austin, 2007), and Houston toad critical habitat that has been designated by USFWS. FEMA conferred with Dr. Michael Forstner, Professor, Department of Biology, Texas State University, in 2018 regarding Houston toad presence at two sites near the proposed project area for Bastrop County's hazardous fuels reduction project. Dr. Forstner's team conducted extensive Houston toad surveys in 2004 south of the Colorado River, though not as far south as the proposed project area. According to Dr. Forstner, he is not aware of any Houston toad detections south of the Colorado River, which is where the proposed action is located. While the habitat in the proposed project area might be suitable for the Houston toad, there is no indication that the species is present in the project area.

The Migratory Bird Treaty Act is the primary legislation in the United States established to conserve migratory birds. The MBTA prohibits taking, killing, or possessing of migratory birds unless permitted by regulations promulgated by the Secretary of the Interior. The USFWS and the Department of Justice are the federal agencies responsible for administering and enforcing the statute. Per USFWS, migratory birds that might be present in Bastrop County and the project area include the American Golden-plover; Bald Eagle; Buff-breasted Sandpiper; Harris's Sparrow;

Lesser Yellowlegs; Long-billed Curlew; Mountain Plover; Red-headed Woodpecker; Semipalmated Sandpiper; Sprague's Pipit; Swallow-tailed Kite; and Willet.

No Action Alternative

The no action alternative would have no direct adverse effects on federally listed species or migratory birds. However, a major wildfire would be more likely under the no action alternative scenario and could result in adverse effects to any listed species, migratory bird species, and their habitats, if present in the project area.

Proposed Action

FEMA has determined that the proposed action will have no effect to listed and proposed species as a result of the proposed action either because suitable habitat is not present or the species itself is not anticipated to be present in the project area.

In adherence to the Migratory Bird Treaty Act, Bastrop County will limit vegetation management work during the peak migratory bird-nesting period of March through August as much as possible to avoid destruction of individuals, nests, or eggs. If vegetation reduction activities must occur during the nesting season, the applicant will deploy a qualified biological monitor with experience conducting breeding bird surveys to survey the vegetation management area for nests prior to conducting work. The biologist will determine the appropriate timing of surveys in advance of work activities. If an occupied migratory bird nest is found, work within a buffer zone around the nest will be postponed until the nest is vacated and juveniles have fledged. The biological monitor will determine an appropriate buffering radius based on species present, real-time site conditions, and proposed vegetation management methodology and equipment. For work near an occupied nest, the biological monitor would prepare a report documenting the migratory species present and the rationale for the buffer radius determination. With this mitigation measure, the proposed action would not have significant adverse impacts on the various bird species within the project area.

4.4.2 Vegetation

The entire project area is in the East Central Texas Plains Ecoregion according to the Texas Parks and Wildlife Department (TPWD) Level III Ecoregions of Texas map, **Figure 11.** This region is thought to have originally been covered by post oak savanna vegetation. The bulk of this region is now used for range and pastureland. The proposed project area includes two ecological sub regions of the East Central Texas Plains Ecoregion, which are Blackland Prairies and Oak Woods and Prairies. See **Figure 12**, Ecoregions of Texas Map (EPA).,

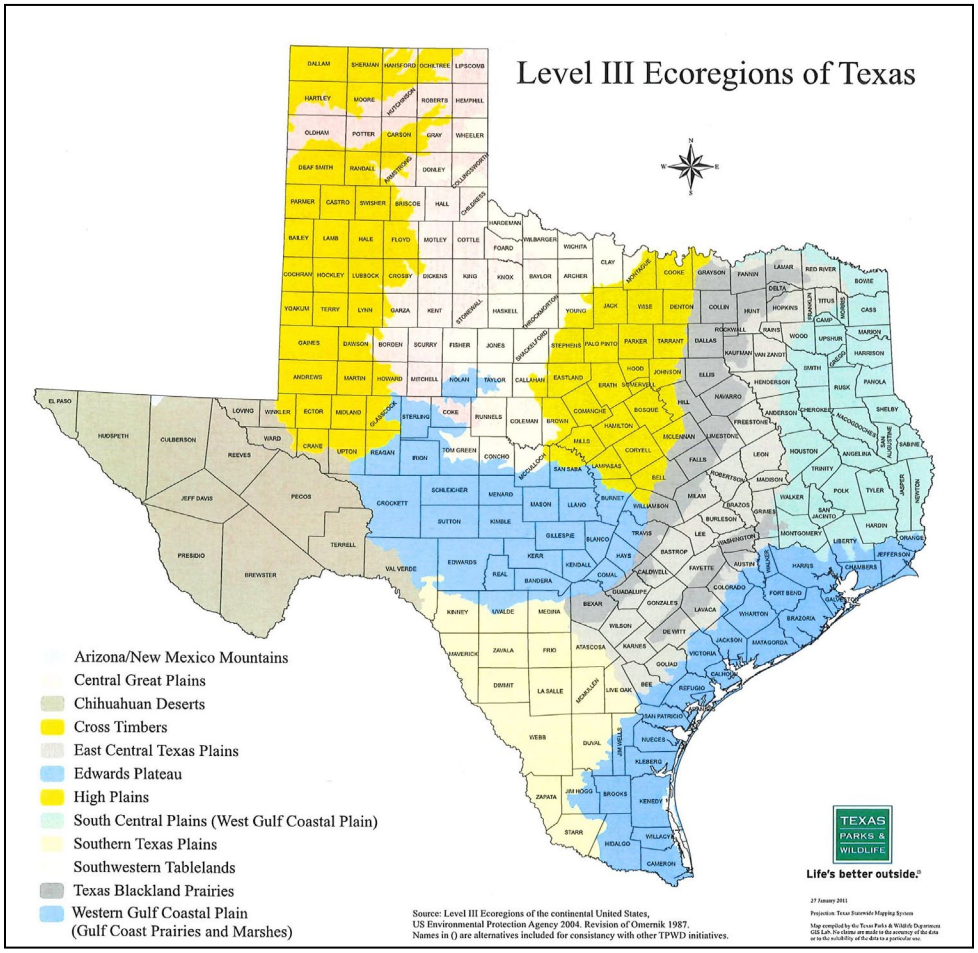


Figure 11 Level III Ecoregions of Texas Map (TPWD)

The western portion of the project area is within the Southern Post Oak Savanna sub region. This sub region has more woods and forest than the adjacent prairie ecoregions and consists of mostly hardwoods. Although this sub region was a post oak savanna historically, the current land cover is a mix of post oak woods, improved pasture, and rangeland, with some invasive mesquite to the south. A thick understory of yaupon (*Ilex vomitoria*) and eastern red cedar (*Juniperus virginiana*) occurs in some parts. Oak savannas or oak-hickory forest occur with post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), black hickory (*Carya texana*), and grasses of little bluestem (*Schizachyrium scoparium*), purpletop (*Tridens flavus*), curly three awn (*aristida desmantha*), and yellow Indian grass (*Sorghastrum nutans*). The understory consists of yaupon, eastern red cedar, winged elm (*Ulmus alata*), American beautyberry (*Callicarpa americana*), and farkleberry (*Vaccinium arboretum*) (CDM Smith 2015)

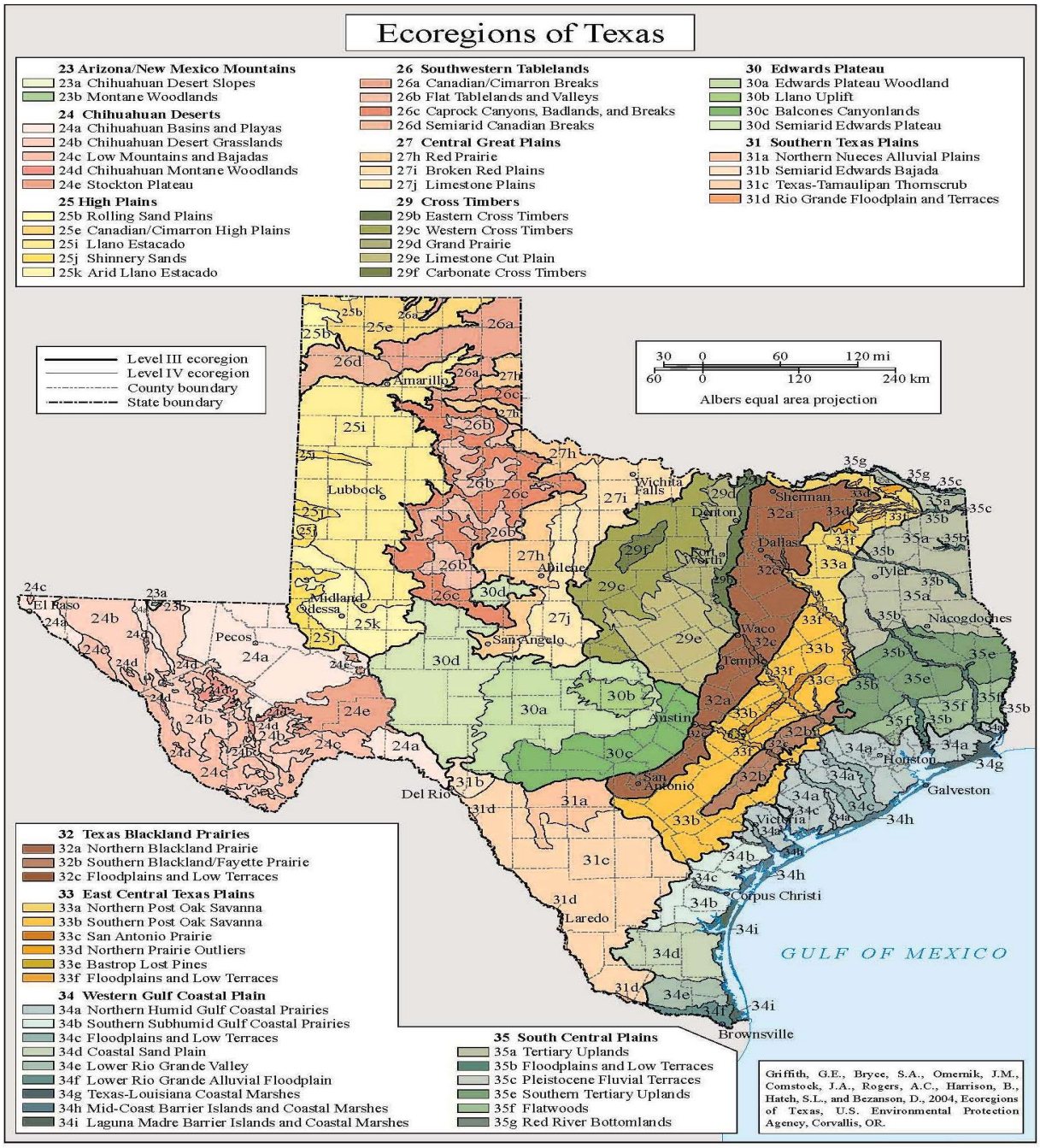


Figure 12 Ecoregions of Texas Map (EPA)

No Action Alternative

In the absence of a major wildfire, the no action alternative would have no effect on vegetation, including invasive species, because the existing vegetation would persist; however, a major wildfire would be more likely under the no action alternative and would result in partial or complete loss of vegetation. While fire is a natural component of the ecosystems near the project areas, years of fire suppression have increased fuel density and likely would increase the extent

and intensity of future wildfires in the area. In the event of a major wildfire, non-native and/or invasive species might be expected to become established over larger areas.

Proposed Action

The proposed action would focus on reducing the hazardous fuels in the project areas, which are areas dominated by medium and low-density residential land use as well as rural areas. The Proposed Action includes using county-owned equipment, and hiring full-time, temporary personnel that will focus on the reduction of ladder fuels by removing yaupon, cedar, downed timber, and small trees located in the understory. The County will use a mechanical thinning process that uses a skid steer with a mulching head. The project does not include the removal (except for seasonal mowing) of grasses and native groundcover in ditches, culverts and drain ways. The area of work is around and near residential dwellings. The proposed action would not have a significant impact in vegetation communities

The proposed action could provide avenues for the establishment of invasive plant species through accidental introduction and the removal of native vegetation; however, because the proposed action would not alter the canopy layer significantly, it would not be expected to contribute to the spread of invasive plant species. Any invasive species encountered during the fuels reduction activities work will be removed.

4.5 CULTURAL RESOURCES

4.5.1 Historic Architectural Properties

The National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. 470 et seq.) is the primary federal law protecting historic properties and promoting historic preservation, in cooperation with states, tribal governments, local governments, and other consulting parties. The NHPA established the National Register of Historic Places (NRHP) and designated the State Historic Preservation Office (SHPO) as the entity responsible for administering state-level programs. The NHPA also created the Advisory Council on Historic Preservation (ACHP), the federal agency responsible for overseeing the process described in Section 106 of the NHPA (16 U.S.C. §470f) and for providing commentary on federal activities, programs, and policies that affect historic properties.

Section 106 of the NHPA and its implementing regulations (36 CFR Part 800) contain the procedures for federal agencies to follow to consider the effect of their actions on historic properties. The Section 106 process applies to any federal undertaking that has the potential to affect historic properties, defined at 36 CFR §800.16(1)(1) as “any prehistoric or historic district, site, building, structures, or object included in, or eligible for inclusion in, the National Register of Historic Places.” Although buildings and archeological sites are most readily recognizable as historic properties, the NRHP contains a diverse range of resources that includes roads, landscapes, and vehicles. Under Section 106, federal agencies are responsible for identifying historic properties in the Area of Potential Effects (APE) for an undertaking; assessing the effects of the undertaking on these historic properties, if present; and considering ways to avoid, minimize, or mitigate any adverse effects. Because Section 106 is a process by which the federal government

assesses the effects of its undertakings on historic properties, it is the primary regulatory framework that is used under NEPA to determine impacts on cultural resources.

To assess the potential for intact, significant cultural resources to occur within the APE of the proposed action an archival review of the proposed undertaking was conducted using the Texas Historical Commission Archaeological Sites Atlas database (TASA) and associated site files, photographs, and maps to identify historic properties within the APE. The APE for the proposed project is depicted on the THC Texas Historic Sites Atlas Map, **Figure 13.**

Identification of Historic Properties: As per the THC Texas Historic Sites atlas, there are no recorded cemeteries or other historical properties or markers in the project areas.

4.5.2 Archaeological Sites

No known archaeological sites, features or deposits are present in the project APE.

The Lost Pines Forest is thought to be a small portion of a much larger Pleistocene-era loblolly pine forest that dominated the area. The area was first settled by Tonkawa and other indigenous peoples from prehistoric to modern era. A Spanish expedition in 1691 brought the area to the attention of European colonizers and Bastrop County was subsequently resettled by Stephen F. Austin under the Mexican Government. Bastrop State Park covers a portion of the 1832 land grant of Austin's first colony. Park infrastructure was later developed through the Civilian Conservation Corps in the early 20th century. Although the wider area was heavily logged throughout the 19th and 20th centuries, Bastrop State Park maintains a high degree of integrity in the historic landscape and is an important conservation area for endangered flora and fauna, which provides greater protection against destruction of extant archaeological sites and features.

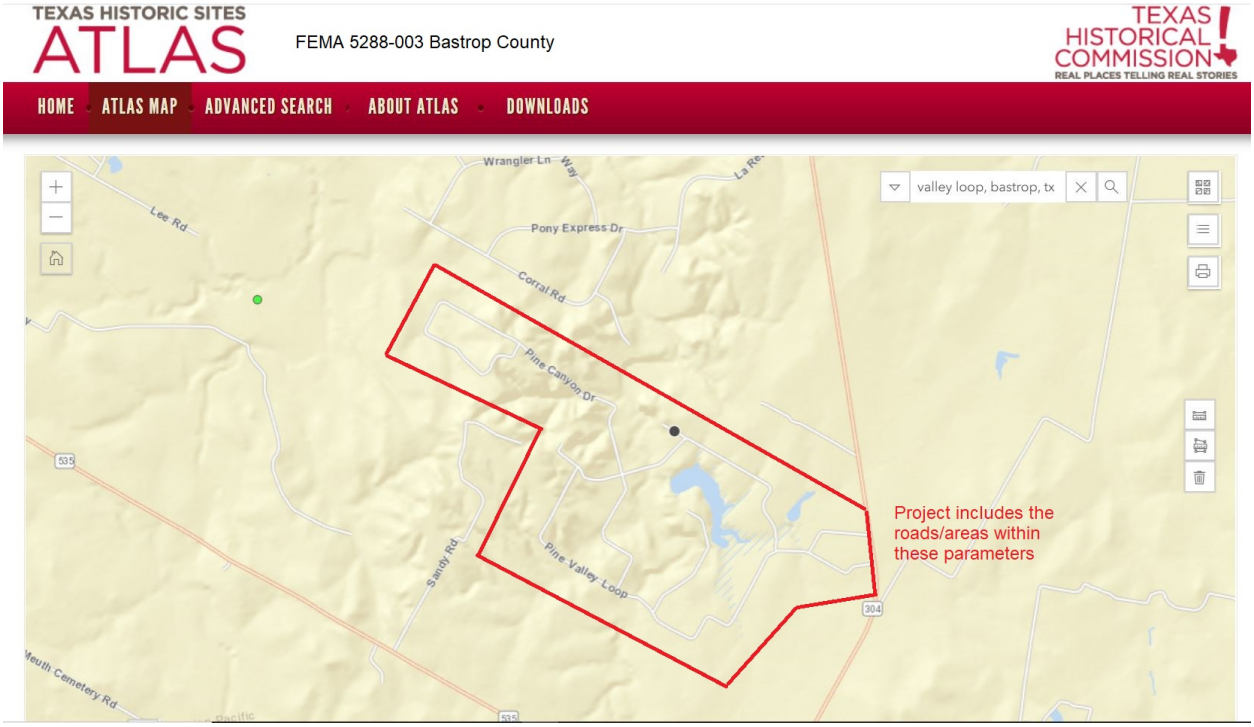


Figure 13 Texas Historic Sites Atlas Map (THC)

4.5.3 Native American Cultural/Religious Sites

No known sites of cultural patrimony are present within the APE.

No Action Alternative

Under the no action alternative, no hazardous fuels reduction measures would occur, leaving the area at increased risk of wildfire. Wildfire can impact archaeological sites through surficial burning, disturbances to protective vegetation, and exposure to erosion processes; however, subsurface deposits are typically protected from major impacts and regular burning that does not destroy well-established trees is unlikely to have a deep impact.

Proposed Action

On behalf of FEMA, Bastrop County initiated Section 106 consultation with the Texas State Historic Preservation Office (SHPO), Texas Historical Commission (THC), on July 23, 2020 (eTrack# 202015917). THC responded on August 20, 2020 with a finding of No Historic Properties Present or Affected for both above ground and below-ground resources (See **Appendix D**).

On September 27, 2021, FEMA consulted with the following Federally recognized Tribes with interest in Bastrop County: Alabama-Coushatta Tribe of Texas, Comanche Nation, Kiowa Tribe and Tonkawa Tribe of Indians of Oklahoma. The Comanche Nation responded on October 15, 2021 stating that no properties containing prehistoric or historic archeological materials were identified by the tribe in the project area. The remaining tribes did not provide comments within 30 days or declined to comment. (See **Appendix D**)

If archeological deposits, including any Native American pottery, stone tools, bones, or human remains are uncovered, the project must be halted immediately in the vicinity of the discovery, and all reasonable measures must be taken to avoid or minimize harm to the discovered items. The sub applicant must secure all archeological findings and restrict access to the sensitive area. The sub applicant must inform FEMA immediately, and FEMA will consult with the SHPO. Work in sensitive areas must not resume until consultation is completed and until FEMA determines that appropriate measures have been taken to ensure compliance with the NHPA and its implementing regulations.

4.6 SOCIOECONOMIC RESOURCES

This section provides an overview of the affected area and potential environmental effects of the no action and proposed action alternatives on socioeconomic resources, including environmental justice, hazardous materials, noise, traffic, public services and utilities, and human health and safety resources.

4.6.1 Environmental Justice

Environmental justice is defined by EO 12898 (59 *Federal Register* 7629) and CEQ Guidance (1997). Under EO 12898, demographic information is used to determine whether minority populations or low-income populations are present in the areas potentially affected by the range of project alternatives. If so, a determination must be made whether implementation of the program alternatives may cause disproportionately high and adverse human health or environmental impacts on those populations.

The local area included in this analysis is where project-related impacts would occur, potentially causing an adverse and disproportionately high effect on neighboring minority and low-income populations. For the project, the analysis includes Percentage of Minority Population and Percentage of Households Below Poverty Level in the project areas, via EPA NEPAssist maps, **Figures 14 and 15.**

Low-Income Populations

Residents of areas with a high percentage of people living below the poverty level may be considered low-income populations. The U.S. Census Bureau poverty threshold for a family of four (2 adults and 2 children) in 2019 was $25,926 and $13,300 for an individual. Low-income populations are also considered to include residents of areas where the median family income is less than 60-percent of the median income of the surrounding area. The American FactFinder *Poverty Status in the Past 12 Months for All Families* indicates that approximately 20.4% of families in Bastrop County are below poverty level. See **Table 2**.

Minority Populations

CEQ defines the term "minority" as persons from any of the following groups: Black, Asian or Pacific Islander, American Indian or Alaskan Native, and Hispanic. The U.S. Census Bureau does not treat "Hispanic or Latino" as a racial category, so people identifying themselves as Hispanic or Latino make a separate selection of a racial category. For the purposes of this analysis, "minority" includes all people who do not identify themselves as "White alone", plus Hispanics and Latinos who do not identify themselves as "White alone".

The American FactFinder Table for Race indicates that approximately 68% of the population are identified as while alone, and approximately 22% are other races. See **Table 3** Race Table.

Table 2 Poverty Status in the Past 12 Months of Families (American FactFinder**).**

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES												
2													
3	TABLE ID: S1702												
4	SURVEY/PROGRAM: American Community Survey												
5	PRODUCT: ACS 1-Year Estimates Subject Tables												
6													
7		Bastrop County, Texas											
8		All families				Married-couple families				Female householder, no spouse present			
9		Total		Percent below poverty level		Total		Percent below poverty level		Total		Percent below poverty level	
10	Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
11	Families	19,556	±1,726	20.4%	±7.7	13,505	±1,545	18.7%	±10.0	5,077	±1,463	27.0%	±15.0
12													

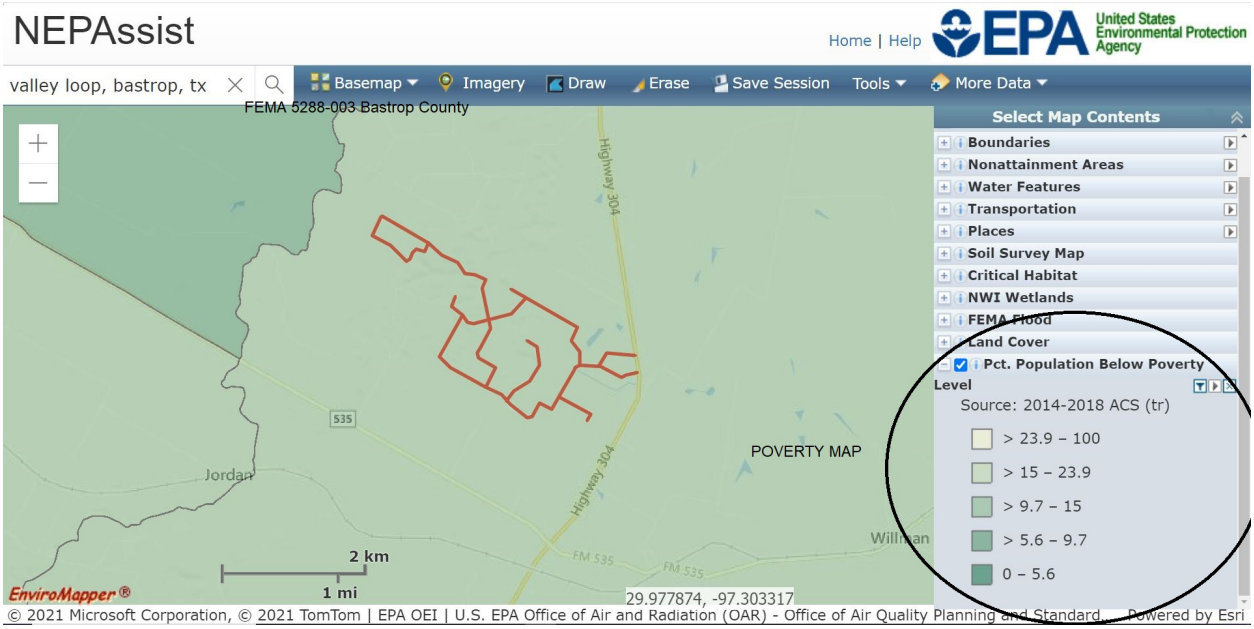


Figure 14 Percent of Households Below Poverty Level (EPA NEPAssist).

Table 3 Race Table (American FactFinder)

RACE		
TABLE ID: B020001		
SURVEY/PROGRAM: American Community Survey		
PRODUCT: ACS 5-Year Estimates		
Bastrop County, Texas		
Label	**Estimate**	**Margin of Error**
Total:	84,522	*****
White alone	57,462	±1,808
Black or African American alone	6,298	±330
American Indian and Alaska Native alone	398	±189
Asian alone	739	±98
Native Hawaiian and Other Pacific Islander alone	0	±32
Some other race alone	17,393	±1,807
Two or more races:	2,232	±517
Two races including Some other race	668	±368
Two races excluding Some other race, and three or more races	1,564	±359
DATA NOTES		
TABLE ID	B02001	
SURVEY/PROGRAM	American Community Survey	
VINTAGE	2019	
DATASET	ACSDT5Y2019	
PRODUCT:	ACS 5-Year Estimates Detailed Tables	
FTP URL:	None	
API URL:	Download the entire table at https://api.census.gov/data/2019/acs/acs5	

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

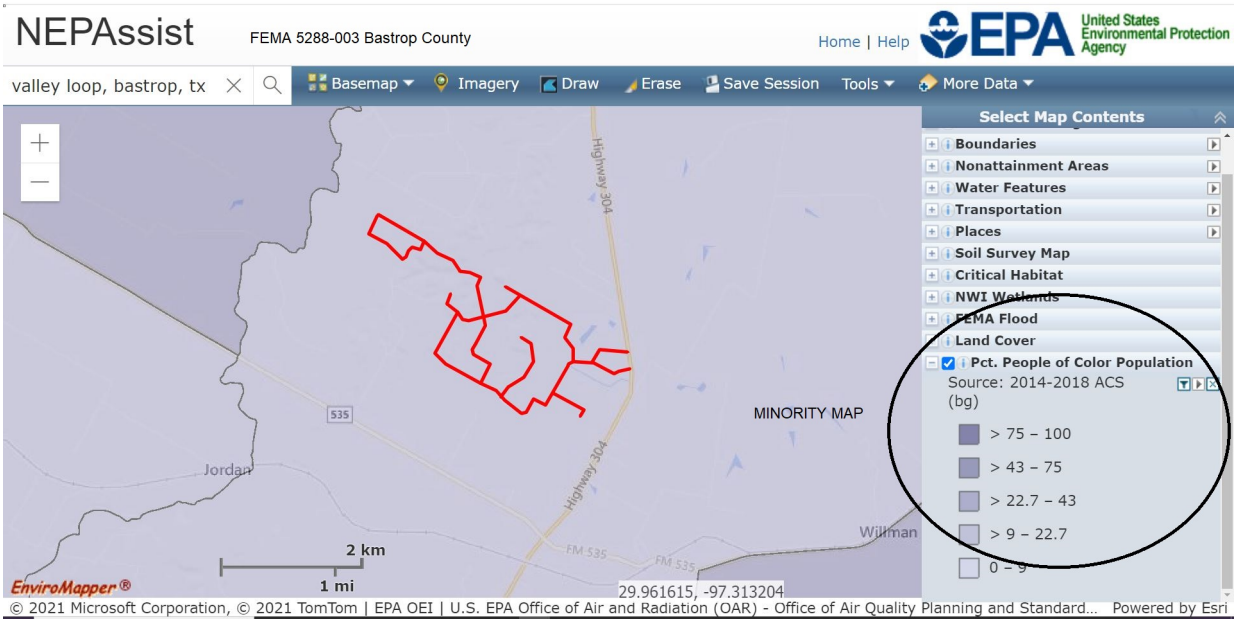


Figure 15 Percent Minority Population (EPA NEPAssist).

Action Alternative

The no action alternative would not have a disproportionately high or adverse impact on low-income or minority populations located in the project areas. The risk for catastrophic wildfire would still exist for all populations in the area.

Proposed Action

The proposed action would have a beneficial effect on all people living and working in the vicinity of the project areas, to include any low-income and minority persons, as it would reduce the risk of harm to persons and personal property from wildfire's occurring and spreading, by reducing the hazardous fuels in these areas. The proposed action would not have a disproportionately high and adverse impact on a low-income or minority population; therefore, the proposed action would comply with EO 12898.

4.6.2 Hazardous Materials

Hazardous materials are those substances defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act (TSCA). The Solid Waste Disposal Act (SWDA), as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes. In general, both hazardous materials and waste include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present a substantial danger to public health or to the environment when released or otherwise improperly managed.

To determine whether any hazardous waste facilities exist in the vicinity or up-gradient of the project areas, or whether there is a known and documented environmental issue or concern that could affect the project sites, a search for Superfund sites, toxic release inventory sites, hazardous facilities or sites, and multi-activity sites was conducted using the EPA NEPAssist map for EPA (hazardous) Facilities. According to this mapper, there are no hazardous facilities within the project area. See **Figure 16.**

No Action Alternative

No active hazardous sites were identified within the project areas that would potentially affect the existing environment. Under the no action alternative, existing conditions with respect to hazardous materials would not change.

Proposed Action

Under the proposed action, no impacts from waste storage and disposal sites are anticipated because hazardous fuels reduction would not be conducted in the proximity of hazardous sites. In addition, there are no hazardous sites identified in the project areas. Deposition or accumulation of soil, trash, ashes, refuse, waste, biosolids, or any other materials at the project site because of the proposed action is prohibited. Cut, trimmed, dead, and downed vegetation would be mulched and left in place within the project area. Mulch will be distributed no more than 2 inches deep. If site contamination or evidence of contamination is discovered during implementation of the proposed action, Bastrop County would manage the contamination in accordance with the requirements of the governing local, state, and federal regulations and guidelines.

The proposed action would involve the use of mechanical equipment, and there is always a minor threat of leaks of oils, fuels, and lubricants from the use of such equipment. The short-term nature of the project and use of equipment in good condition would reduce any potential effect to an insignificant level. Additionally, herbicides would not be used during project implementation or for long term operations and maintenance.

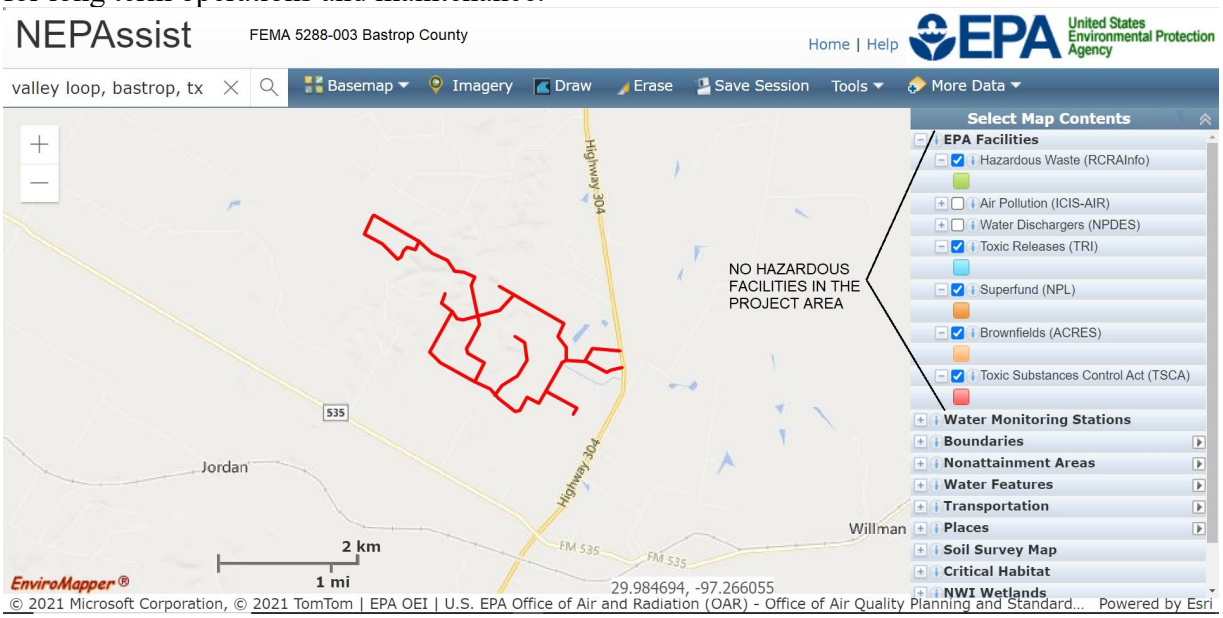


Figure 16 Hazardous Materials Summary Results

4.6.3 Noise

Sounds that disrupt normal activities or otherwise diminish the quality of the environment are considered noise. Noise events that occur during the night (10 p.m. to 7 a.m.) are more annoying than those that occur during normal waking hours (7 a.m. to 10 p.m.). Noise events in the project area are presently associated with climatic conditions (wind, rain), transportation noise (traffic on roads, airplanes), and "life sounds" (people talking, children playing).

Assessment of noise impacts includes the proximity of the proposed action to sensitive receptors. A sensitive receptor is defined as an area of frequent human use that would benefit from a lowered noise level. Typical sensitive receptors include residences, schools, churches, hospitals, and libraries. Sensitive receptors within the project area consist of residential and some institutional uses. Any noise-generating activities in proximity to these uses could have the potential to adversely affect these sensitive receptors.

No Action Alternative

Under the no action alternative, no wildfire hazard mitigation activities would occur; thus, there would be no change in existing noise levels that could affect sensitive receptors in the project area.

Proposed Action

Under the proposed action, noise would be generated by operation of equipment, such as a chainsaw, a chipper, trucks and trailers, construction and maintenance vehicles, and other required equipment. The implementation of the proposed action would increase noise levels within the project area and the immediate vicinity of the work. Increases in noise levels would be temporary at any one location within the project area and would occur during normal waking hours; therefore, impacts from increased noise levels on sensitive receptors in the project area would be minor. In addition, BMPs would be implemented during hazardous fuels reduction activities and all equipment and machinery used would meet all applicable local, state, and federal noise control regulations.

4.6.4 Traffic

Most of the project areas consist of residential and commercial uses. Residential portions of the project area are served by a system of residential streets that would provide access to most of the proposed work zones located on private property.

No Action Alternative

Under the no action alternative, existing levels of local traffic would not change, and no additional costs would be incurred from road construction or maintenance. A major wildfire would be more likely under the no action alternative. Nearby roads or internal trails could be closed if a wildfire approached or encompassed the local areas. A wildfire near the project areas could close emergency access roads, where they occur. Depending on location and wind direction, smoke from

a wildfire could close sections of bordering roadways. Short-term traffic congestion could occur during street and highway closures caused by a wildfire.

Proposed Action

Under the proposed action, vehicle traffic would be generated by work crews traveling to and from work sites. The amount of additional traffic would be temporary and minimal and would not interfere with residents or other persons traveling in the general vicinity of the project areas. In addition, all cut material would be mulched and left on site; therefore, there would be no hauling activities or effects from haul trucks. Internal dirt roads and trail networks would be used to access remote portions of the project area. There would not be a significant effect on transportation from the proposed action.

4.6.5 Public Service and Utilities

The project area electrical energy provider is Bluebonnet Regional and Economic Development, an electric cooperative that serves more than 86,000 meters and maintains more than 11,000 miles of power lines in its 14-county region, which includes Bastrop County (Bluebonnet Regional and Economic Development 2014). Overhead power lines owned and managed by Bluebonnet are located along most of the streets within the project area.

The Aqua Water Supply Corporation (WSC), a nonprofit resident-owned corporation, is the water provider in the project area. Aqua WSC provides service to approximately 50,000 people in a 953-square mile service area covering six Texas counties. WSC utilizes ground water for its public water supply (Aqua WSC 2014a, Aqua WSC 2014b).

In November 2010, the Lower Colorado River Authority (LCRA) Board of Directors decided to sell its community water and wastewater systems in the Texas Hill Country and along the Colorado River. The most recent sale closed July 31, 2014, when Corix Utilities Inc. purchased 18 retail water and wastewater systems from LCRA, which included wastewater service to the project area. Corix Utilities Inc. now provides wastewater utility services to the project area (LCRA 2014). Corix is a North American company that specializes in providing utility infrastructure solutions for small- to mid-sized communities in the water, wastewater, and energy sectors.

No Action Alternative

Under the no action alternative, utilities in the project area would not be directly affected. However, the potential for a major wildfire would continue to be high, and electrical services provided via overhead power lines would have the potential to spark catastrophic fires as well as being adversely affected by a wildfire.

Proposed Action

The proposed action would not directly affect or require additional utilities in the project area. The proposed action would reduce the risk of a major wildfire in the project area and would contribute

to the containment of wildfires, which would prevent or reduce potential damage to existing overhead utilities.

4.6.6 Emergency Services

Bastrop County is serviced by nine fire stations staffed mainly by a 45-volunteer staff. The project area is located in Smithville, Bastrop County, and is serviced by Emergency Service District (ESD) No.1. Mutual aid agreements exist among all the County's fire departments. The Texas Forest Service is also available to provide additional equipment and manpower resources to support incidents which expand beyond local firefighting capabilities. Additional emergency response services are provided by the Bastrop County Sheriff's Department.

The Bastrop County Community Wildfire Protection Plan (CWPP) states that sufficient and consistent volunteer involvement is an issue for many of the departments, making maintenance of an adequate level of firefighting skills a concern for the county. In addition, the county experiences difficulty in obtaining and maintaining sufficient gear and protective clothing required to combat catastrophic wildfires.

The hospital in closest proximity to the project areas is Seton Smithville Regional Hospital, located southeast of the project areas at 800 SH 71 in Smithville, which has a 24-hour emergency response team and surgical services. There is an emergency services physician office, Lakeside Hospital at Bastrop, located west of project areas at 3201 SH 71 in Bastrop.

No Action Alternative

Under the no action alternative, there would be no change in emergency response time. The risk of a major wildfire in the project areas would continue to exist at its current level. Existing emergency services would continue to respond to wildfires in the project areas. During a major wildfire, emergency personnel would not be available to respond to other emergencies in their service area.

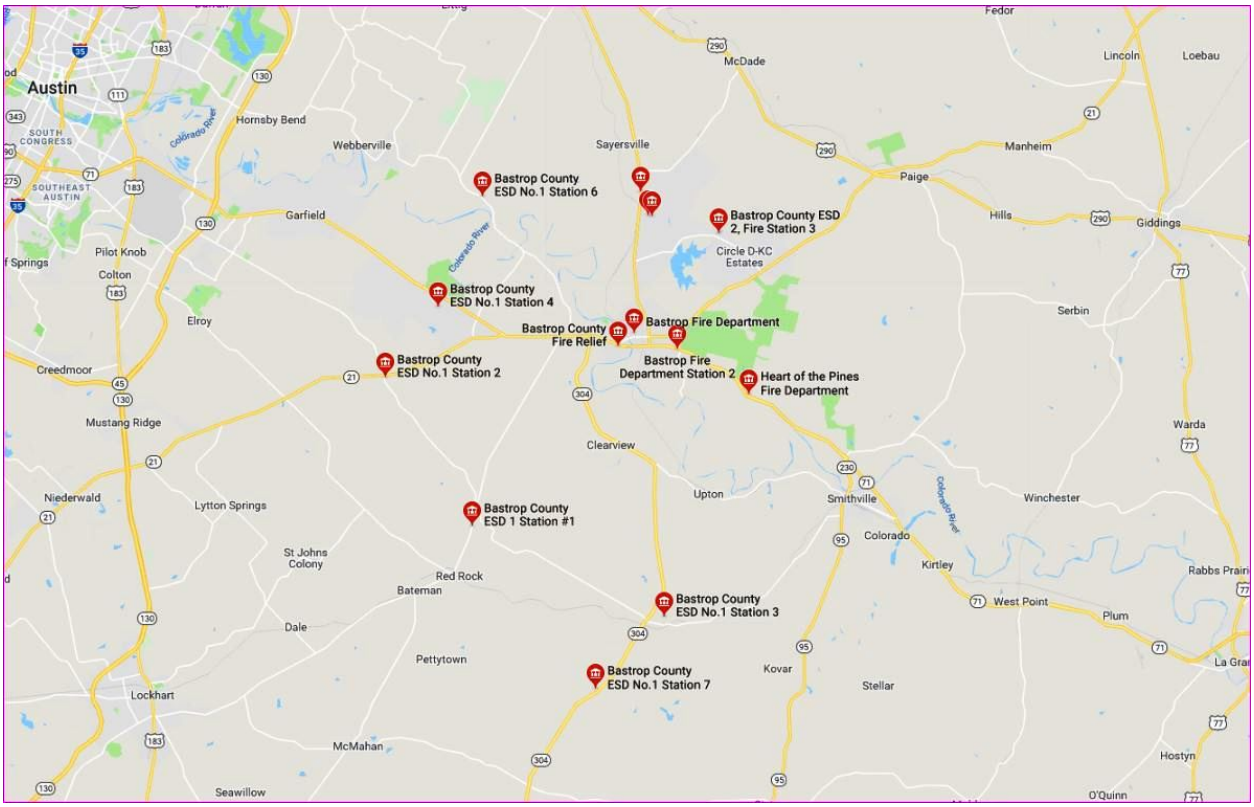


Figure 17 Google Map of Bastrop County Fire Department Locations.

Proposed Action

Under the proposed action, hazardous fuels reduction measures would reduce the risk of a major wildfire or contribute to the containment of a catastrophic wildfire in the project area. The proposed action would reduce the level of need for emergency services within the project areas and would allow emergency responders to remain available to respond to other emergencies throughout the city and county. Hazardous fuels reduction may also improve conditions for fire fighters within the project area by making structures and residences more easily defended and reducing the risk that area roads would be cut off by fires.

4.6.7 Public Health and Safety

The risk of a catastrophic fire in the project area is high because of heavy fuel loading (closely spaced, overgrown trees and shrubs, and dead and downed material) that has accumulated over time, specifically in the WUI of the Lost Pines Region of south Bastrop County. Heavy rain conditions following wildfires can contribute to sediment and debris in nearby waterways, which can affect downstream water quality and damage structures, roads, and utilities critical to the safety and well-being of citizens in and downgradient of the project areas.

Population growth also has many implications related to wildfire hazards and the need for hazardous fuels reduction. With more people, there is a greater risk of human-caused wildfires and a greater need for protection from wildfires. Population growth implications intensify fire hazard

risks when residences are built in the WUI, as in the project areas. The current population estimate for Bastrop County is 84,522, per the Census Bureau American Community Survey.

No Action Alternative

A major wildfire in the project area would be more likely under the no action alternative. If a wildfire occurred, people and structures in and near the burned area would be at risk. Wildfires can generate substantial amounts of particulate matter, which can affect the health of people breathing the smoke-laden air. Therefore, the health of people downwind of a wildfire, especially young children, the elderly, and people with lung disease or asthma, could be adversely affected. Wildfires can also generate substantial amounts of carbon monoxide, which can pose a health concern for frontline firefighters.

Proposed Action

Under the proposed action, the primary objective is to reduce the hazardous fuel loads to reduce the rate of spread and intensity of a wildfire within the project areas. Implementation of the proposed action would create a safer environment for firefighters, which could allow them to control the spread of a fire more easily. Hazardous fuels reduction would not prevent wildfires but could contribute to containment, reducing the intensity and frequency of wildfires, which would ultimately reduce the risk factor for people living in and near the project area. In addition, when wildfires are controlled more quickly, a smaller area is burned, and less sediment and debris may be transported downstream during future precipitation events that could potentially affect water quality.

4.7 SUMMARY OF EFFECTS AND MITIGATION

Table 4 provides a summary of the potential environmental effects from implementation of the proposed action, any required agency coordination efforts or permits, and any applicable proposed mitigation or BMPs.

Table 4 Summary of Impacts and Mitigation

Affected Environmental Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
Soils	Minor short-term impacts. Beneficial long-term impacts on soils from reduced risk of major wildfire.	N/A	Cut vegetation will be mulched and left on site to prevent soil erosion. Appropriate barriers will be used to prevent mulch from being washed into creeks.
Air Quality	Short-term minor impacts on local air quality from mechanical equipment emissions. Potential long-term beneficial impact on air quality by reducing wildfire emissions.	N/A	Vehicle and equipment running times will be minimized, and engines will be properly maintained.
Climate Change	Long-term beneficial effect from reduction in risk of a major wildfire and wildfire emissions.	N/A	N/A
Visual Quality and Aesthetics	Potential long-term beneficial effect by reducing loss of vegetation due to wildfires and opening views into wooded areas in parts of the project area. Potential minor adverse impacts include reduction in privacy screening.	N/A	N/A
Surface Water	Minor short-term adverse impacts on surface water quality from erosion and sedimentation caused by temporary soil disturbance. Potential beneficial impact on surface water by preventing major wildfire and reducing sedimentation and debris loading in streams.	TWDB; TCEQ	Cut vegetation will be mulched and left on site. Mulch will not be more than 2 inches thick. Appropriate barriers will be used to prevent mulch from being washed into the surface waters. Bastrop County must coordinate with Texas Commission on Environmental Quality (TCEQ) to obtain any required permits under the Texas Pollutant Discharge Elimination System (TPDES) requirements.
Groundwater	No impact.	N/A	N/A

Wetlands	No impact. The 8-step floodplain review process will be completed following public review and comment.	N/A	Work conducted within 200 feet of wetlands would be restricted to hand cutting and hand hauling debris. No mulch will be placed in wetlands and appropriate barriers will be used to prevent mulch from being washed into wetlands.
Floodplains	No adverse impacts to the floodplain are anticipated.	N/A	Appropriate coordination with the local Floodplain Administrator will be performed prior to project undertaking. No mulch would be placed within floodplains. Appropriate barriers will be used to prevent mulch from being washed into floodplains.
Vegetation	No significant impact to vegetation communities.	N/A	Invasive species will be removed.
Threatened and Endangered Species/Critical Habitat; Migratory Birds	No impacts to federally-protected species are anticipated. Migratory birds may nest in project areas.	USFWS, TPWD	Limit defensible space work during the peak migratory bird nesting period between March 1 and August 31 as much as possible to avoid destruction of individuals, nests, or eggs. If defensible space activities must occur during the nesting season, Bastrop County will deploy a qualified biological monitor with experience conducting breeding bird surveys to survey the vegetation management area for nests prior to conducting work and determine buffer zones around occupied nests if present.
Cultural Resources	No impact	THC; Alabama-Coushatta Tribe of Texas, Comanche Nation, Kiowa Tribe and Tonkawa Tribe of Indians of Oklahoma	If archeological deposits, including any Native American pottery, stone tools, bones, or human remains are uncovered, the project must be halted immediately in the vicinity of the discovery, and all reasonable measures must be taken to avoid or minimize harm to the discovered items. The sub applicant must secure all archeological findings and restrict access to the sensitive area. The sub applicant must inform FEMA immediately, and FEMA will consult with the SHPO. Work in sensitive areas must not resume until consultation is completed and until FEMA determines that appropriate measures have been taken to ensure compliance with the NHPA and its implementing regulations.
Socioeconomic Resources	No impact	N/A	N/A
Environmental Justice	No impact	N/A	N/A
Hazardous Materials	No impact	N/A	N/A

Noise	Minor, temporary impacts from the use of equipment	N/A	All work will be conducted during daytime hours. All equipment and machinery will meet all local, state, and federal noise regulations.
Traffic	Minor, temporary impacts.	N/A	N/A
Public Service and Utilities	Long-term beneficial impact on overhead utility power lines and potential for power outages, and improved emergency services due to the reduction in wildfire risk	N/A	N/A
Emergency Services	Long-term beneficial impact.	N/A	N/A
Public Health and Safety	Long-term beneficial impact.	N/A	N/A

SECTION 5 CUMULATIVE IMPACTS

This section addresses the potential cumulative impacts associated with the implementation of the proposed action. Cumulative impacts can be defined as the impacts of a proposed action when combined with impacts of past, present, or reasonably foreseeable future actions undertaken by any agency or person. Cumulative impacts can result from individually minor but collectively significant actions.

No significant cumulative impacts are foreseen from implementation of the proposed action and other past, present, and future actions. Because the proposed action would have no impact or minimal impact on water resources, wetlands, floodplains, most wildlife, vegetation communities, cultural resources, environmental justice, public services and utilities, hazardous materials, and public health and safety, the proposed action would not contribute to significant cumulative impacts on these resources.

Operation of heavy equipment during fuels reduction would temporarily disturb soils; however, with the implementation of BMPs to protect soils, including rubber tracks on all machinery, a significant adverse cumulative impact on soils would not be expected.

Several transportation projects are planned near the project area (Texas Department of Transportation [TxDOT] 2014). Temporary noise, traffic, and air quality impacts of the proposed action could combine with similar impacts of other projects occurring at the same time, but the combined impact is not expected to be significant.

Bastrop County has worked diligently over the last five years to reduce the heavy fuel loads in high hazard areas and plans continue undertaking actions to mitigate wildfire risks. FEMA is funding another similar fuel reduction project in the County, Bastrop County Hazardous Fuels Reduction Project (HMGP-FM-5233-TX Project #7). This project is located approximately 12 miles north of the Pine Valley Estates project just to the south of Lake Bastrop. At the time of publication of this EA, the proposed work for this other project had not commenced. While there might be temporary noise, traffic, and air quality impacts during project undertaking, cumulative adverse impacts from such projects are not anticipated. Long-term beneficial cumulative impacts to human lives, properties, and environment are anticipated from wildfire risk mitigation projects.

Climate change is by its nature a cumulative impact. Carbon dioxide emissions from the proposed action would make a very small contribution to climate change.

SECTION 6 AGENCY COORDINATION, PUBLIC INVOLVEMENT, AND PERMITS

This section provides a summary of the agency coordination efforts and public involvement process for the proposed Bastrop County Pine Valley Estates Hazardous Fuels Reduction EA. In addition, an overview of the permits that would be required under the proposed action is included.

6.1 AGENCY COORDINATION

Several local, state, and federal agencies were consulted as part of preparing this EA, including correspondence with the agencies and utilizing online resources. Consultation letters and responses from resource agencies are provided in **Appendix D**.

6.2 PUBLIC PARTICIPATION

The public information process for the proposed project will include a public notice in the *Bastrop Advertiser*, the general circulation newspaper that serves Bastrop County. The public notice will state that information about the proposed action, including this Draft EA, is available at a local facility open to the public and on FEMA's website (https://www.fema.gov/emergency-managers/practitioners/environmental-historic/region/6). The notice will invite the public to submit their comments about the proposed project, potential impacts, and proposed mitigation measures so that they may be considered and evaluated. FEMA will consider and respond to all public comments in the final EA. If no substantive comments are received, the draft EA will become final, and a FONSI will be issued for the project. At this time, a public meeting is not planned because the proposed action is not considered controversial.

6.3 PERMITS

Bastrop County must coordinate with the local floodplain administrator, obtain required permits prior to initiating work, and comply with any conditions of the permit to ensure harm to and from the floodplain is minimized. The proposed action may require coverage under Texas Pollutant Discharge Elimination System construction stormwater general permit TXR150000 as soil disturbing activities (including clearing) that result in land disturbance of equal to or greater than 1 acre disturbance of land requires authorization under this permit.

SECTION 7 REFERENCES

Aqua Water Supply Corporation. 2014a. About Aqua Water Supply. Website. Accessed on: November 20, 2014. Available at: http://aquawsc.com/about

Aqua Water Supply Corporation. 2014b. Zone Boundaries Map. Accessed on: November 20, 2014. Available at: http://aquawsc.com/water-services/service-area-map

Bluebonnet Regional Economic Development Department. 2014. Website. Accessed on: November 19, 2014. Available at: https://www.bluebonnetelectric.coop/About/Overview.

Council on Environmental Quality. 1997. Environmental Justice - Guidance Under the National Environmental Policy Act. Accessed on August 28, 2014. Available at: http://ceq.hss.doe.gov/nepa/regs/ej/justice.pdf.

Federal Emergency Management Agency (FEMA). 2006. Flood Insurance Rate Map (FIRM). Bastrop County, Texas Panel 500, Community-Panel Number 48021C0500E.

FireCAP, Inc. 2008. Bastrop County Community Wildfire Protection Plan. Available at: http://www.firecaptexas.org/wp-content/uploads/2013/10/Approved_Bastrop_County_Wildfire_Protection_Plan.pdf

Fire Department Directory. 2014. Webpage. Accessed on: November 19, 2014. Available at: http://firedepartmentdirectory.com/.

Interagency Wild and Scenic Rivers Council. 2014. Designated Wild & Scenic Rivers Webpage. Accessed on August 28, 2014. Available at: http://www.rivers.gov/rivers/rio-grandetx.php

Forstner, M. R. J., D. Wallace, J. Bell, D. Stout, and J.T. Jackson. 2011. Houston toad 2011 data and final report for the LPHCP annual monitoring, Bastrop County, Texas. Bastrop County Lost Pines Habitat Conservation Plan Office, Bastrop, Texas.

Loomis Austin. 2007. Lost Pines Habitat Conservation Plan for Bastrop County, Texas. Available online at https://www.co.bastrop.tx.us/upload/page/0094/docs/Lost_Pines_Habitat_Conservation_Plan.pdf. Accessed September 28, 2021.

LPRT (Lost Pines Recovery Team). 2011. Bastrop County Complex Fire—Lost Pines Region—Resources Assessment and Response Report. Bastrop, Texas.

Lower Colorado River Authority. 2014. Water and Wastewater Utility Divestiture. Website. Accessed on: November 24, 2014. Available at: http://www.lcra.org/water/utilities/Pages/divestiture.aspx

Texas Commission on Environmental Quality. 2014. 2012 Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d). Accessed on December 10, 2014. Available at: http://www.tceq.texas.gov/waterquality/assessment/waterquality/assessment/12twqi/twqi 12

----2007. Ecoregions of Texas; G. Griffith, S. Bryce, J. Omernik, and A. Rogers. December 27.

Texas General Land Office. 2014. Coastal Management Program Website. Accessed on October 28, 2014. Available at: http://www.glo.texas.gov/what-we-do/caring-for-the-coast/grants-funding/cmp/index.html.

Texas Historical Commission. 2011. Texas Historic Sites Atlas, Bastrop County. Accessed on July 1, 2021. Available at: http://atlas.thc.state.tx.us/.

Texas Water Development Board. 2014a. Geologic Atlas of Texas Austin Sheet. Accessed on: December 2, 2014. Available at: http://www.twdb.state.tx.us/groundwater/aquifer/gat/

---- 2014b. Carrizo-Wilcox Aquifer Webpage. Accessed on December 5, 2014. Available at: http://www.twdb.state.tx.us/groundwater/aquifer/majors/carrizo-wilcox.asp

U.S. Census Bureau. 2012. American Community Survey 2008-2012 5-Year Estimates. Accessed on: November 12, 2014. Available at: http://factfinder2.census.gov/.

--- 2014a. Poverty Threshold, 2012. Accessed on: November 12, 2014. Available at: http://www.census.gov/hhes/www/poverty/data/threshld/index.html.

--- 2014. State and County Quick Facts, Bastrop County, TX. Accessed on November 20, 2014. Available at: http://quickfacts.census.gov/qfd/states/48/48021.html

U.S. Department of Agriculture, Forest Service. 2005. Wildland Fire in Ecosystems: Effects of Fire on Soil and Water. General Technical Report RMRS-GTR-42-volume4.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2021. Web Soil Survey Website. Accessed on: July 27, 2020. Available at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

U.S. Environmental Protection Agency. 2008. Sole Source Aquifers: Edwards Aquifer I and II Map. Accessed on August 28, 2014. Available at: http://www.epa.gov/region6/water/swp/ssa/maps/ssa_edwards.pdf.

--- 2014a. Green Book Nonattainment Areas for Criteria Pollutants Website. Accessed on: November 20, 2014. Available at: http://www.epa.gov/oaqps001/greenbk/.

--- 2014b. Envirofacts Database. Accessed on: November 20, 2014. Available at: http://www.epa.gov/enviro/.

USFWS (U.S. Fish and Wildlife Service). 2011a. Post-Wildfire Clean-Up and Response in Houston Toad Habitat Best Management Practices. Available online at https://www.fws.gov/southwest/es/Documents/R2ES/Fire_CleanUp_and_Response_BMPs 20110924.pdf. Accessed June 14, 2019.

USFWS. 2011b. Houston toad (Bufo houstonensis) 5-Year Review: Summary and Evaluation. Available online at https://ecos.fws.gov/docs/five_year_review/doc3958.pdf. Accessed June 14, 2019.

USFWS. 2016. Houston Toad: Habitat and Distribution. Available online at https://www.fws.gov/southwest/es/Houston_Toad_Habitat.html. Accessed October 19, 2017.

SECTION 8 LIST OF PREPARERS

The following is a list of preparers who contributed to the development of the Draft Environmental Assessment for the proposed Bastrop County Pine Valley Estates Hazardous Fuels Reduction Project.

The individuals listed below had principal roles in the preparation and content of this document. Many others had significant roles and contributions as well, and their efforts were no less important to the development of this EA. These others include senior managers, administrative support personnel, and technical staff.

- Melisa Durham, Environmental Specialist, Langford Community Management Services, Inc.
- Suellen Jordan, Grant Management, Langford Community Management Services, Inc.
- CDM Smith Draft EA for North Lost Pines Hazardous Fuels Reduction Project HMGP-DR-1999-0012 for reference and materials.

FEMA Region 6 Environmental and Historic Preservation staff involved in the preparation of this EA includes:

- Kevin Jaynes, Regional Environmental Officer
- Dorothy Cook, Senior Environmental Specialist
- Omololu Dawodu, Environmental Protection Specialist
- Angela McComb, Historic Preservation Specialist
- Subha Pandey, Environmental Protection Specialist