

Draft Environmental Assessment
City of Panorama Village
Hazardous Fuels Reduction
HMGP-DR-1999-0004
Montgomery County, Texas
June 2013

Federal Emergency Management Agency
Department of Homeland Security
500 C Street, SW
Washington, DC 20472



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Acronyms and Abbreviations

APE	area of potential effect
AQCR	Air quality control regions
Atlas	Texas Archeological Sites Atlas
BIC	Betis fine sand
BMPs	best management practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CnC	Conroe gravelly loamy fine sand
CoC	Conroe loamy fine sand
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dBA	A-weighted decibel
EA	environmental assessment
EIS	environmental impact statement
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ESD	emergency service district
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FR	Federal Register
GLO	Texas General Land Office

Gu	Gunter fine sands
HMGP	Hazard Mitigation Grant Program
L _{eq}	equivalent sound level
MGD	million gallons per day
MUD	municipal utility district
NAAQS	National Ambient Air Quality Standards
Nd.	no date
NEPA	National Environmental Policy Act
NEV	neighborhood electrical vehicle
NHPA	National Historic Preservation Act
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSP	nonpoint source pollution
NWI	National Wetlands Inventory
P.L.	Public Law
PM	particulate matter
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SH	state highway
SHPO	State Historic Preservation Officer
SIP	state implementation plan
TCEQ	Texas Commission on Environmental Quality
T&E	Threatened and endangered
THC	Texas Historical Commission
TMDL	Total maximum daily load

TPWD	Texas Parks and Wildlife Department
TSCA	Toxic Substances Control Act
TSS	total dissolved solids
TWDB	Texas Water Development Board
TX	State of Texas
U.S.C.	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound
WIID	Water Information Integration and Dissemination System

SECTION 1 Introduction

The City of Panorama Village proposes to reduce wildfire hazard by removing dead and living vegetative material from public land within the city. Panorama Village has submitted an application to the Federal Emergency Management Agency (FEMA) through the Texas Division of Emergency Management for a grant under FEMA's Hazard Mitigation Grant Program (HMGP). The Texas Division of Emergency Management is the direct applicant for the grant, and the City of Panorama Village is the subapplicant.

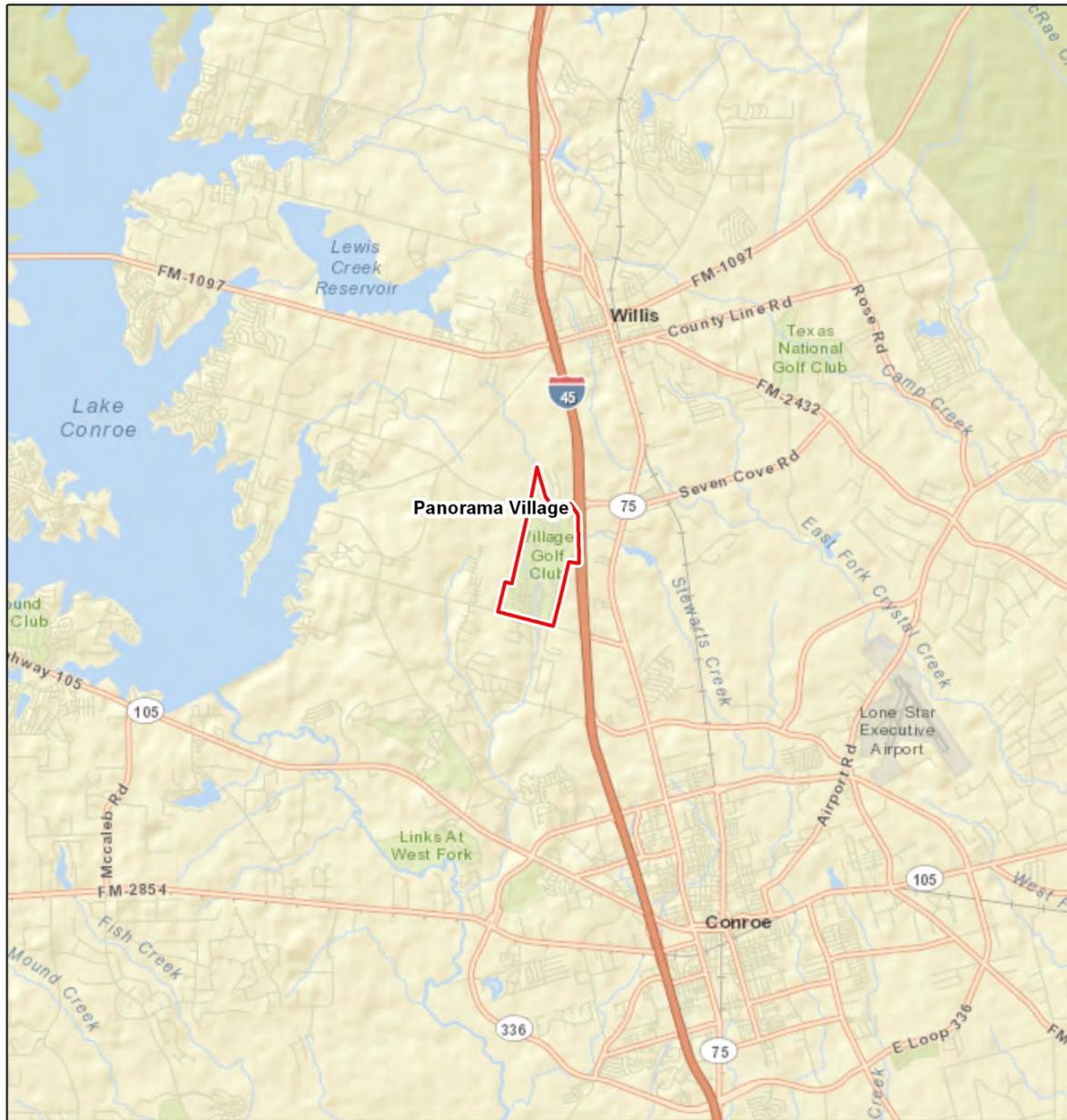
The HMGP is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Under the HMGP, federal funds pay 75 percent of the project cost, and the remaining 25 percent comes from nonfederal funding sources.

Panorama Village is a residential community built within and immediately surrounding a 27-hole golf course. It is between the cities of Conroe and Willis, 43 miles north of the center of Houston and 2.6 miles east of Lake Conroe. **Figure 1.1** shows the project area and surrounding area. The proposed project area is shown in **Figure 1.2**. **Figure 1.3** shows the project area along with aerial imagery. The project area is on the west side of U.S. Highway 45 between Farm-to-Market Road (FM) 830 and League Line Road, primarily along the edges of the fairways of The Village Golf Course.

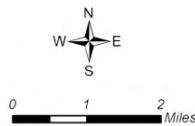
The proposed project would reduce vegetative fuels throughout the golf course, which is approximately 1.5 miles long and about 0.6 miles wide. The work would focus on removal of dead and distressed trees, along with some healthy trees and understory brush.

The Village Golf Course is on city-owned public land. The majority of the rest of the land within the city limits is private single-family residential, with a few multifamily residential buildings, one commercial facility, one light industrial facility, and the municipal complex. It should be noted that Panorama Village has already completed fuels reduction work on approximately 104 acres in the same general areas where the proposed action would occur.

This environmental assessment (EA) 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 [CFR] Parts 1500-1508), and FEMA's regulations implementing NEPA (44 CFR Part 10). FEMA is required to consider and evaluate 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 Panorama Village hazardous fuels reduction 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).



**Panorama Village
Hazardous Fuels Reduction**
Project # 1999-0004



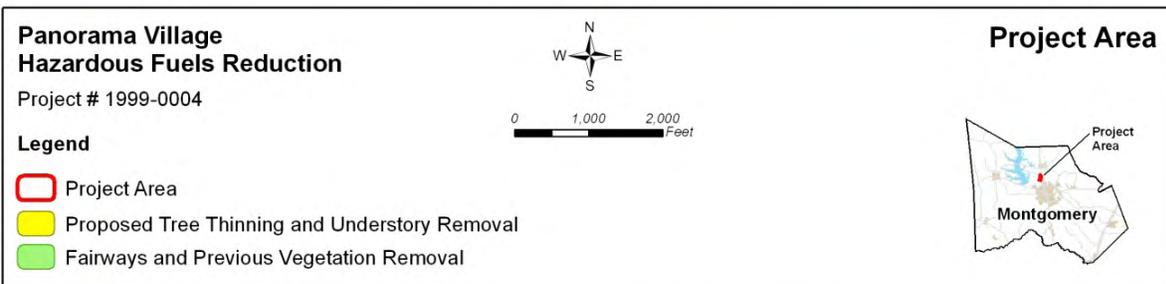
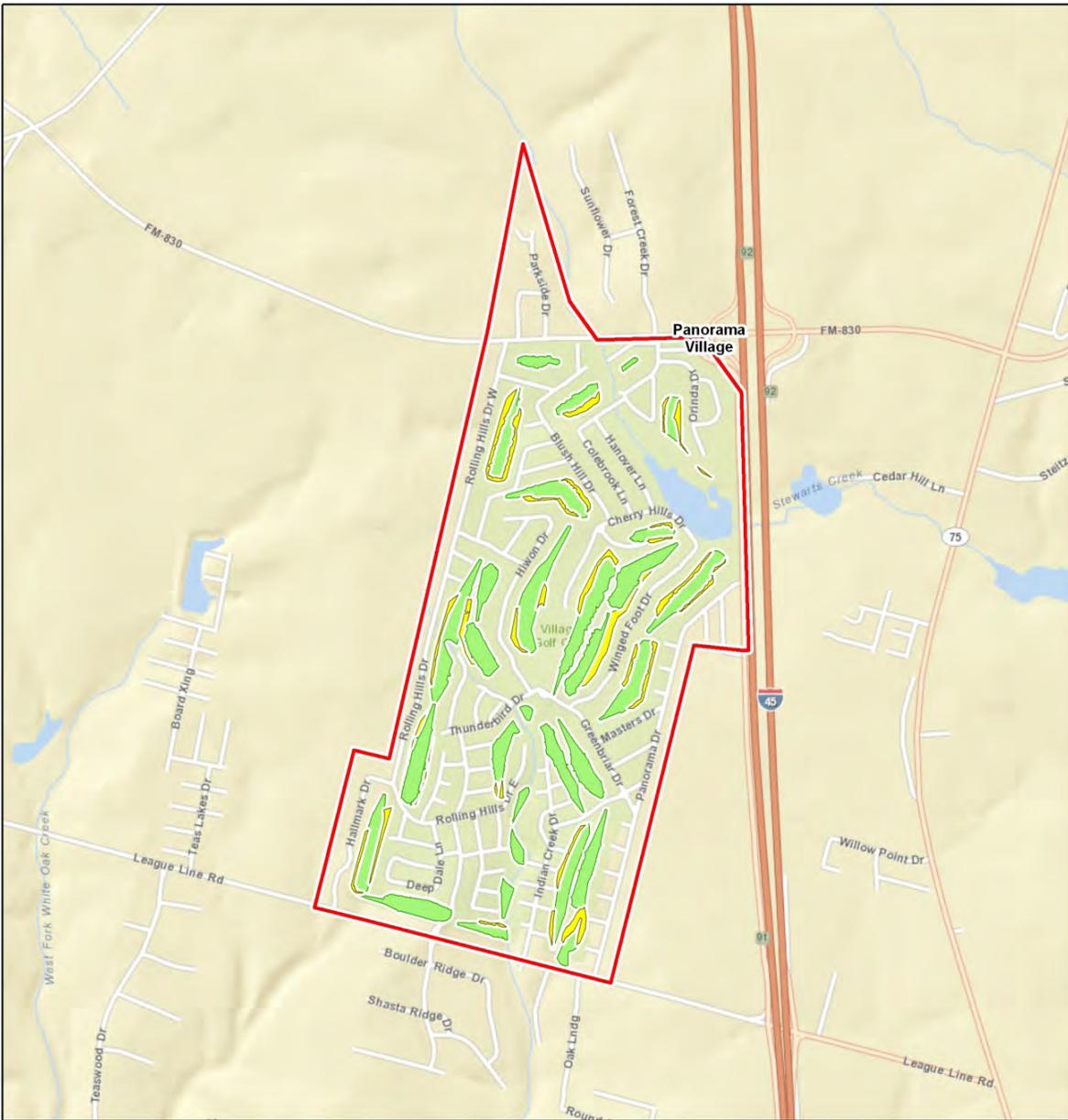
General Location



Legend
Project Area

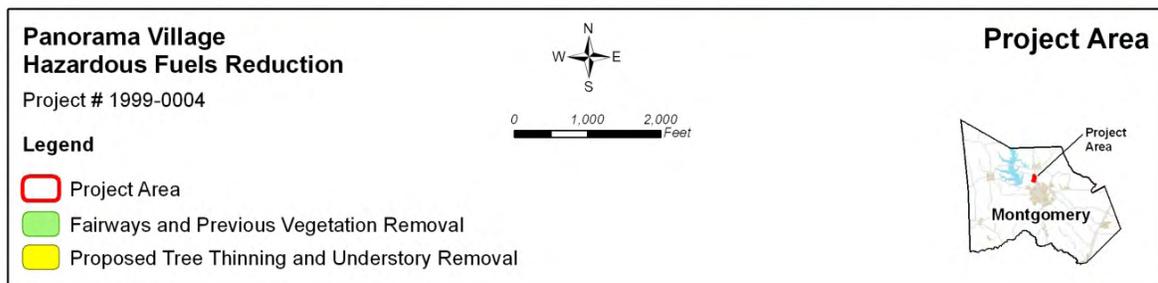
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Figure 1.1. Proposed Project Area and Surrounding Area



Data Sources: HGAC, CDM Smith
 Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom.

Figure 1.2. Proposed Project Area: Panorama Village, Texas



Data Sources: HGAC, CDM Smith
Service Layer Credits: Copyright © 2013 Esri, DeLorme, NAVTEQ, TomTom

Figure 1.3. Proposed Project Area with Aerial Imagery

SECTION 2 Purpose and Need

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

The purpose of the proposed project is to reduce the risk of wildfire hazards in the City of Panorama Village. Long-term drought has increased the risk of wildfire by killing many trees, providing a large amount of dry fuel for a potential wildfire. Bands of thick vegetation and dead vegetative material along the golf course fairways are close to homes along roads that parallel the fairways. The density of the vegetation is a wildfire hazard even where the vegetation is healthy. Panorama Village is subject to high winds that could carry a wildfire along the bands of vegetation and into residential properties.

SECTION 3 Alternatives

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

3.1 No Action Alternative

The no action alternative is included to describe potential conditions if no action is taken to significantly reduce the risk from wildfire hazards.

Under the no action alternative, the minor short-term impacts of the proposed action would be avoided. These impacts include temporary increases in noise and truck traffic and minor short-term impacts to air quality.

The no action alternative would not reduce the current unacceptable risk of a catastrophic wildfire. The homes along the 27 golf course fairways would not receive any tree overstory thinning or understory fuel reduction, and these homes would remain at elevated risk in a wildfire. Panorama Village would continue to have an elevated probability of ground fire spreading up to the canopy, creating a crown fire with potential for rapid spread in windy conditions. The probability of loss of human life and property in a wildfire would continue to be unacceptably high. A major wildfire would have a severe temporary impact on air quality. Fighting a major wildfire could require large quantities of water at a time when water resources are already strained by drought. For these reasons, the no action alternative would not meet the purpose and need.

3.2 Proposed Action

The City of Panorama Village proposes to implement a woodland fuel reduction program designed to significantly reduce the risk of damage from wildfire. The proposed action would be conducted on city-owned land that borders the 27 golf course fairways and is adjacent to many private residential properties. These actions are intended to create gaps in the tree canopy to prevent crown fires from spreading and to remove lower branches to prevent a ground fire from spreading into the treetops.

The proposed action includes cutting and removal of 400 to 450 trees from approximately 22 acres of public areas of the city. The city's focus is on removal of dead trees and dense understory, but some live trees would be cut and removed to reduce the density of live timber stands. The city's grant application states that the stumps of cut trees would be ground down.

Dead wood would be removed from 70 additional living trees. To reduce the amount of "ladder fuel" that could carry a ground fire up into the trees, understory branches 15 to 20 feet from the ground would be trimmed from 330 additional living trees. Vegetative materials would be mulched and/or recycled.

3.3 Additional Action Alternatives Considered and Dismissed

Panorama Village considered the alternative of removing vegetation immediately around homes to create defensible space, rather than reducing vegetative fuel on city property. This alternative was rejected for three reasons:

- It would cost much more than the proposed action.
- It would be difficult to get enough homeowners to participate to make this approach effective for the city as a whole.
- Homes with defensible space would still be vulnerable to firebrands thrown off from a crown fire in the trees on city land along the golf course fairways.

The alternative of focusing fuel reduction on the tree canopies and not removing understory fuels was also considered. From the standpoint of effectiveness, this alternative would fall between the proposed action and the no action alternative. This action alternative would not reduce the amount of “ladder fuel” present that could carry a ground fire up into the trees; understory branches less than 15 feet from the ground surface would not be removed. This alternative would leave significant understory fuel that would provide a significant fuel source and would reduce the overall effectiveness of the wildfire mitigation project. This alternative was therefore rejected.

The impacts associated with these two alternatives are therefore not analyzed further in this EA.

SECTION 4 Affected Environment, Potential Impacts, and Mitigation

This section describes the environment potentially affected by the proposed action and alternatives, evaluates potential environmental impacts, and recommends measures to avoid or reduce them.

4.1 Resources Not Affected and Not Considered Further

The proposed action is located in an area with very low seismic risk (USGWS 2012), and no impacts to or from seismicity are anticipated. The depth of ground disturbance will be superficial and at the surface level and will have no effect on geology. Therefore, geology and seismicity are not considered further in this environmental assessment.

The proposed action occurs more than 50 miles inland and about 38 miles northwest of the Texas Coastal Management Zone designated by the Texas General Land Office. The proposed action would not affect coastal resources, and they are not considered further.

This project would not have negative impacts on wild and scenic rivers (see figure in **Appendix A-1**), as the only designated wild and scenic river in Texas is the Rio Grande, which is hundreds of miles south of the project area. Wild and scenic rivers are not considered further.

4.2 Physical Resources

4.2.1 Soils

Three soil types make up approximately 95 percent of the land area within Panorama Village. Conroe loamy fine sand (CoC) is mapped in 54.0 percent of the city, Betis fine sand (BIC) covers 32.1 percent, and Conroe gravelly loamy fine sand (CnC) accounts for another 9.0 percent of the Panorama Village land area. The properties of these soil types are summarized in **Table 4.1**. A full soil survey for the area is shown in **Figure 4.1**. Translation of soil survey unit codes is shown in **Table 4.2**.

None of the predominant soil types present are classified as hydric soils, which are often associated with wetlands. The two minor soil types mapped on site by the Natural Resources Conservation Service (NRCS) are Gunter fine sand (Gu) and Bibb soils, frequently flooded. Bibb soils do hold hydric soil characteristics but are mapped on only 2.8 percent of the project area and are found only in the Stewarts Creek floodplain in the city's northeastern corner. The proposed action would not affect the floodplain or wetland areas.

The Farmland Protection Policy Act (FPPA; 7 USC 4201, et seq.) and its regulations (7 CFR Part 658) establish criteria for identifying and considering the effects of federal programs on the conversion of farmland to non-agricultural uses. The soils present within the project area are not considered prime or unique farmland soils per the NRCS's Web Soil Survey.

Affected Environment, Potential Impacts, and Mitigation

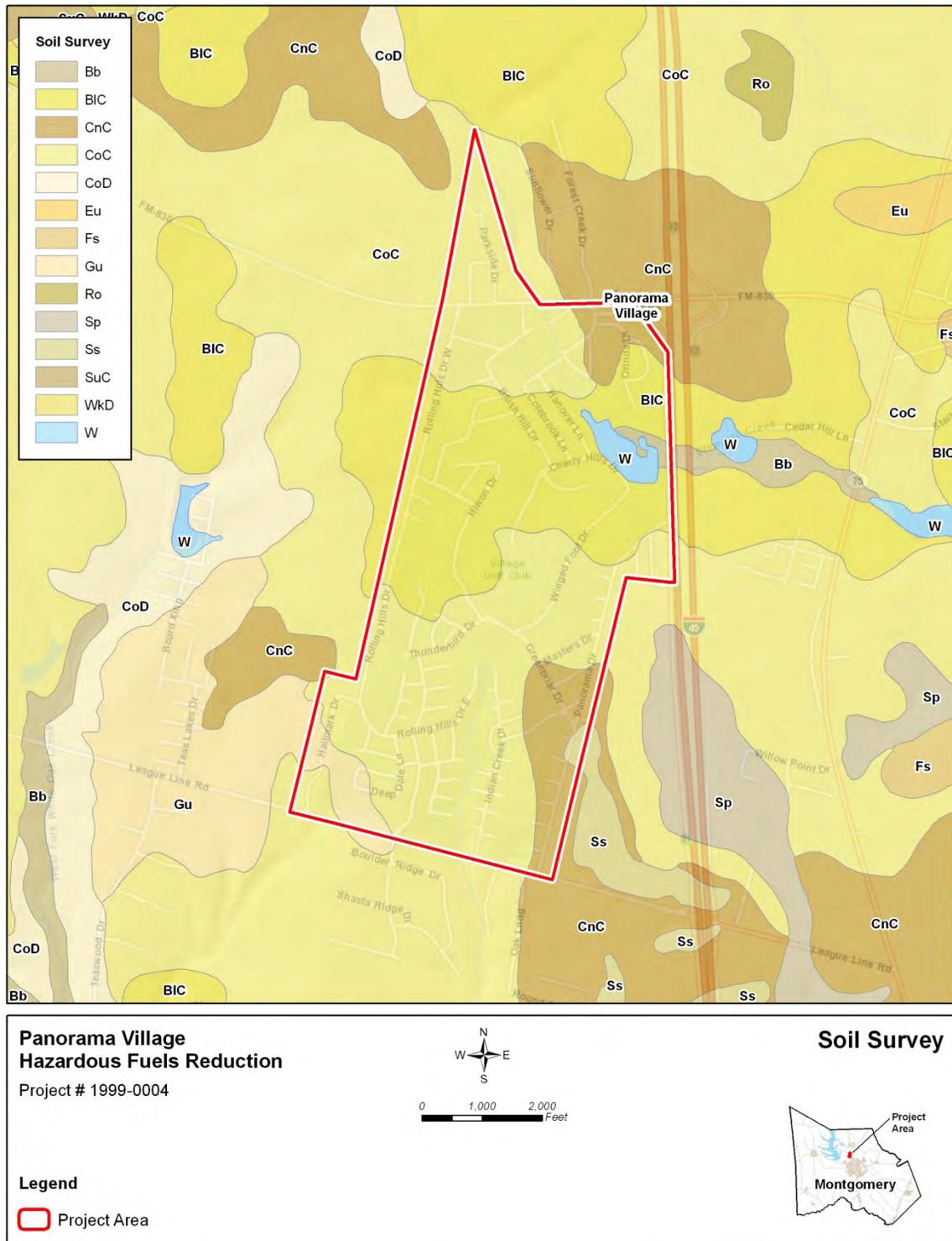
Table 4.1. Properties of Soils in the Project Area

Parameters	Conroe Loamy Fine Sand (CoC)	Betis Fine Sand (BIC)	Conroe Gravelly Loamy Fine Sand (CnC)
Depth	More than 80 inches	More than 80 inches	More than 80 inches
Drainage	Moderately well drained	Somewhat excessively drained	Moderately well drained
Permeability	Moderately low to moderately high (0.06 to 0.20 inches per hour [in/hr])	High to very high (5.95 to 19.98 in/hour)	Moderately low to moderately high (0.06 to 0.20 in/hr)
Parent Material	Clayey marine deposits	Sandy marine deposits	Clayey marine deposits
Slope	0 to 5 percent	0 to 5 percent	0 to 5 percent
Depth to Water Table	About 24 to 42 inches	More than 80 inches	About 24 to 42 inches
Hydric Soils	No	No	No

Table 4.2. Panorama Village – Soils Survey Unit Codes

Code	Description	Code	Description
Bb	Bibb soils, frequently flooded	BIC	Betis fine sand, 0 to 5 percent soils
CnC	Conroe gravelly loamy fine sand, 0 to 5 percent slopes	CoC	Conroe loamy fine sand, 0 to 5 percent slopes
CoD	Conroe loamy fine sand, 5 to 12 percent slopes	Eu	Betis loamy fine sand
Fs	Libert loamy fine sand	Gu	Gunter fine sand
Ro	Kirbyville fine sandy loam	Sp	Splendora fine sandy loam
Ss	Conroe soils	SuC	Woodville fine sandy loam, 1 to 5 percent slopes
WkD	Fetzer loamy fine sand, 5 to 12 percent slopes	W	Water

Affected Environment, Potential Impacts, and Mitigation



Data Sources: SSURGO, CDM Smith
Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom.

Figure 4.1. Panorama Village – Soils Map

No Action Alternative

In the absence of a major wildfire in the city, the no action alternative would have no effect on soils. However, a major wildfire would be more likely under the no action alternative and could alter the cycling of nutrients; the physical and chemical properties; and temperature, moisture, and biota characteristics of the soil. These primary impacts from a wildfire can also result in indirect impacts including increased hydrophobicity resulting in decreased infiltration and increased runoff which often causes increased erosion. The no action alternative would not impact prime or unique farmland soils.

Proposed Action

The proposed action would have minimal or no impact on soils. The proposed fuel reduction activities, with the exception of stump grinding, do not cause soil disturbance and would not cause any significant soil and sediment removal and transport from the site. The proposed action (Item 8 in the City's Environmental Assessment Request for Information [EARFI] response) does list stump grinding as a possible method. However, no evidence of stump grinding has been practiced in past non-FEMA funded tree removal activities in the project area. Even if stumps are ground, they would be ground in place and not mechanically removed from the soil. No adverse impact to soils is anticipated. In addition, prime or unique farmland would not be impacted by the proposed action.

Topography in the area is depicted in **Figure 4.2**. For the most part, the topography within the proposed work areas is relatively flat; therefore, erosion of soils would be less likely to occur with the minor soil disturbance that might occur from the proposed activities.

Affected Environment, Potential Impacts, and Mitigation

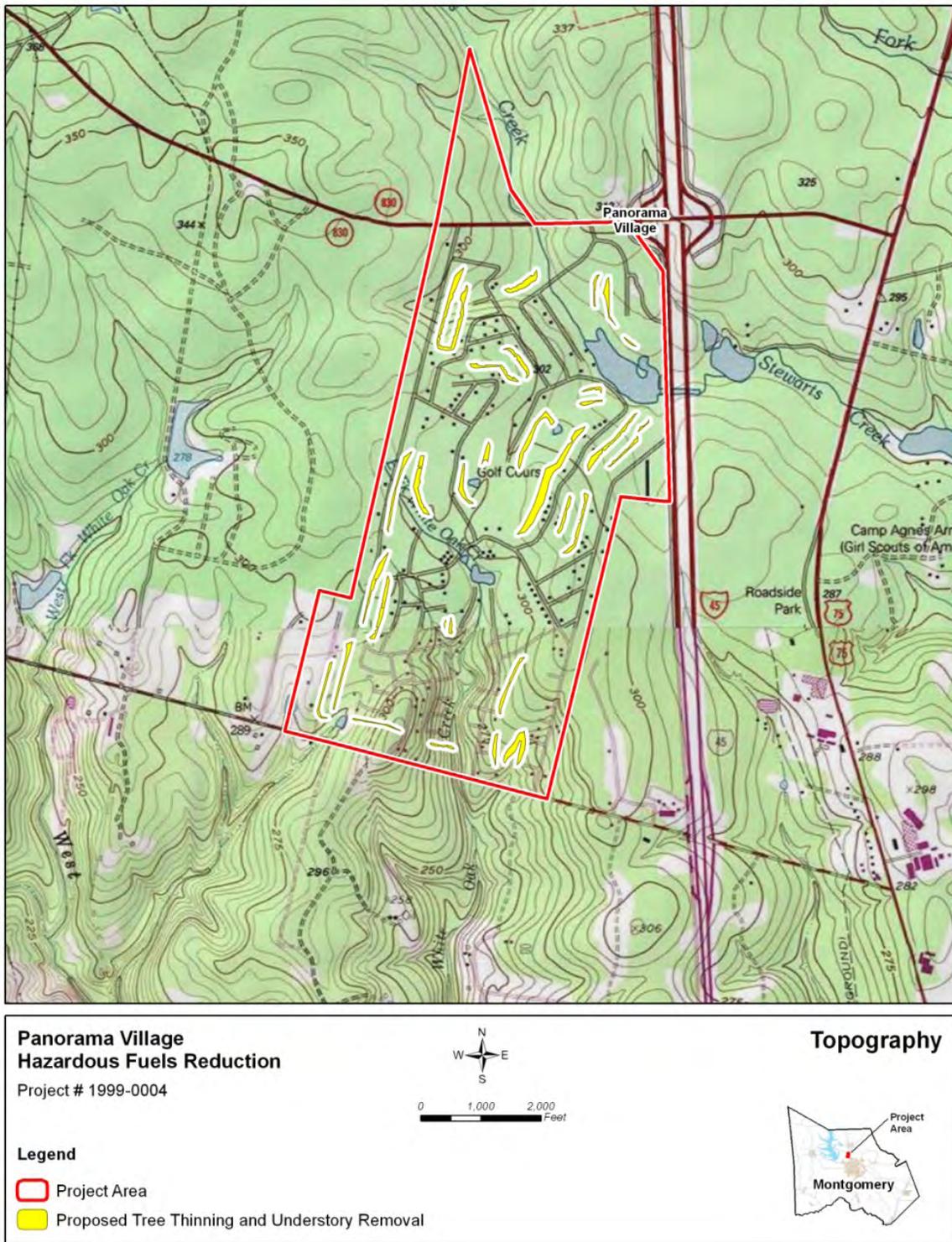


Figure 4.2. Panorama Village – Topography

4.2.2 Air Quality

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

The project area is in the Houston-Galveston-Brazoria, Texas AQCR, designated simply as the Houston-Galveston-Brazoria area. EPA designates this area as being in severe nonattainment status for the 1997 8-hour ozone standard and in marginal nonattainment of the 2008 8-hour ozone standard. The proposed action does not require a finding of conformity to the state implementation plan (SIP) because the total of the direct and indirect emissions associated with the project would not exceed an applicable threshold listed in 40 CFR 93.153(b)(1). Because the proposed project site is in a severe 8-hour ozone nonattainment area, the applicable threshold is 25 tons of volatile organic compounds (VOCs) or nitrogen oxides (NO_x) per year. VOCs and NO_x contribute to ozone formation.

No Action Alternative

In the absence of a major wildfire in the city, no impacts are anticipated under the no action alternative, as the current air quality would be retained. 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 and temporary; occurring over a period of 6 or 7 weeks during implementation of the fuel reduction measures. Negligible impacts would be expected, as described below.

During project implementation, the equipment used would likely include a skid-steer loader with grapple, a tracked backhoe with a “thumb” to allow gripping of tree trunks, one or more large wood chippers, one or more trailer trucks, several smaller trucks, a lift to raise workers into trees, and various hand-held equipment. The equipment would emit hydrocarbons and cause a temporary negative impact on local air quality. To minimize impacts, fuel-burning equipment running times will be kept to a minimum and engines must be properly maintained.

Post-project routine maintenance of the fuel reduction areas would be conducted by removing regrowth of underbrush, removing tree branches up to 20 feet from the ground, and removing dead and distressed trees to maintain a viable fire break. Hydrocarbon emissions associated with these activities may cause temporary minor negative impacts on local air quality.

4.2.3 Climate Change

“Climate change” refers to changes in 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 is capable of affecting species distribution, temperature fluctuations, sea level dynamics, and weather patterns.

No Action Alternative

In the absence of a major wildfire, no impact on climate change is anticipated under the no action alternative, as current conditions would not change. A major wildfire would be more likely under the no action alternative and could contribute to climate change, but the contribution of the project area within Panorama Village would not be significant.

Climate change may result in more extended drought periods in the project area and increase the risk of wildfire. The no action alternative would not provide any wildfire risk reduction and a major wildfire would be more likely within the project area.

Proposed Action

Because of the small scale of the proposed action, its contribution to climate change would be negligible.

The proposed action would also reduce the risk of future wildfire in the project area, thereby reducing some of the risk associated with the effects of climate change in this area.

4.2.4 Visual Quality and Aesthetics

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 would have negative visual effects immediately after the fire. A wildfire could eventually contribute to overgrowth of the understory and result in obscured views of the golf course.

Proposed Action

This project would remove some trees and understory and would change the visual aesthetics. In some cases, the proposed project would open up views onto the golf course that may have been obscured previously. **Figure 4.3a** shows existing conditions. **Figure 4.3b** and **Figure 4.3c** shows post thinning conditions and views resulting from previous fuels reduction work conducted near the project area. The thinning would generally improve the aesthetics and views overall.



Figure 4.3a. Panorama Village – Existing Conditions Vegetation



Figure 4.3b. Panorama Village – Post Thinning Conditions



Figure 4.3c. Panorama Village – Post Thinning Conditions

4.3 Water Resources

4.3.1 Water Quality

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 surface water features that do not meet, or are not expected to meet, water quality standards. The Texas Commission on Environmental Quality (TCEQ) is the regulatory agency responsible for compliance with water quality standards. The TCEQ's 2010 Integrated Report for CWA Sections 303(d) and 305(b) identifies surface water features that do not meet water quality standards. These water features are called impaired waters.

The northern section of the project area drains to Stewarts Creek (Segment 1004E, San Jacinto River Basin), which has consistently failed to meet water quality standards for fecal bacteria. Segment 1004E comes into Panorama Village at the northwest corner and runs southeast, exiting the east side of the city. Segment 1004E is subject to a total maximum daily load (TMDL) for legacy pollutants and organics.

Affected Environment, Potential Impacts, and Mitigation

The East Fork of White Oak Creek drains parts of the central and southern portions of Panorama Village. The East Fork of White Oak Creek is an unclassified segment within the San Jacinto River basin. Its water quality is not monitored.

The Village Golf Course has been recognized by the Audubon International organization for its environmental best management practices in the areas of water resources and landscape administration and management.

No Action Alternative

In the absence of a major wildfire in the city, the no action alternative would have no effect 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, and pollution from substances that are no longer filtered by riparian vegetation, and changes in water temperature.

Proposed Action

The proposed action would not contribute fecal bacteria, other organics, or legacy pollutants to Stewarts Creek; therefore, the proposed action would not affect the TMDL for this creek. The proposed action could cause adverse impacts to the surface water of Stewarts Creek and the East Fork of White Oak Creek over a period of about 2 months from erosion and sedimentation. Operation of heavy equipment during the proposed action would disturb soil, which would increase erosion potential during heavy rains. The applicant must ensure that best management practices (BMPs) are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent waters and wetlands. This includes equipment storage and staging to minimize erosion and sedimentation to ensure that wetlands are not adversely impacted per the Clean Water Act and Executive Order 11990. BMPs must be implemented to minimize transport of sediment to Stewarts Creek and the East Fork of White Oak Creek. Mulch created from cut vegetation would be used for temporary erosion control to prevent soil or sediment from reaching the creeks. Appropriate barriers must be used to prevent mulch from being washed into the creeks. With the implementation of these BMPs, the potential effect on water quality would not be significant.

4.3.1.2 Groundwater

The major aquifer underlying the proposed project area is the Gulf Coast aquifer. This aquifer consists of discontinuous beds of clay, silt, sand, and gravel that are hydrologically connected to form a large, leaky artesian system. The Gulf Coast aquifer spans 54 Texas counties along the coastline belt from Louisiana to Mexico. Water quality issues associated with the Gulf Coast aquifer include land-surface subsidence, increased chloride content in the groundwater from the southwestern portion of the aquifer, and saltwater intrusion along the coast (Texas Water Development Board [TWDB] 2006a).

The project is not near any designated sole source aquifers (see figure in **Appendix A-1**).

No Action Alternative

In the absence of a major wildfire in the city, 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 would cause changes to the soil as discussed in Section 4.2.1.1 which could impact groundwater. Infiltration properties of soils are often altered when fire destroys vegetation and litter cover within a watershed. These changes in the soil often result in decreased infiltration, increased overland flow, and ultimately increased stream flow discharges (USDA, 2005).

Proposed Action

Impacts to groundwater of the Gulf Coast aquifer are not anticipated as a result of the proposed action.

4.3.2 Wetlands

Executive Order 11990 requires federal agencies “to avoid to the extent possible the long and short term adverse impacts associated with destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency’s responsibilities for:

- Acquiring, managing, and disposing of Federal lands and facilities;
- Providing Federally undertaken, financed, or assisted construction and improvements; and
- Conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.”

Wetlands are defined by the U.S. Army Corps of Engineers (Federal Register 1982) and the U.S. Environmental Protection Agency (Federal Register 1980) as “Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” These saturated soil conditions result in hydric soils. A hydric soil is defined as “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (National Technical Committee for Hydric Soils).”

The NRCS Web Soil Survey provides information about all soils at a site. Soil maps are divided into soil map units, which represent one or more major soil types. The proposed project area consists of seven soil map units. Of the seven soil map units within the project area, five of the units have upland soil characteristics for the dominant soil (e.g., well drained soils and a depth to water table at or below 24 inches). These five soil types cover 97.9 percent of the proposed project area. These soils are unlikely to support wetland conditions.

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The remaining 2.1 percent of soils within the project area consist of water (1.7 percent or 11.2 acres) and frequently flooded Bibb soils (0.4 percent or 2.4 acres). Both of these soil types are often found in wetland areas. Frequently flooded Bibb soils are primarily composed of hydric soils from the Bibb soil series. Bibb soils are poorly drained, have a depth to water table of about 6 to 12 inches, and are frequently flooded. Bibb soil is mapped in the northeast portion of the project site adjacent to the ponded portion of Stewarts Creek. Soils mapped as consisting of water are primarily associated with the creeks that flow through the site. Stewarts Creek is located in the northern section of the project and East Fork White Oak Creek is located in the southern half of the proposed project site.

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps were overlaid on aerial photography to determine the potential presence of wetlands within the project area. Google Earth was then used to measure the area of mapped wetlands on-site and to confirm the accuracy of the NWI maps. Stewarts Creek is located in the northeast corner of the project area where it flows in a general northwest to southeast direction. North of the intersection of Hanover Lane and Cherry Hill Drive, Stewarts Creek widens, and a palustrine emergent wetland with persistent vegetation that is semi-permanently flooded and diked or impounded is located at the northern extent of the ponded Stewarts Creek (**Figure 4-4**). The eastern limit of Stewarts Creek in the proposed project area also supports an emergent wetland that is seasonally flooded. The northerly wetland is approximately 0.63 acres, and the wetland to the southeast is approximately 0.31 acres.

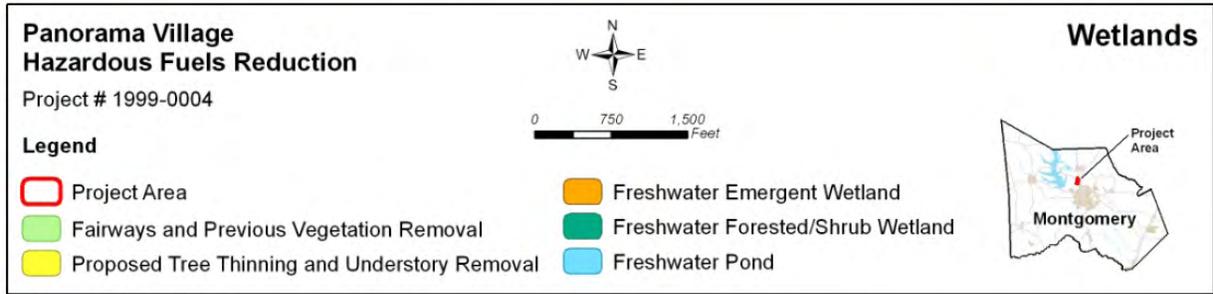
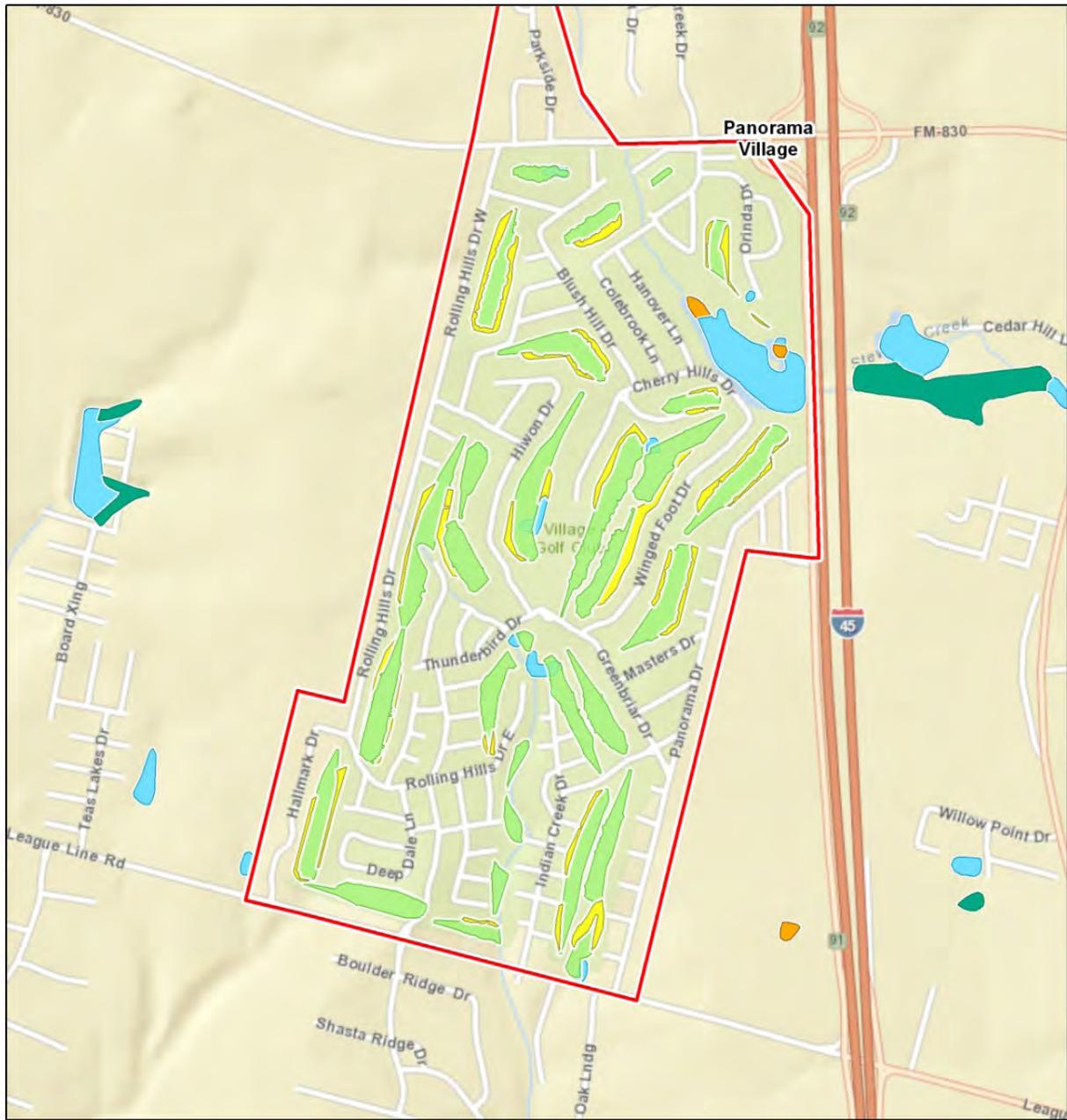
The Eastern Fork White Oak Creek flows north to south through the southern half of the project area. There are no vegetated wetlands associated with Eastern Fork White Oak Creek as depicted on the NWI maps and the NRCS web soil survey.

The NWI maps show that there are 10 palustrine unconsolidated bottom ponds that are permanently flooded and diked or impounded located on the proposed project site (**Figure 4.4**). Two of these ponds are associated with Stewarts Creek, including Panorama Lake (approximately 10.66 acres), and two are associated with Eastern Fork White Oak Creek (approximately 1.58 acres). The remaining six mapped ponds are not associated with either creek (approximately 2.93 acres). However, analysis of aerial imagery on Google Earth has determined that the pond west of Orinda Drive does not exist, and an existing pond east of Westchester Drive is not depicted on the NWI map.

No Action Alternative

In the absence of a major wildfire in the city, the no action alternative would have no effect on wetlands because existing conditions would continue unchanged. However, a major wildfire would be more likely under the no action alternative and could result in the destruction of vegetation in wetlands. Vegetation destruction in wetlands would destroy habitat for wildlife and lessen the effectiveness of wetlands to filter pollutants and maintain water quality.

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Data Sources: NMI, HGAC, CDM Smith
Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom.

Figure 4.4. Panorama Village – Wetlands

Proposed Action

The proposed project would be conducted in compliance with Executive Order 11990. While wetlands may be adjacent to the proposed work, the proposed action would not occur in wetland areas. Under the proposed action, BMPs must be implemented to prevent impacts on nearby wetlands. In addition, long-term project maintenance would have no impact on wetlands.

4.3.3 Floodplains

Executive Order 11988 requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities" for the following actions:

- Acquiring, managing, and disposing of federal lands and facilities
- Providing federally undertaken, financed, or assisted construction and improvements
- Conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities

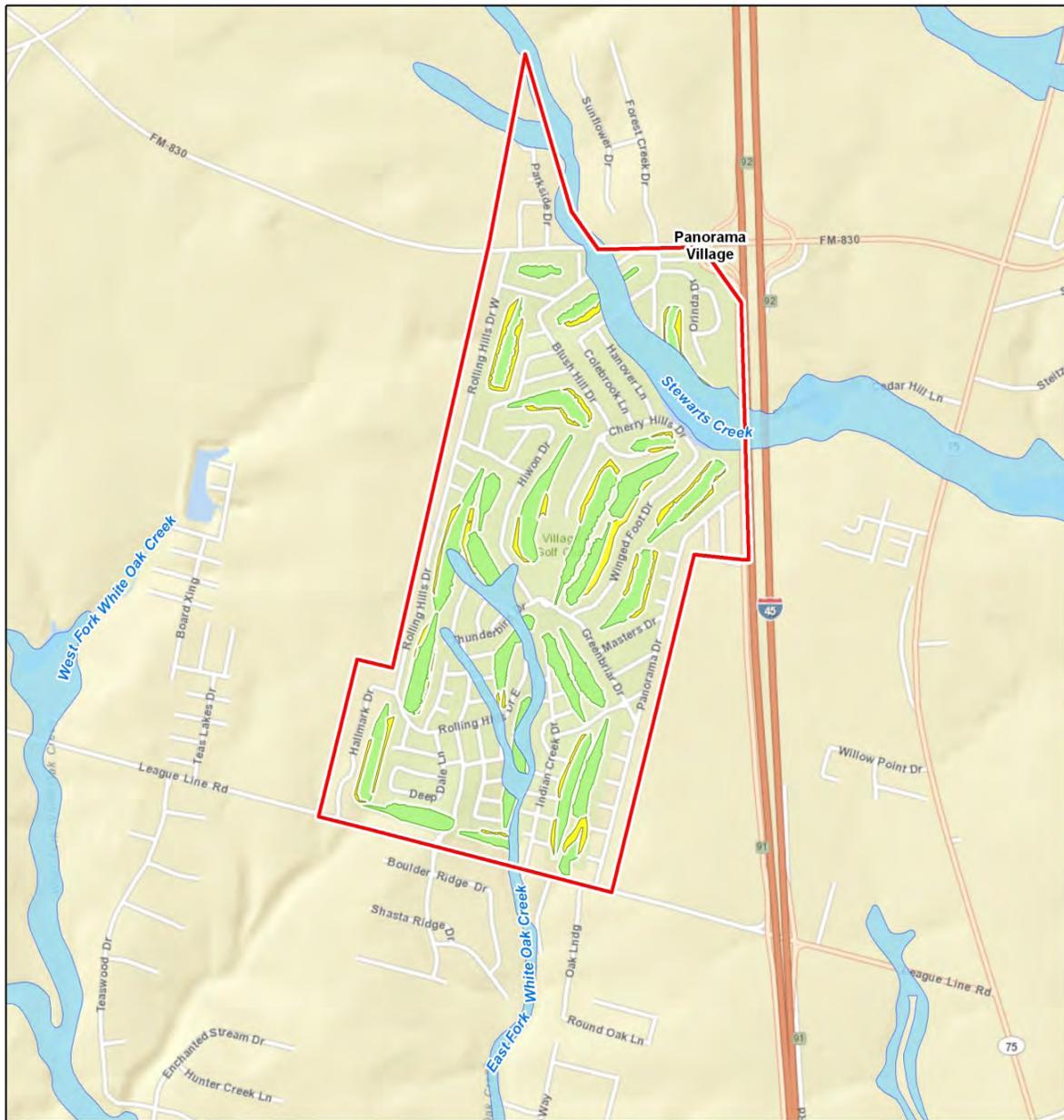
Executive Order 11988 guidelines address an 8-step process that agencies should carry out as part of their decision-making on projects that have potential impacts to or within the floodplain. The eight steps reflect the decision-making process required in Section 2(a) of the Executive Order. The first step is to determine if the proposed action is in the base floodplain.

Figure 4.5 depicts the proposed work areas and extent of the floodplain. FEMA Flood Insurance Rate Maps (FIRMs) map floodplain areas and illustrate the extent of the base floodplain within the project area. Pertinent portions of the FEMA FIRMs for the project area from maps numbered 48339C0238F, 48339C0360F, and 48339C0376F, are included in **Appendix A-1**.

No Action Alternative

In the absence of a major wildfire in the city, the no action alternative would have no effect on floodplains because the current conditions would continue unchanged. However, a major wildfire would be more likely under the no action alternative and would have impacts on the floodplain. If a wildfire were to occur, vegetation and ground cover would be destroyed which could lead to increased stormwater runoff following a rain event. The no action alternative has the potential to increase localized flooding.

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**Panorama Village
Hazardous Fuels Reduction**
Project # 1999-0004

Legend

- Project Area
- Proposed Tree Thinning and Understory Removal
- 100-Year Floodplain
- Fairways and Previous Vegetation Removal

Floodplains

Data Sources: FEMA FIRM Panels: 48339C0220F, 48339C0238F, 48339C0360F, 48339C0376F; Published 12/19/1996
Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom.

Figure 4.5. Panorama Village – Floodplain

Proposed Action

Portions of the proposed project area are in the 100-year floodplain in flood zones A and AE. However, no work associated with the proposed action would occur in the 100-year floodplain, and implementation of BMPs for erosion and sediment control would prevent negative impacts to the floodplain. **Appendix A-1** includes two detailed floodplain maps that show the proposed work areas in relation to the 100-year floodplains.

4.4 Biological Resources

Vegetation and wildlife communities and state and federally listed threatened and endangered species potentially present in the project area are discussed in this section.

4.4.1 Vegetation

Montgomery County is mapped within the Pineywoods ecoregion, according to the Gould Ecoregions of Texas, as recognized by Texas Parks and Wildlife Department (TPWD 2011). The Pineywoods ecoregion is bounded to the east by the Sabine River and to the west generally by the Trinity River basin. Its north-south axis runs from Texarkana and the Red River south to the Houston metropolitan area and within 25 miles of the Texas Gulf coast. Dominated by loblolly and other pines, this area is interspersed with hardwoods that are usually found in river bottoms and creek valleys.

The May 2013 wildlife and habitat survey determined that the project area is characterized by disturbed mixed forests and a maintained golf course. Data collected during field visits indicate that four general types of habitat are present (see **Appendix A-2**):

- Mixed Hardwood >50 percent Pine – dominated by loblolly pine, sweetgum, southern red oak, and water oak
- Mixed Hardwood <50 percent Pine – dominated by southern red oak, white oak, southern magnolia, sweetgum, loblolly pine, and live oak
- Hardwood Flats < 10 percent Pine – dominated by southern red oak, winged elm, white oak, sweetgum, red mulberry, water oak, and post oak
- Hardwood Flats – dominated by white oak, water oak, southern red oak, post oak, and live oak

The Pineywoods' soils are suitable for a wide variety of fruits and vegetable crops. Cattle raising is another land use that has occurred in the general area in the past and has caused the modification of native pastures through the planting of non-native grasses, such as coastal bermuda. The area is predominantly pine forests with interspersed hardwoods in valleys and native grasslands in the prairie areas.

No Action Alternative

In the absence of a major wildfire in the city, the no action alternative would have no effect on vegetation because the vegetation that is currently present 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.

Proposed Action

The proposed project would affect approximately 21.8 acres of forested area by removing live and dead trees and limbing lower branches from trees to reduce ladder fuels that could carry fires into tree canopies. Approximately 400 to 450 trees would be removed, including both live and dead trees. Dead wood would be removed from approximately 70 living trees, and the understory branches 15 to 20 feet from the ground would be removed from another 330 live trees. In addition, dense understory shrubs and vegetation would be removed within the proposed work areas. These actions would create gaps in the tree canopy and reduce the understory layer in the forested habitats.

The project areas are already very fragmented with residential and golf course development. The 21.8 acres within the proposed work area are scattered throughout Panorama Village and thus are already highly fragmented and discontinuous. The proposed action would not have a significant impact on vegetation.

4.4.2 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 gives USFWS federal legislative authority for the protection of threatened and endangered species. This protection includes a prohibition of direct take (e.g., killing, harassing) and indirect take (e.g., destruction of critical habitat). The Texas Parks and Wildlife Code prohibits take of state-listed threatened and endangered species. The proposed project site is in northern Montgomery County, Texas. One species listed as endangered by USFWS under the ESA is known to occur in Montgomery County. An additional 17 species are listed as state threatened or endangered for Montgomery County by TPWD. All federal listed species potentially found in Montgomery County, Texas are provided in **Table 4.3** (USFWS 2013) and state listed species are provided in **Table 4.4** (TPWD 2013). No federally designated critical habitat exists in the project area.

Table 4.3. Federal Listed Species for Montgomery County, Texas

Common Name	Scientific Name	Federal Status
Birds		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Delisted
Red Cockaded Woodpecker	<i>Picoides Borealis</i>	Endangered

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Table 4.4. State Listed Species for Montgomery County, Texas

Common Name	Scientific Name	State Status
Birds		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Peregrine Falcon	<i>Falco peregrinus</i>	Threatened
Piping Plover	<i>Charadrius melodus</i>	Threatened
Red Cockaded Woodpecker	<i>Picoides Borealis</i>	Endangered
White-faced Ibis	<i>Plegadis chihi</i>	Threatened
Whooping Crane	<i>Grus Americana</i>	Endangered
Wood Stork	<i>Mycteria americana</i>	Threatened
Fish		
Creek Chubsucker	<i>Erimyzon oblongus</i>	Threatened
Paddlefish	<i>Polyodon spathula</i>	Threatened
Mammals		
Louisiana Black Bear	<i>Ursus americanus luteolus</i>	Threatened
Rafinesque's Big-eared Bat	<i>Corynorhinus rafinesquii</i>	Threatened
Red Wolf	<i>Canis rufus</i>	Endangered
Reptiles		
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	Threatened
Louisiana Pine Snake	<i>Pituophis ruthveni</i>	Threatened
Texas Horned Lizard	<i>Phrynosoma cornutum</i>	Threatened
Timber/Canebrake Rattlesnake	<i>Crotalus horridus</i>	Threatened
Mollusks		
Louisiana Pigtoe	<i>Pleurobema riddellii</i>	Threatened
Sandbank Pocketbook	<i>Lampsilis satura</i>	Threatened
Texas Pigtoe	<i>Fusconaia askewi</i>	Threatened

A field survey was conducted on May 22, 2013, to characterize the wildlife community and habitat types within the project area. In addition to documenting general wildlife observations and the dominant vegetation types present, the survey focused on determining the presence or absence of listed species and their habitats (**Appendix A-2**).

The federally endangered Red-cockaded woodpecker is documented in Montgomery County and prefers the open pine woodlands found in small patches within the project area. In email correspondence between FEMA and USFWS in April 2013, it is noted that no known locations of the Red-cockaded woodpecker are documented in the immediate project vicinity. However, three populations each located approximately nine miles to the south, southwest, and northwest

are confirmed nearby. Therefore, the wildlife surveys assessed the presence of suitable habitat for Red-cockaded woodpeckers within the project area and adjacent areas following the survey protocol provided in the USFWS *Guidelines for Surveys to Assess Potential Project Impacts to Red-cockaded Woodpecker* (Protocol 288). Survey results indicated that two areas of potential Red-cockaded woodpecker foraging habitat characterized by large pines at least 30 years old were located between hole 12 and holes 10 and 11 and to the west of hole 11 on the community golf course. These areas correspond to survey areas 10 and 27b as described in **Appendix A-2** and shown in **Figure 4.6**.

Although no nesting habitat was found within the project area, the USFWS survey protocol requires all areas within a 0.5-mile radius be investigated for nesting habitat when potential foraging habitat has been located. On June 5, 2013, biologists investigated areas within a 0.5-mile radius of the potential foraging habitat for potential Red-cockaded woodpecker nesting habitat, characterized by large pine trees at least 60 years old. No potential nesting areas were found. The biologists simultaneously looked for cavity trees, but none were located. Because no older trees or cavity trees were found, the potential foraging habitat initially identified is not really red-cockaded woodpecker foraging habitat. Part of the definition of foraging habitat is that it must be within a .5-mile radius of a nest or cavity tree. Therefore, because no nesting or foraging habitat is present, FEMA has determined that the proposed action will have **no effect** on the Red-cockaded woodpecker.

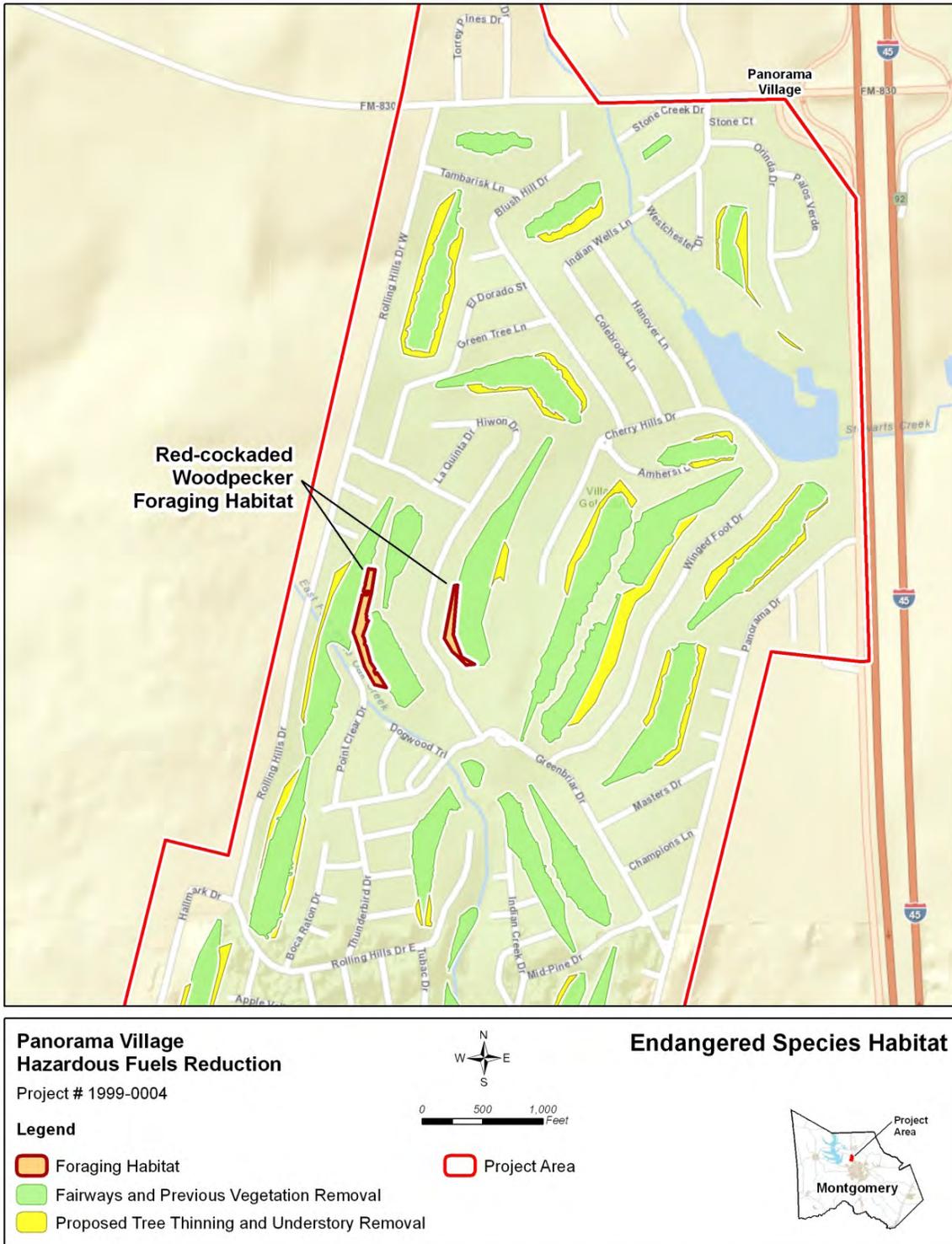
The May 2013 wildlife and habitat survey determined that the project area is characterized by disturbed mixed forests and maintained golf course. While no wetland habitats exist within the areas designated to be cleared, several ponds and emergent wetlands are located nearby. The golf course and fragmented forest habitat located within the project area does not contain suitable habitat for the state listed species presented in **Table 4.4**. The Louisiana pine snake could potentially use the mixed deciduous pine forests present within the project area. However, this species prefers longleaf pine forests with open understories, not the loblolly pine forests present within the project area. (**Appendix A-2**).

Both the Bald eagle and Peregrine falcon have recently been delisted by the USFWS; however, both species remain protected by additional regulations at the federal and state level such as the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Bald and Golden Eagle Protection Act provides protection for the bald and golden eagles by prohibiting the take, possession, sale, purchase, barter, offer to sell, transport, and export or import of any bald or golden eagle, alive or dead, including any part, nest, or egg. The Migratory Bird Treaty Act protects birds that migrate across international borders. The state listed threatened Peregrine falcon, including both the American and arctic subspecies, are not likely to nest within the project area as their preferred nesting habitat – tall cliffs – are not present. However, biologists conducting site surveys in May 2013 noted that falcons may use the area as temporary stopover habitat during migration.

No Action Alternative

In the absence of a major wildfire in the city, the no action alternative would have no effect on endangered species because existing conditions would continue unchanged. However, a major

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Data Sources: HGAC, CDM Smith, CH2M Hill (Foraging Habitat)
Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom.

Figure 4.6. Endangered Species Habitat

wildfire would be more likely under the no action alternative and would damage existing Bald eagle habitat.

Proposed Action Alternative

FEMA has determined that the proposed action will have **no effect** on federally listed species. Given the level of human disturbance and the lack of recorded sightings in the area, it is unlikely that the proposed action would impact Peregrine falcons. Because there is not suitable habitat for other state-listed species, there would be no effect on those species from the proposed project.

The May 2013 wildlife and habitat surveys also documented that potential Bald eagle nesting habitat, consisting of large pines, is present within the project area. However, no active or abandoned nests or evidence of eagle activity was documented in the area. Therefore, the proposed action is unlikely to adversely impact Bald eagles. If the project activities occur adjacent to any occupied or unoccupied Bald or Golden eagle nest, the applicant must contact FEMA and consult with the USFWS before work begins. If the project activities involve direct impacts to an occupied migratory bird species' nest, the applicant must contact FEMA and consult with the USFWS before work begins.

4.4.3 Common Wildlife Species

In addition to the listed species discussed in the previous section, the proposed action has the potential to impact common wildlife species and their habitats. **Table 4.5** provides a list of species that were recorded during site surveys conducted on May 22, 2013.

Common species observed during field surveys are typical of residential communities located at the rural-urban fringe. In addition, the open pine woodland and golf course habitats likely support additional species adapted to modified habitats in residential areas, such as frogs, snakes, sparrows, crows, vultures, hawks, raccoon, and white-tailed deer.

The Magnuson-Stevens Fishery Conservation and Management Act applies to salt water fish, including anadromous fish, which swim up rivers from coastal areas to spawn in fresh water. The Texas Striped Bass is an anadromous species. However, the Shadow Lake dam, which impounds Stewarts Creek and is located approximately 1 mile to the east of the project area, would prevent any fish attempting to swim up Stewarts Creek from reaching Panorama Village. The other streams in the city do not provide suitable habitat to accommodate anadromous fish.

No Action Alternative

In the absence of a major wildfire in the city, the no action alternative would have no effect on common wildlife species in the project area. However, a major wildfire would be more likely under the no action alternative and would result in the destruction of wildlife habitat.

Table 4.5. Common Wildlife Species Observed Within Project Area

Common Name	Scientific Name
Birds	
American Robin	<i>Turdus migratorius</i>
Blue Jay	<i>Cyanocitta cristata</i>
Carolina Chickadee	<i>Poecile carolinensis</i>
Eastern Bluebird	<i>Sialia sialis</i>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>
Mourning Dove	<i>Zenaida macroura</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Pine Warbler	<i>Setophaga pinus</i>
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Tufted Titmouse	<i>Baeolophus bicolor</i>
Mammals	
American Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Eastern Grey Squirrel	<i>Sciurus carolinensis</i>

Proposed Action

The birds and mammals observed and expected in the project area are common urban species that are well adapted to habitats that are heavily influenced by human activity. While several of these species use canopy trees and understory shrubs for foraging, nesting, and fulfilling other life functions, they are highly mobile species that are likely to move to adjacent suitable habitat during tree removal activities. Therefore, the majority of potential impacts would likely be temporary in nature and have little effect on local populations. Therefore, significant adverse impacts from the proposed action to the various songbird and squirrel species documented within the project area are not expected.

As described above, anadromous fish are not present within the project area; therefore, the proposed action would have no effect on fish protected by the Magnuson-Stevens Act.

It should be noted that The Village Golf Course has been recognized by the Audubon International organization for its environmental best management practices in the areas of water resources and landscape administration and management. The BMPs implemented by the Village Golf Course would assist in avoiding and minimizing potential project impacts on birds and other wildlife.

4.5 Cultural Resources

The National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq.) establishes the federal policy to protect historic properties and promote historic preservation in cooperation with states, tribal governments, local governments, and other consulting parties. The NHPA created the National Register of Historic Places (NRHP) and designated the state historic preservation officer (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 Section 106 process and 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) establish the procedures for federal agencies to follow in taking into account the effects of their actions on historic properties. The Section 106 process applies to any federal undertaking that has the potential to affect historic properties, defined in the NHPA as those properties (archaeological sites, standing structures, or other historic resources) that are listed in or eligible for listing in the NRHP. Although buildings and archaeological sites are most readily recognizable as historic properties, a diverse range of resources are listed in the NRHP, including roads, landscapes, and vehicles.

4.5.1 Historic Architectural Properties

Archival research conducted via the Texas Historical Commission's (THC) Texas Historic Sites Atlas web site indicated that no previously recorded historic architectural properties have been identified within or in the immediate vicinity of the proposed project area.

4.5.2 Archaeological Sites

Archival research conducted via THC's Texas Archaeological Sites Atlas web site indicated that no previously recorded archaeological sites have been identified within or in the immediate vicinity of the proposed project area.

4.5.3 American Indian/Native Hawaiian/Native Alaskan Traditional Cultural Properties

No registered American Indian, Native Hawaiian, or Native Alaskan cultural or religious sites are located on or near the proposed project site.

4.5.4 Environmental Consequences on Cultural Resources

No Action Alternative

Under the no action alternative, no fuel reduction activities would occur in the project area, and no impacts to cultural resources would occur. If any historic architectural properties were in the area, they could be negatively affected by a major wildfire.

Proposed Action

On April 2, 2013, FEMA provided documentation via email of consultation with Region VI's tribal consultation specialist. Based on that consultation, there is no need for tribal consultation for this project as there are no federally recognized tribes with known interests in Montgomery County, Texas.

The proposed action was coordinated with the SHPO, and correspondence is included in Appendix A-3. In a letter dated April 22, 2013, the SHPO concluded that the project would not affect any known cultural resources and could proceed as proposed.

Based on archival research, building construction dates, and correspondence with the SHPO, FEMA has made the determination that the proposed action would have no impact on cultural resources.

In the event that 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 finds. The subapplicant must secure all archeological findings and restrict access to the sensitive area. The subapplicant 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 Socioeconomics

Socioeconomic resources in the project area and Montgomery County are discussed below.

4.6.1 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requiring that "each Federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of its programs, policies, and activities on minority populations and low income populations." In an accompanying memorandum to heads of departments, the president specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns, stating that "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by [NEPA]."

The project area's demographic data are summarized in **Table 4.6** as compared with Montgomery County data. Panorama Village is almost 92 percent white. The immediate project area has a moderate median household income (\$56,667), and 6.3 percent of the population is below the poverty level. Neither value qualifies Panorama Village as a low income population.

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Only 122 residents, or 5.6 percent, are categorized as Hispanic or Latino as compared to 20.8 percent of the population in the county.

No Action Alternative

Under the no action alternative, conditions in the project area would remain the same and the risk of wildfire in Panorama Village would increase. There are no anticipated disproportionate impacts to low income or minority populations under this alternative.

Proposed Action

Few low income or minority populations are located in or near the proposed project area and the proposed action would not disproportionately affect these populations.

Table 4.6. Demographic Data

Ethnic Composition	Panorama Village	Percentage	Montgomery County	Percentage
White alone	2,091	96.4	380,593	83.5
Black or African American alone	24	1.1	19,401	4.3
Asian alone	13	0.6	9,546	2.1
American Indian and Alaska Native alone	4	0.2	3,348	<1
Other	38	1.7	311	<1
Hispanic or Latino	122	5.6	94,698	20.8
Not Hispanic or Latino	2,048	94.4	361,048	79.2
Total Population	2,170		455,746	

4.6.2 Hazardous Materials

Hazardous materials include substances subject to 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 as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes, which are also hazardous materials. In general, hazardous materials are substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or to the environment when released or otherwise improperly managed.

No impacts from offsite facilities or sites are anticipated because no Superfund sites, toxic release inventory sites, or hazardous waste facilities are in the Panorama Village area. There is no evidence of hazardous substances or wastes generated, stored, treated, or disposed of in the proposed project's vicinity. According to EPA's EnviroMapper for Envirofacts, Panorama

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Village has no RCRA facilities and only one National Pollutant Discharge Elimination System (NPDES) facility, the Panorama Village Wastewater Treatment Facility at the south end of the village, just west of Indian Creek Drive on League Line Road. Maps generated by Envirofacts Mapper are presented for the air, water, waste, land, and toxics media in relation to Panorama Village and are shown in **Appendix A-4**.

No Action Alternative

Under the no action alternative, conditions in the project area would remain the same and the risk of wildfire in Panorama Village would increase. There would be no effects related to hazardous materials under the no action alternative. In the event of a major wildfire, chemical fire retardants could be applied although the impacts would not be significant.

Proposed Action

Implementation of the proposed action would involve the use of heavy equipment with some associated minor risk of spills of fuels, oils, or cleaning fluids. The application of BMPs for equipment use would avoid these effects and there would be no significant impacts related to hazardous materials under the proposed action. Excavated soil and waste materials will be managed and disposed of in accordance with applicable local, State, and Federal regulations. If contaminated materials are discovered during the construction activities, work will cease until the appropriate procedures and permits can be implemented. Any hazardous materials discovered, generated, or used during construction would be handled and disposed of in accordance with applicable local, state, and federal regulations.

4.6.3 Noise

The project areas are located along the edge of an existing golf course and adjacent to single-family homes in a medium-density residential setting. Typical noise sources would include traffic, yard maintenance equipment, and sounds from golf course users. The ambient noise levels would generally be fairly low. The potential effects of noise are related to distance from the source, the background levels, and the randomness of a noise. Perception of noise is very individual and context sensitive; although, generally, steady noises and daytime noises are less intrusive than intermittent noises or noise that occurs at night.

No Action Alternative

Under the no action alternative, noise levels would be unchanged and there would be no impacts related to noise.

Proposed Action

The primary noise from fuel reduction activities would be generated by vehicles and equipment involved in tree cutting and debris removal. Vegetation management activities will take place during normal business hours. Equipment and machinery utilized at the proposed project site will meet all local, state, and federal noise regulations. This would reduce effects to the homes adjacent to the proposed project area. All internal combustion engines would be equipped with

properly operating mufflers and air inlet silencers, where appropriate, that meet or exceed original factory specifications. The increased noise levels from the proposed action would be temporary and are not expected to cause any adverse impacts on the surrounding environment.

4.6.4 Traffic

The project area is served by a system of residential streets.

No Action Alternative

Existing conditions would remain the same under the no action alternative and there would be no impact on traffic or the transportation system. In the event of a major wildfire the local road system could be closed for the duration of a fire to protect residents and provide access for fire fighters.

Proposed Action

The proposed action would have a low impact on the traffic around the project area. Trucks and equipment would likely be driven to the site from nearby areas using local highways and streets. In most cases, trucks and equipment would work from around the fairways while leaving local streets unobstructed during the fuels reduction work. Therefore, there would not be a significant impact on traffic under the proposed action

4.6.5 Public Services and Utilities

The project area is served by the typical public services and utilities of a residential area. Electrical power is supplied by overhead lines. The City provides water and wastewater service for Panorama Village. Natural gas and electricity are supplied by other providers. Most utilities are located underground.

No Action Alternative

Existing conditions would remain the same under the no action alternative and there would be no effect on public services or utilities except in the event of a major wildfire. A wildfire would involve local firefighters and law enforcement who may not be able to respond to other emergencies during that time. A major wildfire could also affect overhead power lines.

Proposed Action

The proposed action would not have any negative impacts on public services and utilities in or around the proposed project area. Tree removal and limbing would avoid impacting any existing utilities. Existing services would remain the same under the no action alternative as well.

4.6.6 Public Health and Safety

The primary focus of the vegetation management treatments would be to thin existing vegetation between the fairways and the existing residential areas, which would reduce the rate of spread and intensity of a wildfire in the treatment areas. The rate of spread and intensity of a fire affects

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the ability of firefighters to control the fire and to protect people and property. In addition, fires that are more easily controlled will tend to burn smaller areas, which also results in reduced impacts to the natural environment.

No Action Alternative

Existing conditions would remain the same under the no action alternative. However, a major wildfire would be more likely under the no action alternative and would have impacts on public health and safety. Under the no action alternative, a potential wildfire would be more likely to have a high intensity and rate of spread and the potential for a catastrophic fire would be increased over time.

Proposed Action

The proposed project would have a positive impact on public health and safety by mitigating the potential wildfire hazard in the proposed project area. The proposed action would reduce the intensity and frequency of wildfire and reduce the potential for a catastrophic fire. Fires that spread at a lower rate and intensity are easier to control which greatly reduces the risk to people and homes.

4.7 Summary of Effects and Mitigation

Table 4.7. Summary of Impacts and Mitigation

Affected Environmental Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
Soils	No impact	N/A	N/A
Air Quality	Air emissions from chainsaw or gas-powered equipment and vehicles	N/A	Limiting unnecessary idling chainsaws or gas-powered equipment and shutting them down when not in use, maintaining equipment in proper working condition
Climate Change	No impact	N/A	N/A
Water Quality	No impact	TCEQ	No fuel reduction work would be done in floodplain or wetland areas. Mulch will be used for erosion control. Barriers and other BMPs to reduce sedimentation of nearby waters and wetlands.
Wetlands	No impact	N/A	No fuel reduction work would be done in floodplain or wetland areas. Mulch will be used for erosion control. Barriers and other BMPs to reduce sedimentation of nearby waters and wetlands.
Floodplain	No impact	N/A	No fuel reduction work would be done in floodplains
Coastal Resources	No impact	N/A	N/A
Threatened and Endangered Species/Critical	No effect on listed species. No impact on	USFWS/ TPWD	N/A

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Affected Environmental Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
Habitat	critical habitat		
Wildlife and Fish	No impact	USFWS/ TPWD	If the project activities occur adjacent to any occupied or unoccupied Bald or Golden eagle nest, the applicant must contact FEMA and consult with the USFWS before work begins. If the project activities involve direct impacts to an occupied migratory bird species' nest, the applicant must contact FEMA and consult with the USFWS before work begins.
Historic Properties/Religious Sites	No impact	THC	In the event that 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 finds. The subapplicant must secure all archeological findings and restrict access to the sensitive area. The subapplicant 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.
Environmental Justice	No impact	N/A	N/A
Hazardous Material	No impact	N/A	Excavated soil and waste materials will be managed and disposed of in accordance with applicable local, State, and Federal regulations. If contaminated materials are discovered during the construction activities, work will cease until the appropriate procedures and permits can be implemented. Any hazardous materials discovered, generated, or used during construction would be handled and disposed of in accordance with applicable local, state, and federal regulations.
Noise	Slight impact	N/A	Construction activities will take place during normal business hours. Equipment and machinery utilized at the proposed project site will meet all local, state, and federal noise regulations.
Traffic	Slight impact	N/A	Work during daytime only along fairways, not along municipal streets
Public Services and Utilities	No impact	N/A	N/A

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Affected Environmental Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
Public Safety and Health	No impact	N/A	N/A

SECTION 5 Cumulative Impacts

Cumulative impacts are the combined impacts of the proposed action and other past, present, and reasonably foreseeable future actions, regardless of who undertakes the actions (40 CFR 1508.7). 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 essentially no impact on water resources, wetlands, floodplains, wildlife or vegetation, cultural resources, environmental justice, public services and utilities, or public health and safety, the proposed action would not contribute to significant cumulative impacts on these resources. Similarly, the proposed action is not expected to have an impact related to hazardous materials and would therefore not contribute to a cumulative impact.

Panorama Village has already completed substantial fuels reduction work in the same general areas where the proposed action would occur. The city has cleared brush and removed vegetative debris and many dead trees. Operation of heavy equipment during fuels reduction disturbs soil, and the past and proposed work could have a cumulative effect. However, with the implementation of BMPs to protect soils, a significant adverse cumulative impact on soils would not be expected.

Panorama Village has previously conducted fuels reduction work similar to the proposed action on approximately 104 acres. It is assumed that these 104 acres are very similar to the 21.8 acres in the proposed action because both the past and present actions occurred on city-owned land along the fringes of the golf course, and there are no significant differences in soils or topography that would result in a different vegetation type or condition. These golf course edges are narrow remnants of larger vegetation communities that have been previously fragmented by residential and golf course development. The addition of 21.8 acres of thinning and limbing work to the previously affected 104 acres would not result in a significant cumulative impact on vegetation or wildlife.

Temporary noise, traffic, and air quality impacts of the proposed action could combine with similar impacts of other projects occurring at the same time. New lanes are currently being added to a 5.1-mile stretch of Interstate 45 (I-45), extending north from near the northeastern section of Panorama Village. Landscaping work is underway on a recently widened 6.3-mile stretch of I-45, extending south from near the southeastern section of Panorama Village. It is unlikely that the cumulative impact of these projects and the proposed action would be significant.

The Texas Department of Transportation's list of Montgomery County projects indicates that repair of Farm-to-Market Road 830 along the northern end of the proposed project area is scheduled to begin in the second half of 2015. Because of the timing of this project, it is unlikely to combine with the proposed action to cause a cumulative impact.

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

6.1 Agency Coordination

Consultation letters and responses from resource agencies such as the THC, TCEQ, USFWS, and TPWD are provided in Appendix A-3.

6.2 Public Participation

The public information process for the proposed Panorama Village fuel reduction project will include a public notice in the *Conroe Courier*, the local general circulation newspaper that covers Montgomery County and Panorama Village. The public notice will state that information about the proposed action, including this environmental assessment, is available at the Panorama Village municipal center at 99 Hiwon Drive. 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 Finding of No Significant Impact (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

No local, state, or federal permits appear to be necessary to implement the proposed fuel reduction project. The proposed action does not require coverage under Texas Pollutant Discharge Elimination System (TPDES) construction storm water general permit TXR150000 because it is not a construction project and would not generate stormwater associated with industrial activity as defined in 40 CFR 122.26(a)(14).

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SECTION 8 List of Preparers

The following is a list of preparers who contributed to the development of the City of Panorama Village EA for FEMA.

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, legal staff, and technical staff.

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Boucher, Hank	Environmental Engineer and Planner	Technical review
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Da Costa, Larissa	Water Resources Engineer	Site visit and field work; Water Resources; Introduction; Purpose and Need; Socioeconomics
Kase, Sydney	GIS Specialist	Data collection, Data management, General GIS Support
McAuley, Erin	Environmental Planner	Resource Impacts for No Action Alternative, Technical editing and Production
Petty, Matthew	Biologist and Environmental Scientist	Wetlands; Floodplains; Biological Resources
Poyant, Andrew	Environmental Scientist	Biological Resources
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