

Draft Environmental Assessment  
City of Cedar Park, Texas  
Hazardous Fuels Reduction Project  
HMGP-DR-1999-0015  
Williamson County, Texas  
*March 2015*



**Federal Emergency Management Agency**  
**Department of Homeland Security**  
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## Acronyms and Abbreviations

|       |   |
|-------|---|
| APE   | area of potential effect                |
| AQCR  | air quality control region              |
| Atlas | Texas Archeological Sites Atlas         |
| BA    | Biological Assessment                   |
| BMPs  | best management practices               |
| BCRUA | Brushy Creek Regional Utility Authority |
| BO    | Biological Opinion                      |
| CAA   | Clean Air Act                           |
| CEQ   | Council on Environmental Quality        |
| CFR   | Code of Federal Regulations             |
| CWA   | Clean Water Act                         |
| DoC   | Doss silty clay                         |
| EA    | environmental assessment                |
| EaD   | Eckrant cobbly clay                     |
| EeB   | Eckrant extremely stony clay            |
| EIS   | environmental impact statement          |
| EO    | Executive Order                         |
| EPA   | U.S. Environmental Protection Agency    |
| ErE   | Eckrant-Rock outcrop complex            |
| FEMA  | Federal Emergency Management Agency     |
| FIRM  | Flood Insurance Rate Map                |
| FONSI | finding of no significant impact        |
| FPPA  | Farmland Protection Policy Act          |
| GLO   | Texas General Land Office               |
| HMGP  | Hazard Mitigation Grant Program         |
| in/hr | inch(es) per hour                       |

## Acronyms and Abbreviations

---

|          |  |
|----------|--|
| KFR      | Karst Fauna Region                                   |
| NAAQS    | National Ambient Air Quality Standards               |
| NEPA     | National Environmental Policy Act                    |
| NHPA     | National Historic Preservation Act                   |
| NRCS     | Natural Resources Conservation Service               |
| NRHP     | National Register of Historic Places                 |
| PEC      | Pedernales Electric Cooperative                      |
| P.L.     | Public Law   |
| RIFA     | Red Imported Fire Ants                               |
| ROW      | right-of-way   |
| SHPO     | State Historic Preservation Office                   |
| TAC      | Texas Administrative Code                            |
| TCEQ     | Texas Commission on Environmental Quality            |
| TDEM     | Texas Division of Emergency Management               |
| THC      | Texas Historical Commission                          |
| TPWD     | Texas Parks and Wildlife Department                  |
| TWDB     | Texas Water Development Board                        |
| U.S. 183 | U.S. Highway 183                                     |
| U.S.C.   | United States Code                                   |
| USDA     | U.S. Department of Agriculture                       |
| USFWS    | U.S. Fish and Wildlife Service                       |
| WCCF     | Williamson County Conservation Foundation            |
| WCRHCP   | Williamson County Regional Habitat Conservation Plan |
| WUI      | wildland-urban interface                             |

## SECTION 1 Introduction

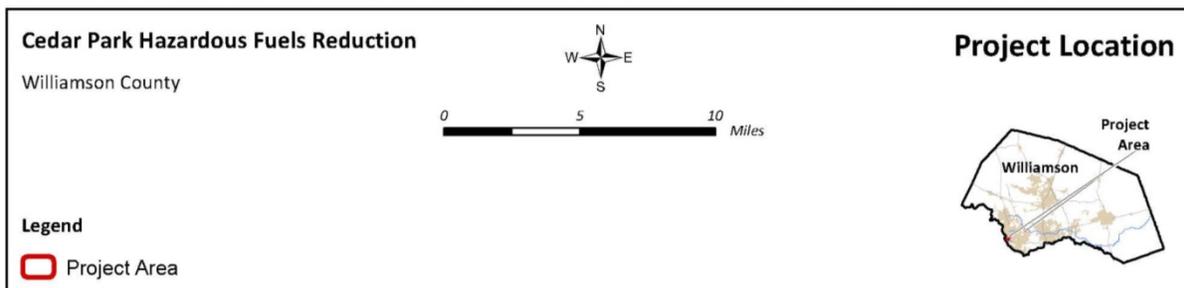
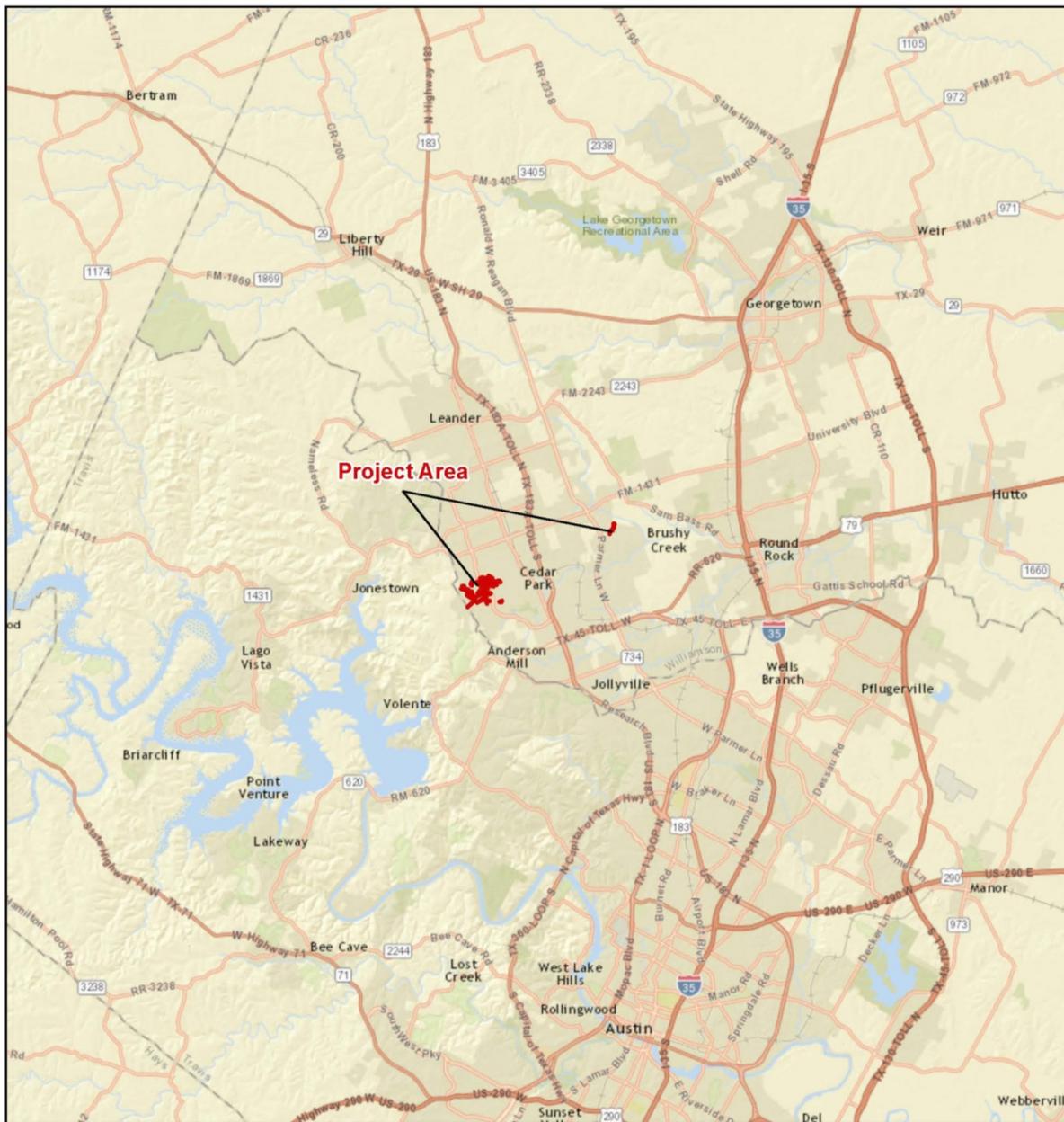
The City of Cedar Park, Texas proposes to implement hazardous fuels reduction in four City operated parks and preserves and in city-owned greenbelts (parks include Discovery Well Cave Preserve, Buttercup Creek Cave Preserve, Rattling Horn Park, and Ranch Trails Park) to reduce wildfire hazards in residential areas near wooded areas. The four targeted parks represent a potential direct wildfire threat to nearby residences and businesses. The City of Cedar Park has submitted an application to the Federal Emergency Management Agency (FEMA) through the Texas Division of Emergency Management (TDEM) for a grant under FEMA's Hazard Mitigation Grant Program (HMGP). TDEM is the direct applicant for the grant, and the City of Cedar Park is the subapplicant.

The HMGP is authorized under 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.

The City of Cedar Park is an incorporated municipality approximately 20 miles northwest of Austin, Texas (**Figure 1.1**). The majority of Cedar Park is in Williamson County, and a small portion of the City is in Travis County; although all of the project areas are located in Williamson County. The project would be conducted at four parks and preserves owned by the City of Cedar Park and in city-owned greenbelts. The parks include: Discovery Well Cave Preserve, Buttercup Creek Cave Preserve, Rattling Horn Park, and Ranch Trails Park (**Figure 1.2** and **Figure 1.3**). These public parks, preserves, and greenbelts offer trails through natural open spaces and share boundaries with residential neighborhoods and their associated dwellings. These natural areas within the community provide some degree of privacy screening to adjacent residents as well as a certain quality of life associated with close proximity to hike and bike trails and greenspaces (City of Cedar Park 2014a). These areas also contain a number of karst features or caves. These caves provide habitat for various wildlife species. The preserves were created to provide mitigation for previous development projects; therefore, the preserves are managed with a focus on wildlife conservation.

The proposed action would include various fire mitigation measures to reduce the potential for a major wildfire in Cedar Park. These measures include trimming or cutting trees within 25 feet of the property line between park land and residences, removal of hazardous fuels by clearing brush and combustible materials, and cutting tree branches to heights of 8 to 10 feet from ground level. Hazardous fuels reduction would be performed along the property lines of approximately 450 homes and other structures for approximately 42,110 linear feet and a total of 24.2 acres. The work would be restricted to public lands.

The proposed action would reduce wildfire hazards by reducing the rate at which wildfires spread. The proposed action is focused on the wildland-urban interface (WUI), which is the zone where structures and other human development meet or mix with wildland or vegetative fuels.



**Cedar Park Hazardous Fuels Reduction**

Williamson County

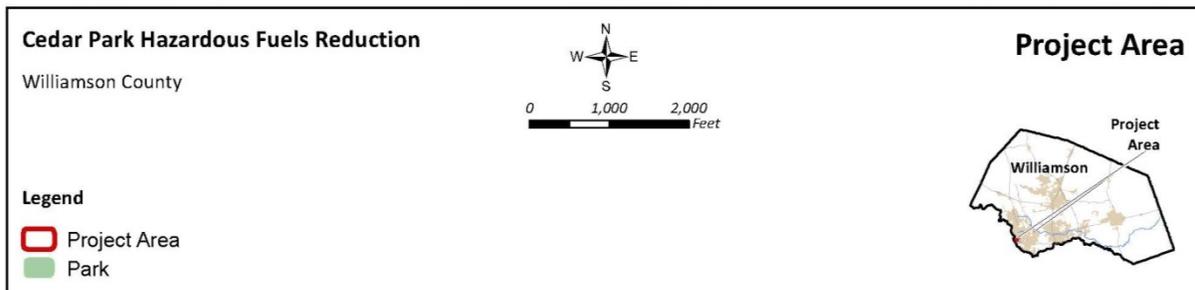
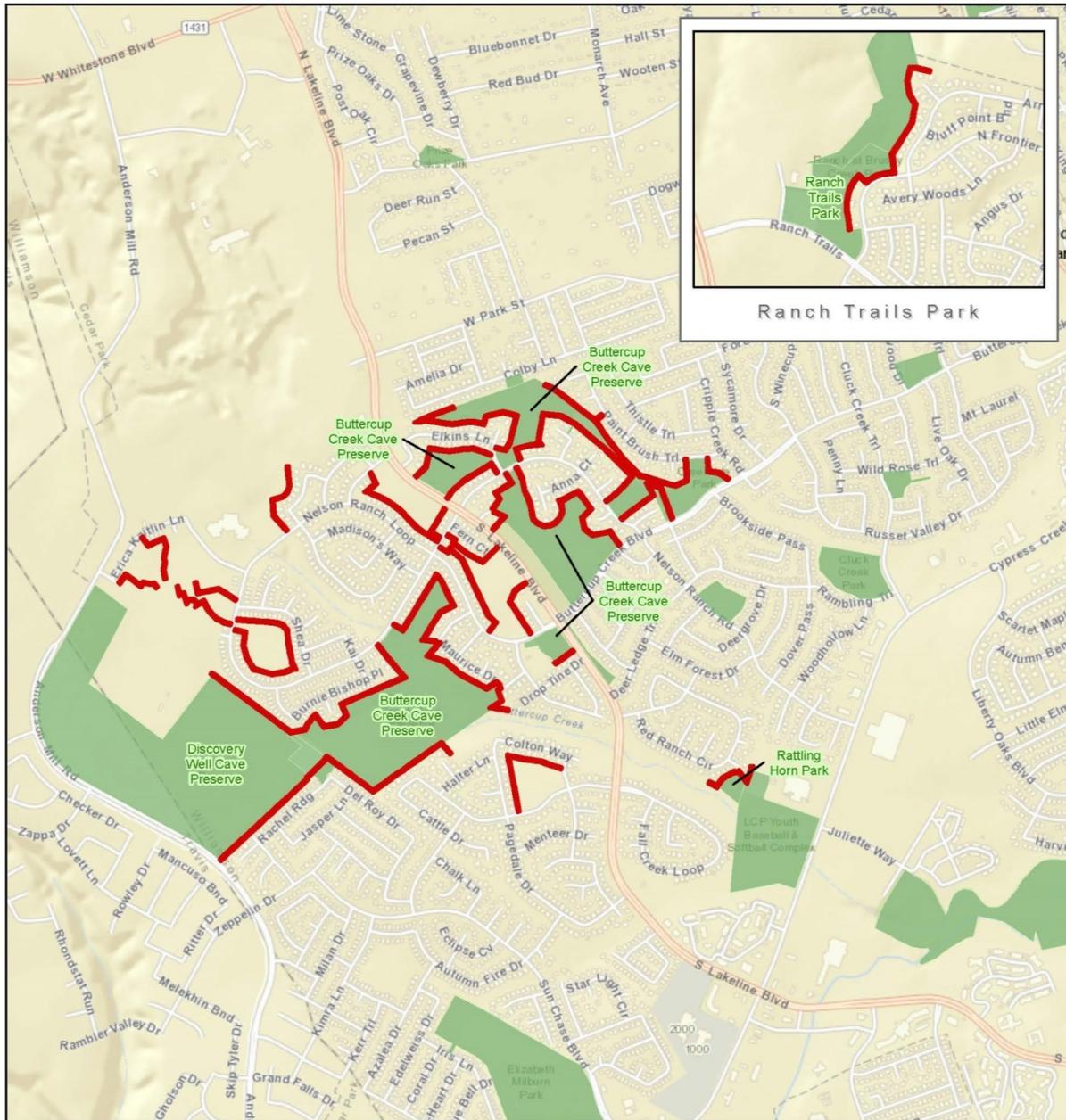


**Legend**

 Project Area

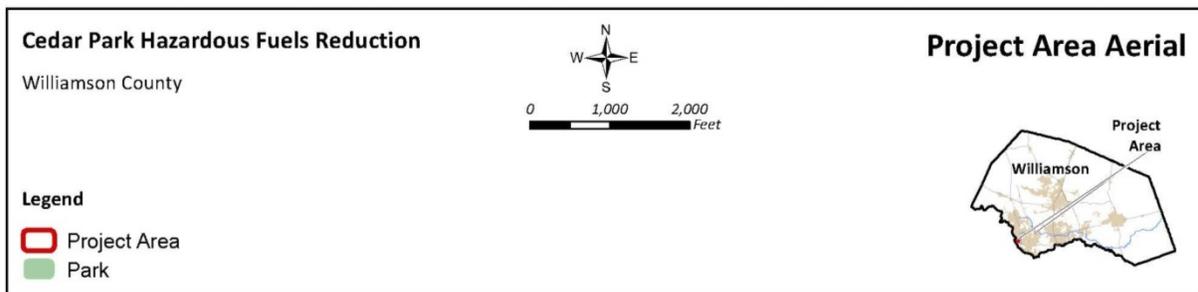
Data Sources: CDM Smith  
 Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand),

**Figure 1.1. Project Location**



Data Sources: CDM Smith  
 Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand),

**Figure 1.2. Proposed Project Areas**



Data Sources: CDM Smith  
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 1.3. Proposed Project Areas With Aerial Imagery

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 (CEQ) 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 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 City of Cedar Park 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).

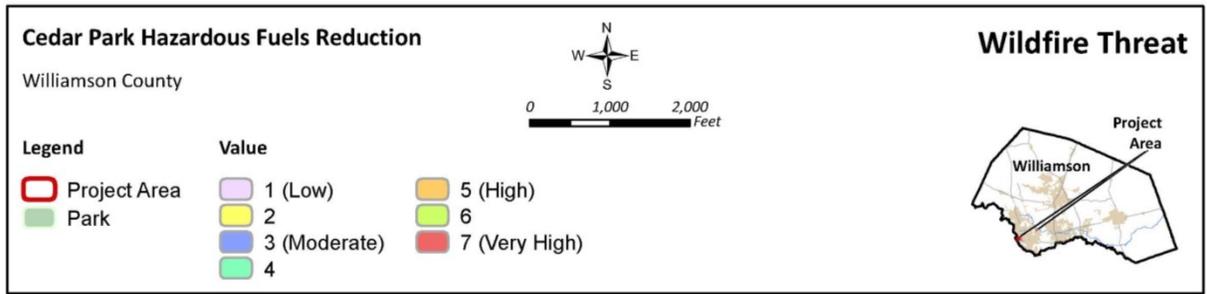
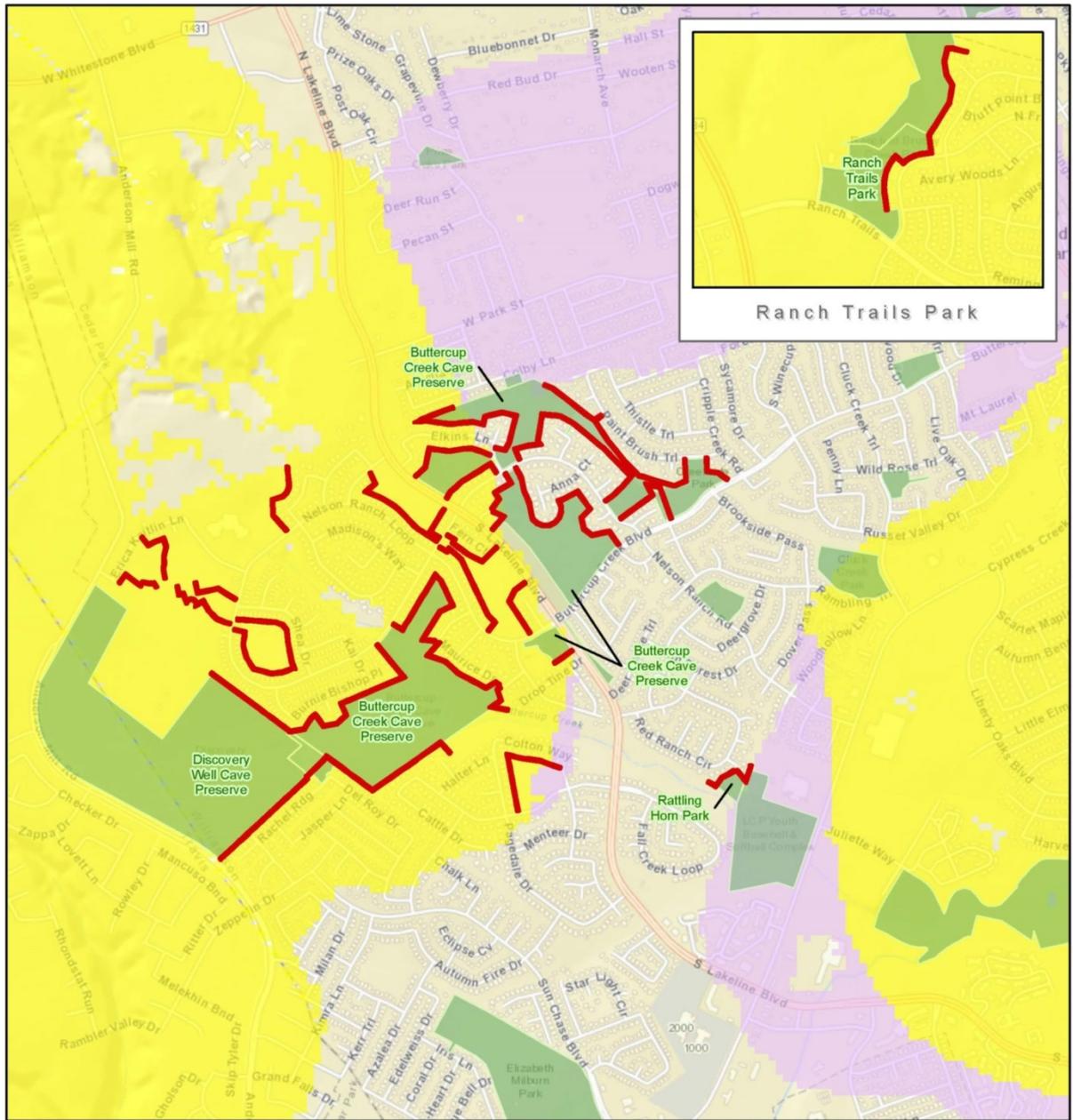
## SECTION 2 Purpose and Need

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 the HMGP is to reduce the 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.

The purpose of the proposed project is to reduce wildfire hazards in the City of Cedar Park. Long-term drought has increased wildfire hazards by providing a large amount of dry fuels for a potential wildfire. Wooded areas of thick vegetation and dead vegetative understory material along the park boundaries are close to homes and some public facilities that back up to these four City parks.

The Texas Wildfire Risk Assessment rated areas adjacent to the proposed work area as high as a 3 (moderate) on the Fire Intensity Scale (**Figure 2.1**) (Texas A&M Forest Service 2014). In the summer of 2011, central Texas experienced severe drought conditions and record heat, setting the stage for wildfires. In September 2011, a wildfire occurred along the WUI in Cedar Park; two homes were lost and three other properties were damaged. **Figure 2.2** shows the severity of property damage from the 2011 fire (Austin American Statesman 2011).

Because of the high potential for wildfire and in response to the September 2011 fire, the City of Cedar Park plans to implement a hazardous fuels reduction project to reduce wildfire hazards and the potential for loss of or damage to homes.



Data Sources: TX WRAP, CDM Smith  
Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), Swire

Figure 2.1. Wildfire Threat



**Figure 2.2. September 2011 Fire Property Damage**

## 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 future conditions if no action is taken to reduce wildfire hazards. Under the no action alternative, no work would be conducted to reduce hazardous fuels along the boundaries of the targeted parks, preserves, and greenbelts. Residents and homes within the City of Cedar Park would remain at an elevated risk for the spread of a catastrophic wildfire.

Because existing wildfire hazards in the City of Cedar Park 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 also 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 are already strained by drought.

In addition to risks to residents near the parks and preserves identified here, several federally endangered species rely on the natural vegetation in the preserves for habitat. A major wildfire would be more likely to spread under the no action alternative and could damage existing and potential habitats for several karst species, Black-capped vireo, and Golden-cheeked warbler.

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

The City of Cedar Park proposes to implement a hazardous fuels reduction program to reduce wildfire hazards. The proposed action would be conducted at four parks and preserves owned by the City of Cedar Park and in city-owned greenbelts. The parks and preserves include: Buttercup Creek Cave Preserve, Discovery Well Cave Preserve, Ranch Trails Park, and Rattling Horn Park. These parks, preserves, and greenbelts are located in different areas of the City and each share boundaries with residential neighborhoods and their associated dwellings (**Figure 1.3**).

Buttercup Creek and Discovery Well Cave Preserves are on the western edge of the City of Cedar Park. Homes in the adjacent subdivisions are located along the eastern and southern edges of Discovery Well Cave Preserve perimeter and along all edges of the Buttercup Creek Cave Preserve perimeter, except along drainage easements (**Figure 1.3**). These two preserves are the site of karst features (*i.e.*, caves) that provide habitat to threatened and endangered species, which are described in more detail in **Section 4.4.3**. The project scope includes a number of measures to protect these karst features, which are discussed in more detail in **Section 4**.

Rattling Horn Park is a small park in southwestern Cedar Park. Homes in the adjacent subdivision are located along the northwest perimeter of the park in addition to two baseball fields connected to Faubion Elementary School located on the southeast perimeter. Ranch Trails Park is in east Cedar Park and homes are located along the eastern perimeter of the park.

The proposed action is intended to minimize the spread of and damage from fires and to assist firefighters in combating wildfires. Measures under the proposed action would include the removal of all Ashe juniper and understory vegetation as well as selected hardwood trees less than 8 inches in diameter, depending on their condition and structure. All project areas are adjacent to dense residential developments. The proposed project will clear 25 feet within the parkland along the private property lines of adjacent homes. The 25 feet of parkland clearing will join 25 feet of existing backyard space behind homes, achieving a total of 50 feet behind each home/structure that is clear of hazardous fuels.

Hazardous fuels reduction would occur along approximately 42,110 linear feet of park and preserve perimeters (24.2 acres). Fuel reduction would be restricted to public lands and would be conducted between September and February to avoid bird nesting periods from March through August.

Selected trees that would remain in the project area would be trimmed up to 8 to 10 feet above natural ground level. Stumps would not be removed but would be cut to ground level. The City will seal any wounds on oak trees that result from pruning and seal any oak stumps that are created as a result of the proposed action in order to prevent the transmission of oak wilt fungus. Cut, trimmed, dead, and downed vegetation would be mulched and a depth of 3 inches of mulched material will be left on existing trails within the parks, preserves, and greenbelt areas with appropriate measures (e.g. adequate setbacks or silt fencing) to prevent mulch from washing into cave openings or surface waters. Mulch will not be placed within 345 feet of occupied cave openings (**Figure 4.13** shows this 345 foot buffer area). Any material exceeding the 3 inch depth on the work site would be distributed via the Parks Department to other nature trails in the City park system as needed.

The implementation of the proposed action is projected to occur over a period of 6 to 8 weeks. No herbicides would be used during any phase of the proposed action. During project implementation, the equipment used would include chainsaws, chippers, and trucks and trailers. Vegetation will be hand cut within 100 feet of occupied cave openings and the vegetation removed with rubber-tracked equipment to minimize ground disturbance in these areas. The 100-foot buffer is depicted on **Figure 4.13**. The City will host a preconstruction coordination meeting with the work crews and/or the contractor and their staff to go over the project implementation plan. As part of the site preparation for the proposed action, the City will clearly identify all buffer zones with colored flags or tape prior to beginning work. Each zone will be marked with a different color and the delineation of these zones will be consistent throughout the project area. The buffer zones that will be marked include:

- 100 feet from cave opening (no mechanical trimming or cutting may occur),

- 345 feet from cave openings (no mulch can be placed, hot water treatments for Red Imported Fire Ants [RIFA] must be conducted), and
- 500 feet from cave openings (no refueling, equipment staging, or storage of fuels may occur in this area).

The flags or tape marking the buffer zones will be removed promptly once work is complete. Additionally, the City will provide a full time monitor that will oversee implementation of the project and ensure that all avoidance and minimization measures are completed and adhered to.

The City will maintain areas where hazardous fuels reduction activities are completed by mowing cleared areas with a heavy brush cutter; treated areas will be mowed to 6 inches or higher above the ground to protect vegetation around cave openings. Ongoing maintenance would not include the use of herbicides.

Additional measures will be implemented to minimize adverse effects to Tooth Cave ground beetle and the Golden-cheeked warbler and measures applicable to karst species would be implemented near occupied cave openings. These measures are detailed in **Section 4.4.3**.

### **3.3 Additional Action Alternative Considered and Dismissed**

A complaint-driven approach alternative was considered that would be narrow in scope and implemented with limited resources. Under the complaint-driven approach, the City would carry out small vegetation management projects with limited effectiveness instead of a comprehensive program to mitigate high risk areas. Limited resources would dictate where and when hazardous fuels reduction would be completed. This alternative was rejected because the City would continue to be at an elevated risk for the spread of a catastrophic wildfire, and the probability of loss of human life and property would continue to be unacceptably high. Thus, the complaint-driven approach alternative would not meet the purpose and need of the proposed project and was dismissed from further consideration in this EA.

## **SECTION 4    Affected Environment, Potential Impacts, and Mitigation**

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. Prime and Unique Farmlands**

Prime and unique farmlands are protected under the Farmland Protection Policy Act (FPPA) (Public Law [P.L.] 97-98, 7 United States Code [U.S.C.] §4201). The FPPA applies to prime and unique farmlands and those that are of state and local importance. The project area is located within the corporate boundaries of the City of Cedar Park in Williamson County, Texas. Per the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) 7 CFR 658.2(a) (2000), land within corporate boundaries is not considered farmland; therefore, the project area is not subject to the FPPA, and farmland is not considered further in this analysis.

#### **4.1.3 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 (see **Appendix A-1**) (Interagency Wild and Scenic Rivers Council 2014). Wild and scenic rivers are not considered further in this analysis.

#### **4.1.4 Coastal Resources**

The Coastal Zone Management Act enables coastal states to designate state coastal zone boundaries and develop coastal 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). Williamson County is not a coastal county and is approximately 144 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 either 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

According to the Geologic Atlas of Texas, Austin Sheet, 1981, the project area primarily consists of Edwards Limestone (Texas Water Development Board [TWDB] 2014a). The Edwards Limestone consists primarily of limestone, dolostone, and chert. The Edwards Limestone is karstified and continues to have dissolution of primary voids due to water flow through the formation. This water flow has led to the formation of the Edwards Aquifer and the recharge and transition zones. Exposed bedrock in the area also shows the development of caves as shown in **Figure 4.1**.

The project area lies within the Brackett-Erant-Real soil unit of the Edwards Plateau (USDA, NRCS 2013). The four soil map units in the proposed project area are Eckrant cobbly clay (EaD), Eckrant extremely stony clay (EeB), Eckrant-Rock outcrop complex (ErE), and the Doss silty clay (DoC). The properties of these soils are described in more detail in **Table 4.1** and **Table 4.2** (USDA, NRCS 2013). A full soil survey for the project area is shown on **Figure 4.2** (USDA, NRCS 2013). The soils present within the project area are not considered prime or unique farmland soils per the NRCS Web Soil Survey.

The soils within the project areas are not hydric, which means they are unlikely to support wetlands (see also **Section 4.3.2**).

Topography in the proposed project area is depicted on **Figure 4.3**. Elevations in the project area range from approximately 850 feet to 1,020 feet. However, because the project work areas are small, the topographic range across any one work area tends to be about 20 to 40 feet. The topography is relatively steep in some areas.



**Figure 4.1. Gated Cave at Discovery Well Cave Preserve**

## Affected Environment, Potential Impacts, and Mitigation

**Table 4.1. Soil Properties in the Project Area**

| Parameters           | Eckrant cobbly clay (EaD)  | Eckrant extremely stony clay (EeB)                     | Eckrant-Rock outcrop complex (ErE)                     | Doss silty clay (DoC)                                  |
|----------------------|--|--|--|--|
| Depth                | 10 to 20 inches  | 10 to 20 inches  | 10 to 20 inches  | 11 to 20 inches  |
| Drainage             | Well drained   | Well drained   | Well drained   | Well drained   |
| Permeability         | Moderately low to moderately high (0.06 to 0.57 inches per hour [in/hr]) | Moderately low to moderately high (0.06 to 0.57 in/hr) | Moderately low to moderately high (0.06 to 0.57 in/hr) | Moderately low to moderately high (0.06 to 0.57 in/hr) |
| Parent Material      | Residuum weathered from limestone  | Residuum weathered from limestone                      | Residuum weathered from limestone                      | Residuum weathered from limestone                      |
| Slope                | 1 to 8 percent   | 0 to 3 percent   | 3 to 16 percent  | 1 to 5 percent   |
| Depth to Water Table | More than 80 inches  | More than 80 inches                                    | More than 80 inches                                    | More than 80 inches                                    |
| Hydric Soils         | No   | No   | No   | No   |

Source: USDA Natural Resources Conservation Service 2013.

**Table 4.2. Soil Survey Unit Codes**

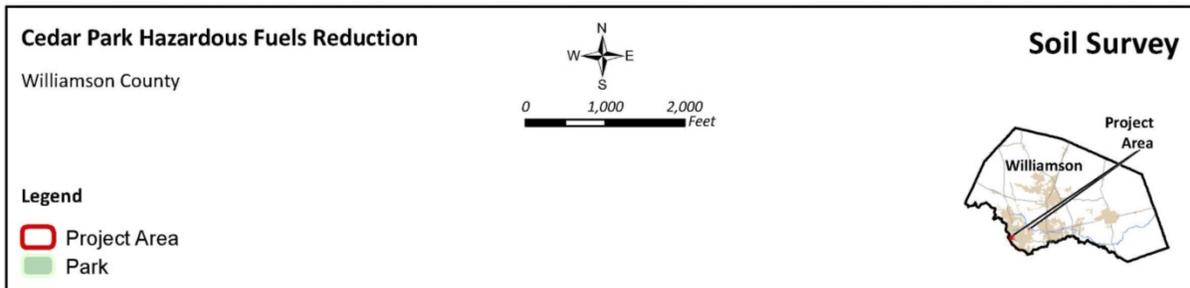
| Code | Description  | Code | Description  |
|------|--|------|--|
| EaD  | Eckrant cobbly clay, 1 to 8 percent slopes, frequently flooded | ErE  | Eckrant-Rock outcrop complex, 3 to 16 percent slopes |
| EeB  | Eckrant extremely stony clay, 0 to 3 percent slopes            | DoC  | Doss silty clay, 1 to 5 percent slopes               |

Source: USDA Natural Resources Conservation Service 2013.

### 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. In the event of a major wildfire, more bedrock could be exposed to direct rainfall, which would increase the rate of erosion of the formation. These primary impacts from a wildfire can also result in decreased infiltration and increased runoff, which often causes increased erosion.

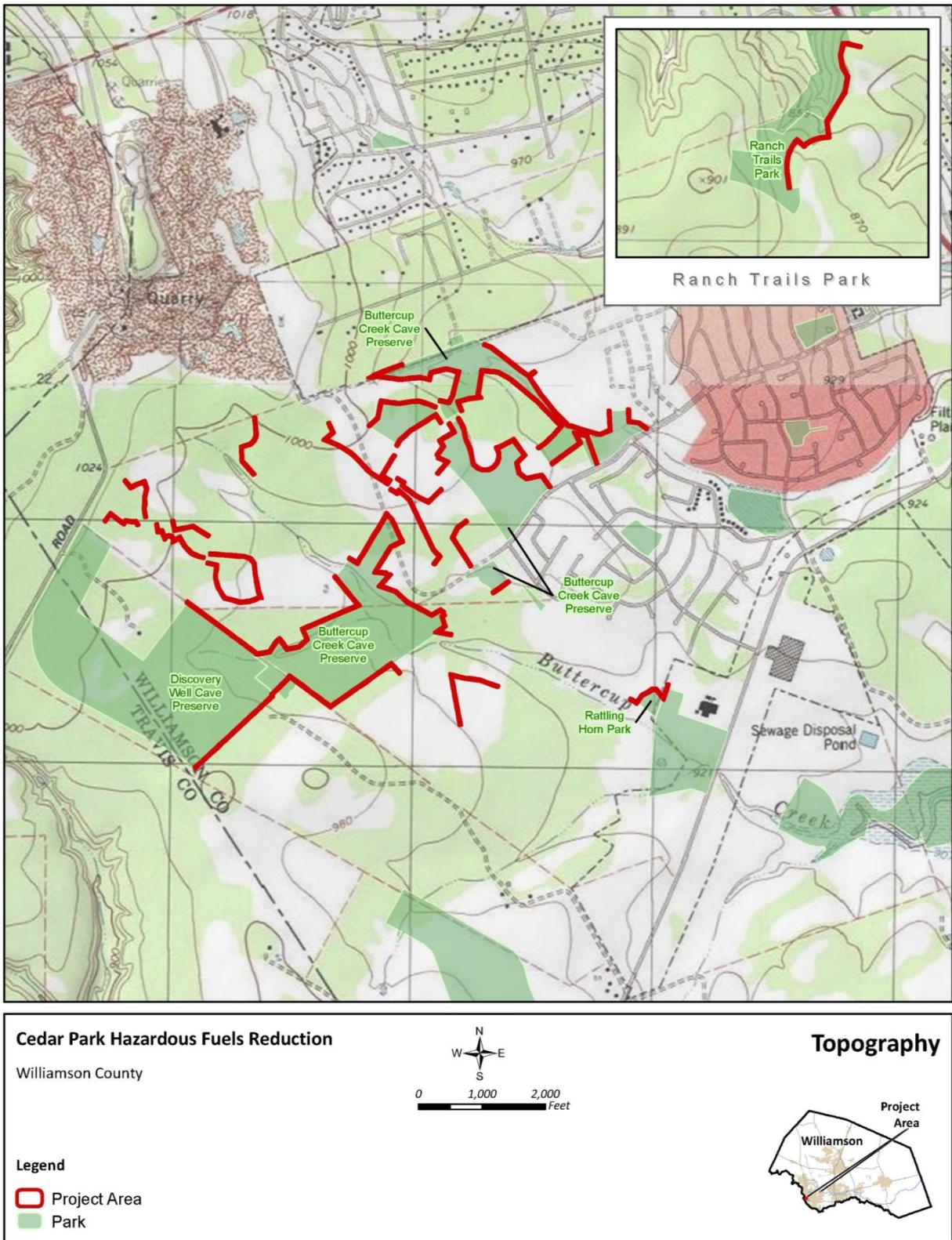
# Affected Environment, Potential Impacts, and Mitigation



Data Sources: SSURGO, CDM Smith  
 Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand),

**Figure 4.2. Soil Survey Map**

# Affected Environment, Potential Impacts, and Mitigation



**Figure 4.3. Topography Map**

### Proposed Action

The proposed project would not result in significant soil or geologic 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 and 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 removal of debris and brush and tree limbing would not result in significant soil disturbance. Elevation changes within the proposed work areas are not significant; therefore, erosion of soils would not be likely with the minor soil disturbance that would occur from the proposed activities. The fire hazard reduction activities would 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 adverse impact to soils is anticipated. The proposed action would reduce the hazards associated with a major wildfire, potentially protecting more of the existing vegetation, which would also decrease the amount of mechanical weathering of the formation and protect recharge to the aquifer.

### 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 (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 proposed project area is within the City of Cedar Park, which is located in the Austin-Round Rock metropolitan area. EPA designates this region as being in attainment of all NAAQS (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 and temporary; occurring over a period of 6 to 8 weeks during implementation of the fuel reduction measures. During project implementation, the equipment used would include a chainsaw, chipper, and trucks with trailers to haul equipment and debris. The equipment would burn hydrocarbon fuels.

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. Emissions would be temporary and localized, and only minor impacts on air quality in the project area would occur.

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 annually and as needed 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 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, 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 is densely vegetated with trees and understory brush in some areas while other areas are less densely vegetated and have an open canopy. The majority of the project area is dominated by Ashe juniper and live oak. The Ashe juniper is less dense on cave preserve property and denser in greenbelts. The project area is adjacent to residential neighborhoods, and the proposed hazardous fuels reduction zone would be visible to residents. To a limited extent, it is also visible to the public that visit the cave preserves and parks. **Figure 4.4**, **Figure 4.5**, and **Figure 4.6** show the existing visual conditions in the project area. **Figure 4.4** and **Figure 4.5** illustrate the vegetation on preserve properties. **Figure 4.6** shows existing vegetation along the property boundary between residential lots and a greenbelt.

#### 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

## Affected Environment, Potential Impacts, and Mitigation

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immediately after the fire for both adjacent landowners and the public that visit parks, preserves, and greenbelts.

### Proposed Action

The proposed project would clear brush, understory, dead trees, all Ashe junipers within the project area, and any hardwood trees less than 8 inches in diameter, resulting in some changes to the visual aesthetics of the WUI. Because the preserves and parks are large and densely vegetated, the overall visual quality and aesthetics of the preserves and parks would not be impacted significantly by the proposed project. The proposed work would open up some views from private property into the cave preserves and parks that were previously obscured by vegetation in the foreground. Fuels reduction work along the residential greenbelts would have the potential for some impacts to visual quality and aesthetics in the form of reduced privacy screening because of the small size of most of these greenbelts. Under the proposed action, wildfire hazards would be reduced, and the potential for significant visual alteration due to a major wildfire would also be reduced.



**Figure 4.4. Existing Vegetation at Discovery Well Cave Preserve**



**Figure 4.5. Existing Vegetation at Buttercup Creek Cave Preserve**



**Figure 4.6. Residential Greenbelt Behind Houses**

### 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 surface water and groundwater resources. The project area is located in the Edwards Aquifer contributing zone.

##### 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.

South Brushy Creek and Buttercup Creek run through the Buttercup Creek Cave Preserve; however, no sections of the stream are identified on the 303(d) or 305(b) lists.

#### 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 could cause temporary minor adverse impacts to nearby surface waters over a period of about 2 months from potential erosion and sedimentation. The proposed action would minimize ground disturbance by not removing stumps, but operation of heavy equipment during the work would disturb soil, which could increase erosion potential during heavy rains. Best management practices (BMPs) would be implemented to minimize transport of sediment to Buttercup Creek and South Brushy Creek. 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 the creeks. With the implementation of these BMPs, the effect on water quality would not be significant.

### 4.3.1.2 Groundwater

The major aquifer underlying the proposed project area is the Edwards Aquifer, as shown on **Figure 4.7**. The Edwards Aquifer is a narrow belt extending through 13 Texas counties along the Interstate 35 corridor between Austin and San Antonio and consists primarily of partially dissolved limestone that is hydrologically connected to form a highly permeable aquifer. Water quality in the Edwards Aquifer is generally good and contains less than 500 milligrams per liter of total dissolved solids (TWDB 2014b).

The Edwards Aquifer provides water supply for municipal, industrial, and agricultural uses and is the sole source of drinking water for over 1.7 million people in central Texas. The aquifer produces large volumes of water from highly permeable and porous honey combed limestone, which allows for rapid recharge and discharge. The high permeability and porosity of the aquifer makes the aquifer vulnerable to contamination within the recharge zone. Pollutants on or near the surface can enter the aquifer directly with little natural filtering, and once in the aquifer those pollutants can travel long distances in a relatively short period of time.

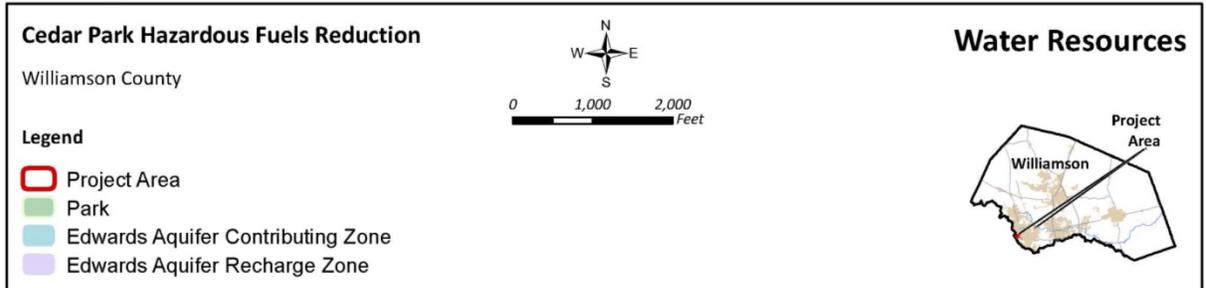
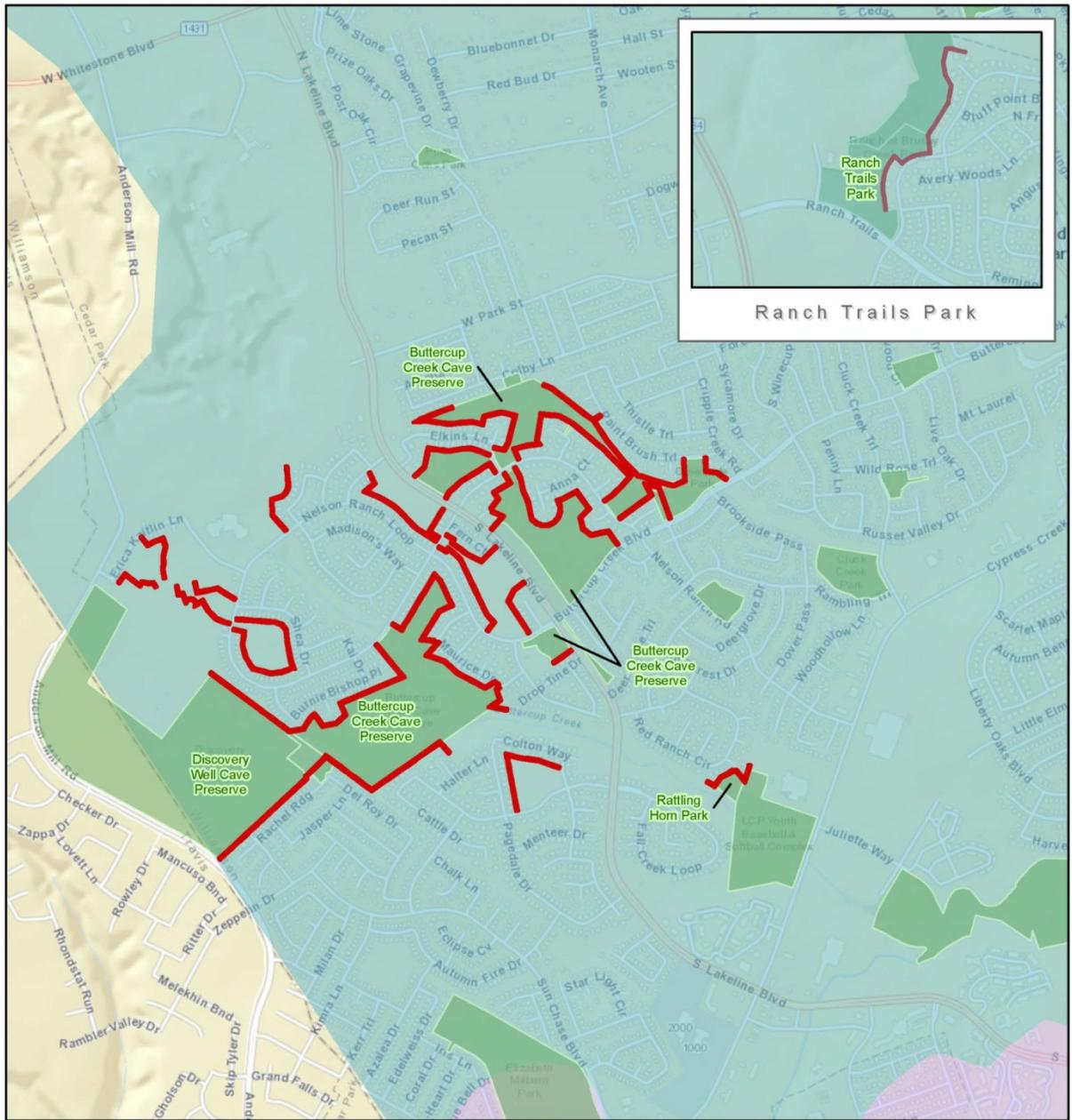
The sole source aquifer protection program is authorized by section 1424 of the Safe Drinking Water Act of 1974 (U.S.C. 300 et seq.). EPA defines a sole source aquifer as an aquifer that supplies at least 50 percent of the drinking water for the area overlying the aquifer. A portion of the Edwards Aquifer is designated as a sole source aquifer, and this designation requires all projects receiving federal funds to undergo a review to ensure they do not endanger the water source. The portion of the Edwards Aquifer that is designated a sole source aquifer is not underlying the project area (EPA 2008). Sole source aquifers in Texas are shown in **Appendix A-2**.

According to the TCEQ Edwards Aquifer Mapper, the proposed project area is located within the Edwards Aquifer Contributing Zone (**Figure 4.7**) (TCEQ 2014). TCEQ regulates activities within the Edwards Aquifer recharge, contributing, and transition zones via 30 Texas Administrative Code (TAC) Chapter 213. According to 30 TAC, clearing vegetation without disturbing the soil is not an activity that is regulated under the Edwards Aquifer rules.

### 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).

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Data Sources: TCEQ, CDM Smith  
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**Figure 4.7. Project Area Groundwater Resources**

### 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. BMPs would be implemented to mitigate any runoff from the project area; however, no impact on groundwater from stormwater runoff associated with the proposed action is anticipated. Therefore, no impact on the Edwards Aquifer is expected to occur as a result 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 CWA 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 construction 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 maps for the project area indicate that there are no wetlands present within the project area (**Figure 4.8**). The nearest wetlands are freshwater ponds to the north of Buttercup Creek Cave Preserve (USFWS 2014a). The proposed project would have no effect on wetlands; thus, FEMA is not required to conduct an eight-step decision-making process.

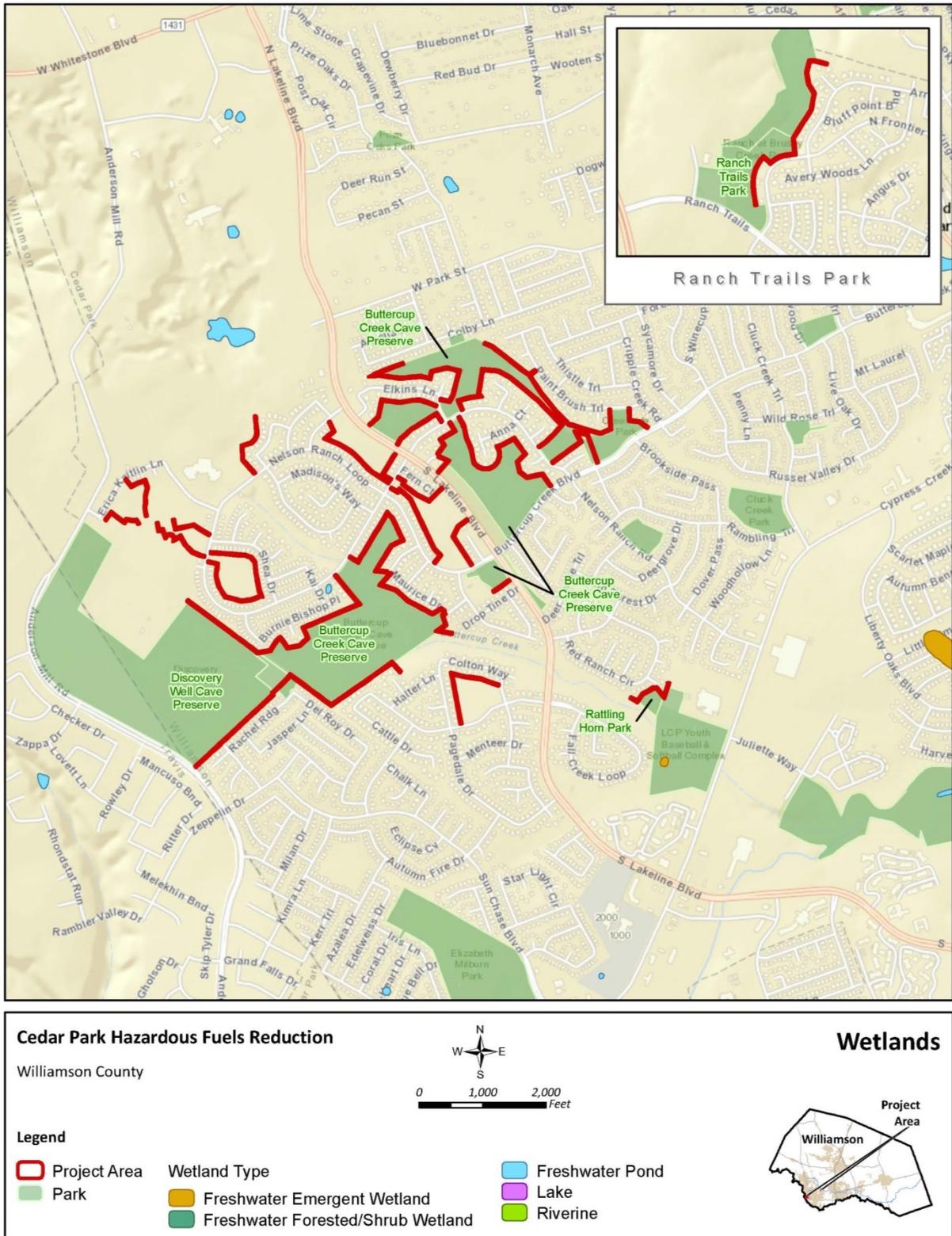
### No Action Alternative

In the absence of a major wildfire in the City of Cedar Park, 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 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. However, there are no wetlands within the project area; therefore, the potential for wetland impacts would be minor.

### Proposed Action

The proposed action would not occur in or near wetland areas; thus, there would be no effect on wetlands from the proposed action. Long-term project maintenance also would have no impact on wetlands. The proposed action may help preserve wetlands by reducing the risk of wildfire to wetlands that exist beyond the project area.

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**Figure 4.8. Wetlands Near Project Area**

### 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 improvements 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. As discussed below, the proposed action is partially located within a floodplain. The eight-step process is documented in **Appendix A-4**.

FEMA Flood Insurance Rate Maps (FIRMs) map floodplain areas and illustrate the extent of the 100-year floodplain within the project area. The FIRMs for each park within the project areas are shown in **Table 4.3**. The pertinent portions of the FIRMs are included in **Appendix A-3**.

**Table 4.3. FEMA FIRMs in the Proposed Project Area**

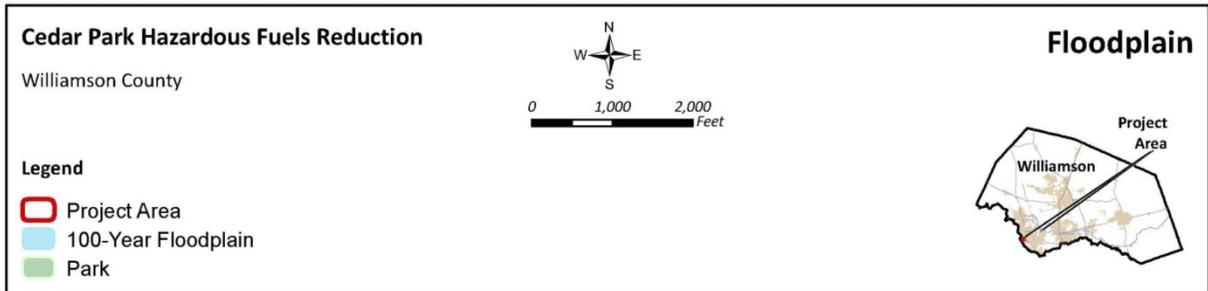
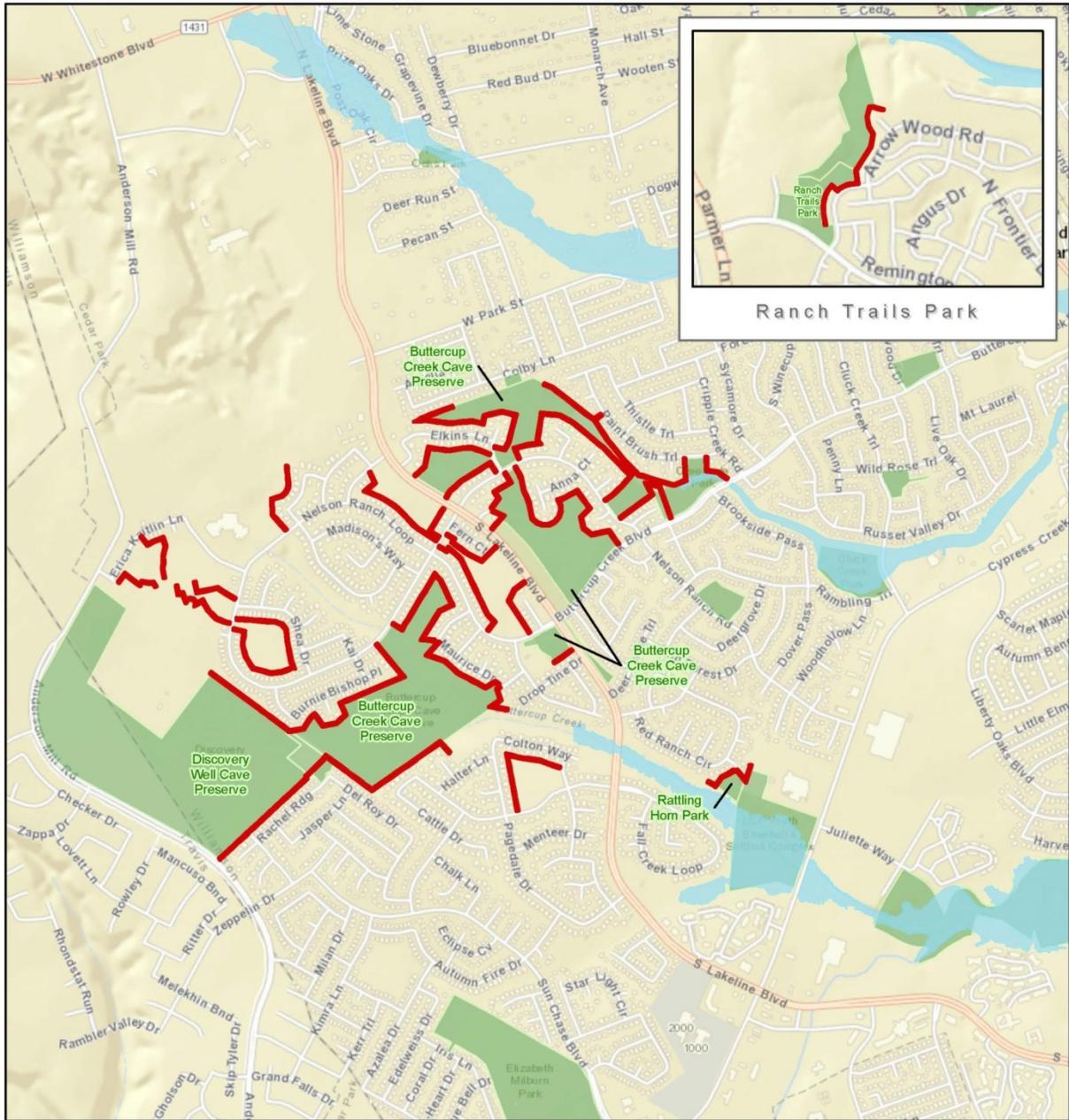
| Parks                         | FIRM Panel  | Date               |
|-------------------------------|-------------|--------------------|
| Buttercup Creek Cave Preserve | 48491C0605E | September 26, 2008 |
| Discovery Well Cave Preserve  | 48491C0605E | September 26, 2008 |
| Ranch Trials Park             | 48491C0470E | September 26, 2008 |
| Rattling Horn Park            | 48491C0605E | September 26, 2008 |

**Figure 4.9** depicts the proposed work areas and extent of the floodplain within the project area. Floodplains are present within the proposed project area. A portion of a project zone around Buttercup Creek Boulevard and Brookside Pass is located within the within the 100-year floodplain of Cluck Creek Tributary 1, a tributary of Brushy Creek.

### No Action Alternative

In the absence of a major wildfire, the no action alternative would have no effect on floodplains because current conditions would not change. However, a major wildfire would be more likely under the no action alternative, which could impact 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 sedimentation and flooding.

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Data Sources: CAPCOG, FEMA, CDM Smith  
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**Figure 4.9. Floodplains Near Project Area**

### Proposed Action

Portions of the proposed project area are within the 100-year floodplain. The proposed action would not place any structures or fill within the floodplain that would impede or redirect flood flows nor would it result in any excavation. No structures would be constructed within the floodplain, and no significant soil disturbance would occur within the floodplain. Although the proposed action would reduce risk to homes adjacent to the parks, preserves, and greenbelts, the proposed action would not facilitate any development within the floodplain. No debris or mulch would be placed in the floodplain, which would prevent potential impacts to the floodplain. Mulch created from the vegetation cleared by the proposed action would be used to help prevent sedimentation or erosion from disturbed areas from impacting floodplains.

For any work conducted in the floodplain, the City of Cedar Park would be required to coordinate with the local floodplain administrator to obtain any required permits prior to initiating work. All coordination pertaining to these activities and application compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files. The full eight-step analysis is documented in **Appendix A-4**.

### 4.4 Biological Resources

This section provides an overview of the affected area and potential environmental effects of the no action and proposed action alternatives on vegetation, wildlife, and federal- and state-listed species.

#### 4.4.1 Vegetation

The project area is in the Cross Timbers Ecoregion according to the Gould Ecoregions of Texas, as recognized by Texas Parks and Wildlife Department (TPWD). This region is approximately 26,000 square miles and is the primary ecoregion of North Central Texas. The project area is located in the Lampasas Cut Plain ecological sub-region. The Lampasas Cut Plains are mostly underlain by various limestone formations; the soil has high alkalinity due to its development on limestone. Plants in the sub-region have adapted to living in higher alkalinity soils, such as oaks (*Quercus* spp.), juniper (*Juniperus* spp.), and grasses (*Poaceae* spp.) (Gould et al. 1960). Cedar Park is located on the Edwards Plateau, which has this limestone geology (Williamson County Conservation Foundation [WCCF] 2008).

A wildlife and habitat survey conducted from September 30 to October 2, 2013, determined that the project area is characterized primarily by juniper oak woodland, juniper woodland, and juniper scrubland habitats (**Figure 4.10** and **Appendix B**). These habitat types are described as follows:

- Juniper Oak Woodland – dominated by Ashe juniper (*Juniperus ashei*), Texas live oak (*Quercus fusiformis*), and cedar elm (*Ulmus crassifolia*) woodlands. The canopy averages 95 percent cover. The shrub stratum is dominated by Texas persimmon (*Diospyros texana*), prickly pear cactus (*Opuntia engelmannii*), and tree saplings with approximately 5 percent total cover. The herbaceous stratum is dominated by little bluestem (*Schizachyrium scoparium*) and prickly pear cactus and averages 10 percent total cover.



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- Juniper Woodland – dominated by Ashe juniper with a few sparse Texas live oak and honey mesquite (*Prosopis glandulosa*). The canopy layer averages 80 percent total cover. This habitat type had no shrub layer. The herbaceous layer was dominated by little bluestem and prickly pear cactus with an average total cover of 15 percent. Approximately 5 percent of the habitat was bare ground with limestone cobble.
- Juniper Scrubland – characterized by open grassy areas dominated by little bluestem, Johnson grass (*Sorghum halepense*), western ragweed (*Ambrosia psilostachya*), and morning glory (*Ipomoea cordatotriloba*). Approximately 40 to 70 percent of the total cover is in this herbaceous layer. The canopy is dominated by Ashe juniper with approximately 0 to 60 percent total cover. The shrub layer is dominated by Ashe juniper saplings and prickly pear cactus with approximately 30 to 60 percent total cover.
- Mesquite Scrubland – characterized by open grassy areas dominated by little bluestem, western ragweed, and Texas crabgrass (*Digitaria texana*) with dense patches of honey mesquite and Ashe juniper. The herbaceous layer is approximately 50 percent total cover. The canopy consists of Texas live oak, Ashe juniper, and cedar elm and is approximately 15 percent total cover. The shrub layer is approximately 40 percent total cover. Bare ground is approximately 5 percent of the total cover.
- Live Oak Savannah – dominated by Texas live oak with few scattered Ashe juniper and cedar elm. The canopy cover is approximately 40 percent total cover. The shrub layer is dominated by prickly pear cactus, Ashe juniper, and Texas live oak saplings with approximately 15 percent total cover. The herbaceous layer is dominated by little bluestem, panic grass (*Panicum* sp.), southern dewberry (*Rubus trivialis*), Bermuda grass (*Cynodon dactylon*), rosette grass (*Dichanthelium dichotomum*), and prickly pear cactus with an average total cover of 95 percent.
- Maintained Right-of-Way (ROW) – the herbaceous layer is dominated by little bluestem, Johnson grass, Bermuda grass, western ragweed, prickly pear cactus, and Texas crabgrass with a sparse canopy cover consisting of Texas live oak, Ashe juniper, and post oak (*Quercus stellate*). The canopy layer is approximately 10 percent total cover. The shrub layer consists of Texas persimmon, prickly pear cactus, and Texas live oak saplings, which are approximately 15 percent of total cover. The herbaceous layer is approximately 95 percent total cover. There are a few maintained ROW areas throughout the project area.
- Maintained Easement – dominated by Bermuda grass with 90 percent total cover. The canopy layer is sparse and consists of Texas live oak and Ashe juniper. The shrub layer is absent. Approximately 10 percent of total cover is bare ground. There are a few maintained easements throughout the project area, which are typically mowed areas within park boundaries.

There are no federally threatened or endangered plant species listed in Williamson County; therefore, there would be no effect on listed plant species.

### **Invasive Species**

EO 13112 requires federal agencies to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health impacts that invasive species cause. The habitat survey did not note any invasive plant or animal species listed by the Texas Department of Agriculture within the project area.

### **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 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. While fire is a natural component of the ecosystems near the project area, 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 affect approximately 24.2 acres along the perimeter of four parks. Treated areas would be approximately 25 feet in width. Fuel reduction would include cutting tree branches up to a height of 8 to 10 feet, removal of all Ashe juniper and understory vegetation, and removal of some selected hardwoods less than 8 inches in diameter, depending on their condition and structure. The proposed action would not have a significant impact on vegetation communities although individual trees would be affected.

Since there are no listed threatened or endangered plant species in Williamson or Travis counties, the proposed action would not affect federally listed plant species.

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 vegetation management work should be removed.

### **4.4.2 Common Wildlife Species**

In addition to the listed species discussed below in **Section 4.4.3**, the proposed action has the potential to impact common wildlife species and their habitats. **Table 4.4** provides a list of species that were recorded during the habitat survey conducted from September 30 through October 2, 2013.

Common species observed during the field survey are typical of forest fringe and open grassland edges. The project areas are adjacent to residential neighborhoods, and the wildlife species present would be influenced by residential habitats and activities.

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**Table 4.4. Common Wildlife Species Observed Within Project Area**

| Common Name               | Scientific Name                 |
|---------------------------|---------------------------------|
| <b>Birds</b>              |                                 |
| Tufted titmouse           | <i>Baeolophus bicolor</i>       |
| Northern cardinal         | <i>Cardinalis cardinalis</i>    |
| Turkey vulture            | <i>Cathartes aura</i>           |
| Ground dove               | <i>Columbina passerina</i>      |
| Blue jay                  | <i>Cyanocitta cristata</i>      |
| Red-bellied woodpecker    | <i>Melanerpes carolinus</i>     |
| Northern mockingbird      | <i>Mimus polyglottos</i>        |
| Carolina chickadee        | <i>Poecile carolinensis</i>     |
| Ruby-crowned kinglet      | <i>Regulus calendula</i>        |
| Field sparrow             | <i>Spizella pusilla</i>         |
| Eurasian collard dove     | <i>Streptopelia decaocto</i>    |
| House wren                | <i>Troglodytes aedon</i>        |
| American robin            | <i>Turdus migratorius</i>       |
| Scissor-tailed flycatcher | <i>Tyrannus forficatus</i>      |
| White winged dove         | <i>Zenaida asiatica</i>         |
| Mourning dove             | <i>Zenaida macroura</i>         |
| <b>Mammals</b>            |                                 |
| Black-tailed jackrabbit   | <i>Lepus californicus</i>       |
| White-tailed deer         | <i>Odocoileus virginianus</i>   |
| Common raccoon            | <i>Procyon lotor</i>            |
| Eastern grey squirrel     | <i>Sciurus carolinensis</i>     |
| Cottontail rabbit         | <i>Sylvilagus floridanus</i>    |
| Grey fox                  | <i>Urocyon cinereoargenteus</i> |
| <b>Reptiles</b>           |                                 |
| Western fence lizard      | <i>Sceloporus occidentalis</i>  |
| Texas spiny lizard        | <i>Sceloporus olivaceus</i>     |

The juniper and oak forest, scrubland, and savannah habitats present likely would support additional species adapted to these areas, including wild hogs, bobcats, snakes, crows, wild turkeys, and hawks. Although there are several ephemeral streams near the project area, there are no surface waters or wetlands within the project area; therefore, aquatic wildlife species would not be expected.

The Discovery Well Cave Preserve, Buttercup Creek Cave Preserve, Rattling Horn Park, and Ranch Trails Park provide habitat for a number of migratory bird species, which are protected by

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the Migratory Bird Treaty Act. The Migratory Bird Treaty Act protects birds that migrate across international borders and prohibits take of migratory bird species.

The RIFA is native to South America and has become a pest in the southern U.S. RIFA successfully competes against other ants and outcompetes species that karst invertebrates rely on for food. The significance of listed karst species, and the impact RIFA colonies may have on them, is explained in **Section 4.4.3**.

### **No Action Alternative**

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

### **Proposed Action**

The birds and mammals observed within the project area and other species expected to be in the project area are species commonly found within and at the edges of forested areas and are well adapted to habitats that are influenced by human activities. Potential impacts would likely be temporary and have little effect on local populations.

The following mitigation measures will be required to reduce potential impacts on migratory birds and to avoid destruction of individuals, nests, or eggs. The City of Cedar Park will conduct hazardous fuels reduction work only during the non-breeding season. Work is allowed from September 1 through February 28. Work cannot be conducted from March 1 through August 31. This restriction is primarily imposed to protect federally listed bird species, but will also serve to protect migratory birds.

In addition, the City of Cedar Park will retain larger diameter (6 inches or greater in diameter) dead trees as snags whenever practical, at an average rate of 1 to 3 per acre while still achieving fuels reduction. Snags provide sheltering, nesting, roosting, and feeding habitat for cavity nesting and migratory bird species.

Significant adverse impacts from the proposed action on common wildlife species are not expected.

### **4.4.3 Threatened and Endangered Species and Critical Habitat**

The Endangered Species Act of 1973 gives USFWS 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). TPWD code prohibits take of state-listed threatened and endangered species.

The proposed project area is entirely located within Williamson County, Texas; although a small portion of one of the four parks is in Travis County. Species listed in Travis County that are not also found in Williamson County have very restricted ranges and would not be expected to be found in or near the project area even though it is close to the county boundary. Therefore, the species included in the list below only include species potentially found in Williamson County

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and do not include any species unique to Travis County. Six species federally listed as endangered, and four species federally listed as threatened are known to occur in Williamson County (as noted previously there are no federally listed plant species in Williamson County). Additionally, one delisted species, the bald eagle, is known to occur in Williamson County. Seven additional species are state listed as threatened in Williamson County by TPWD. All federally listed species potentially found in Williamson County and in the portion of the project area in Travis County are shown in **Table 4.5**, and the state-listed species are shown in **Table 4.6** (USFWS 2014b, TPWD 2014).

**Table 4.5. Federally Listed Species for Williamson County, Texas**

| Common Name                   | Scientific Name                 | Federal Status |
|-------------------------------|---------------------------------|----------------|
| <b>Amphibians</b>             |                                 |                |
| Georgetown salamander         | <i>Eurycea naufragia</i>        | Threatened     |
| Jollyville Plateau salamander | <i>Eurycea tonkawae</i>         | Threatened     |
| Salado salamander             | <i>Eurycea chisholmensis</i>    | Threatened     |
| <b>Arachnids</b>              |                                 |                |
| Bone Cave harvestman          | <i>Texella reyesi</i>           | Endangered     |
| <b>Birds</b>                  |                                 |                |
| Whooping crane                | <i>Grus americana</i>           | Endangered     |
| Bald eagle                    | <i>Haliaeetus leucocephalus</i> | Delisted       |
| Golden-cheeked warbler        | <i>Setophaga chrysoparia</i>    | Endangered     |
| Black-capped vireo            | <i>Vireo atricapilla</i>        | Endangered     |
| Piping plover                 | <i>Charadrius melodus</i>       | Threatened     |
| <b>Insects</b>                |                                 |                |
| Coffin Cave mold beetle       | <i>Batrissodes texanus</i>      | Endangered     |
| Tooth Cave ground beetle      | <i>Rhadine persephone</i>       | Endangered     |

**Table 4.6. State-Listed Species for Williamson County, Texas**

| Common Name                  | Scientific Name              | State Status |
|------------------------------|------------------------------|--------------|
| <b>Mollusks</b>              |                              |              |
| Smooth pimpleback            | <i>Quadrula houstonensis</i> | Threatened   |
| False spike mussel           | <i>Quadrula mitchelli</i>    | Threatened   |
| Texas fawnsfoot              | <i>Truncilla macrodon</i>    | Threatened   |
| <b>Reptiles</b>              |                              |              |
| Timber/canebrake rattlesnake | <i>Crotalus horridus</i>     | Threatened   |
| Texas horned lizard          | <i>Phrynosoma cornutum</i>   | Threatened   |
| <b>Birds</b>                 |                              |              |

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| Common Name               | Scientific Name                 | State Status |
|---------------------------|---------------------------------|--------------|
| Peregrine falcon          | <i>Falco peregrinus</i>         | Threatened   |
| American peregrine falcon | <i>Falco peregrinus anatum</i>  | Threatened   |
| Whooping crane            | <i>Grus Americana</i>           | Endangered   |
| Bald eagle                | <i>Haliaeetus leucocephalus</i> | Threatened   |
| Golden-cheeked warbler    | <i>Setophaga chrysoparia</i>    | Endangered   |
| Black-capped vireo        | <i>Vireo atricapilla</i>        | Endangered   |

A field survey was conducted from September 30 through October 2, 2013 to characterize the wildlife community and habitat types within the project area. The project survey area included both the project area and 50 feet adjacent to the project area boundary on the park side (*i.e.* the surveyed area did not extend into residential yards) to determine whether any karst or cave features were present. 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 B**).

There is no suitable habitat present within or near the project area for the federally listed Georgetown salamander, Salado salamander, Piping plover, or Whooping crane. There is no suitable habitat present for the state-listed smooth pimpleback, false spike mussel, or Texas fawnfoot. Therefore, there would be no impact on these species. Although critical habitat has been designated for the Whooping crane, there is no designated critical habitat within either Williamson County or the City of Cedar Park for this species.

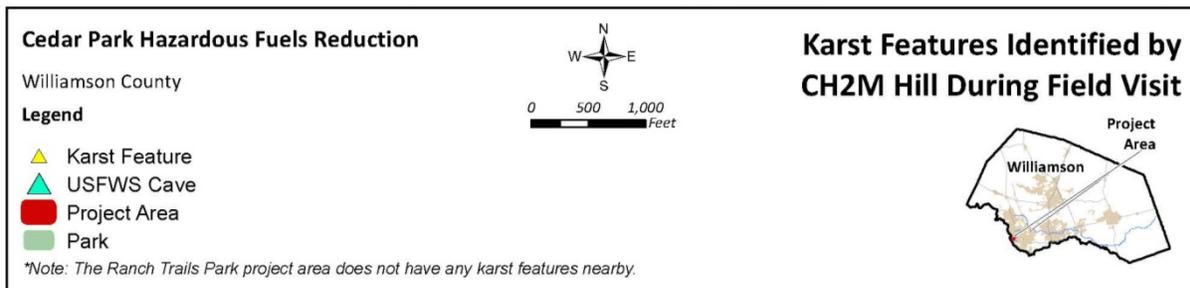
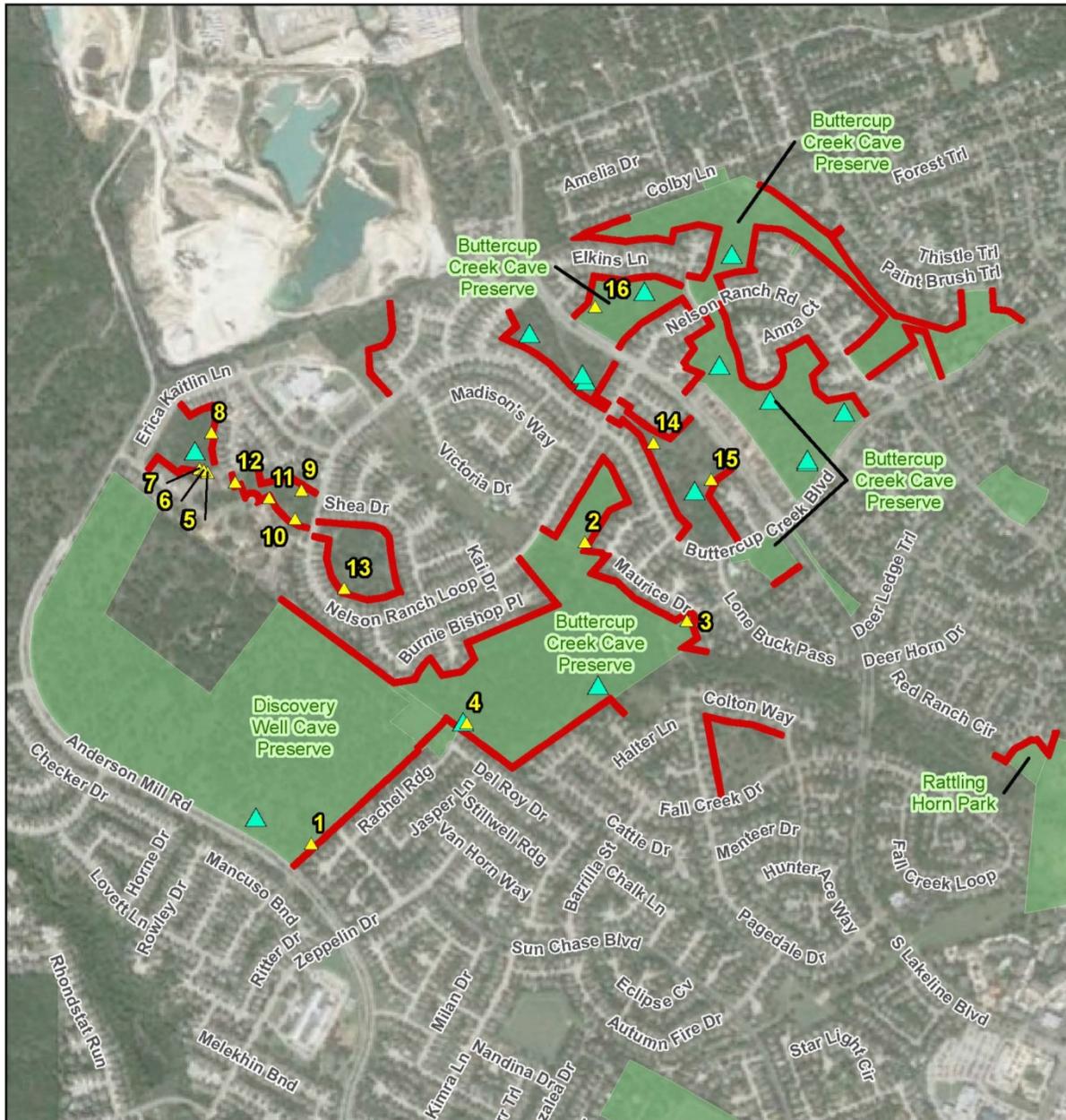
Of the remaining six federally listed species in Williamson County, four require cave habitats, including Bone Cave harvestman, Coffin Cave mold beetle, Tooth Cave ground beetle, and Jollyville plateau salamander. Six previously mapped and named cave or karst features as well as 10 potential karst or cave features were identified within the surveyed area. These karst and cave features may contain listed karst fauna. Per the USFWS protocol, biologists did not enter, excavate, or investigate the interior of the karst or cave features identified during the field survey (WCCF 2008). Threatened or endangered karst fauna is known to inhabit some of the previously named and mapped karst or cave features in the project survey area; therefore, it is assumed for the analysis in this EA that listed karst fauna may be present in the 10 additional potential karst or cave features identified during the field survey.

The Williamson County Regional Habitat Conservation Plan (WCRHCP) is an incidental take permit held by Williamson County. Projects within the city limits of Cedar Park are not covered by this permit; however, the species and habitat analyses presented in the plan are incorporated into the project-specific analysis below.

### Karst Species

There are six previously mapped caves and 10 potential karst or cave features within 50 feet of the project area (**Figure 4.11**). Some of these caves are known to support cave fauna, and the rest are assumed to have the potential to support cave fauna. The proposed action is located in the Cedar Park Karst Fauna Region (KFR) (WCCF 2008).

# Affected Environment, Potential Impacts, and Mitigation



Data Sources: CH2MHill; CDM Smith  
Service Layer Credits: Google Earth

**Figure 4.11. Karst and Cave Features Within 50 Feet of Project Area**

## Affected Environment, Potential Impacts, and Mitigation

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Caves host both troglobites, which are obligate cave-dwelling organisms, and troglaxens, which are species that live partly in caves and partly outside of caves. Troglobites have developed adaptations for living in caves, including loss of pigment, loss of sclerotization (hardening of exoskeletons), reduction or loss of eyes, elongation of appendages, lengthened life span, modified fecundity, and metabolic adaptation to nutrient-poor habitat conditions. Karst fauna are vulnerable to the impacts of development due to their dependency on the specific environmental conditions present in caves. Natural processes of erosion gradually remove caves, and surface nutrients are carried by troglaxens into caves and alter the nutrient balance. Human activities may also affect cave environments by altering erosional patterns or surface nutrient availability (USFWS 1994).

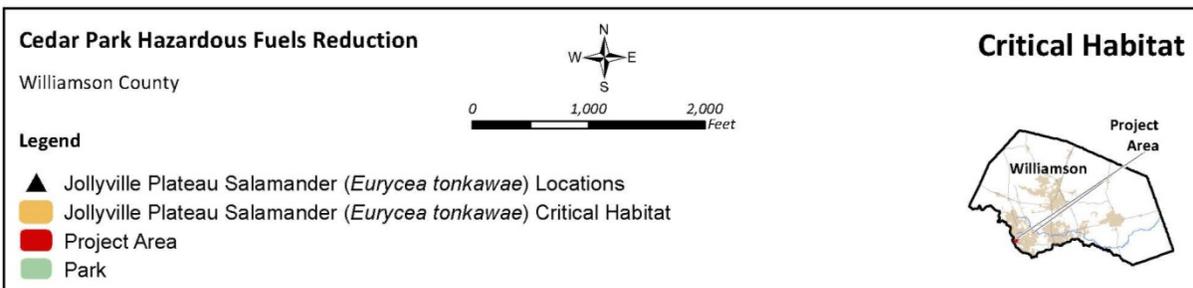
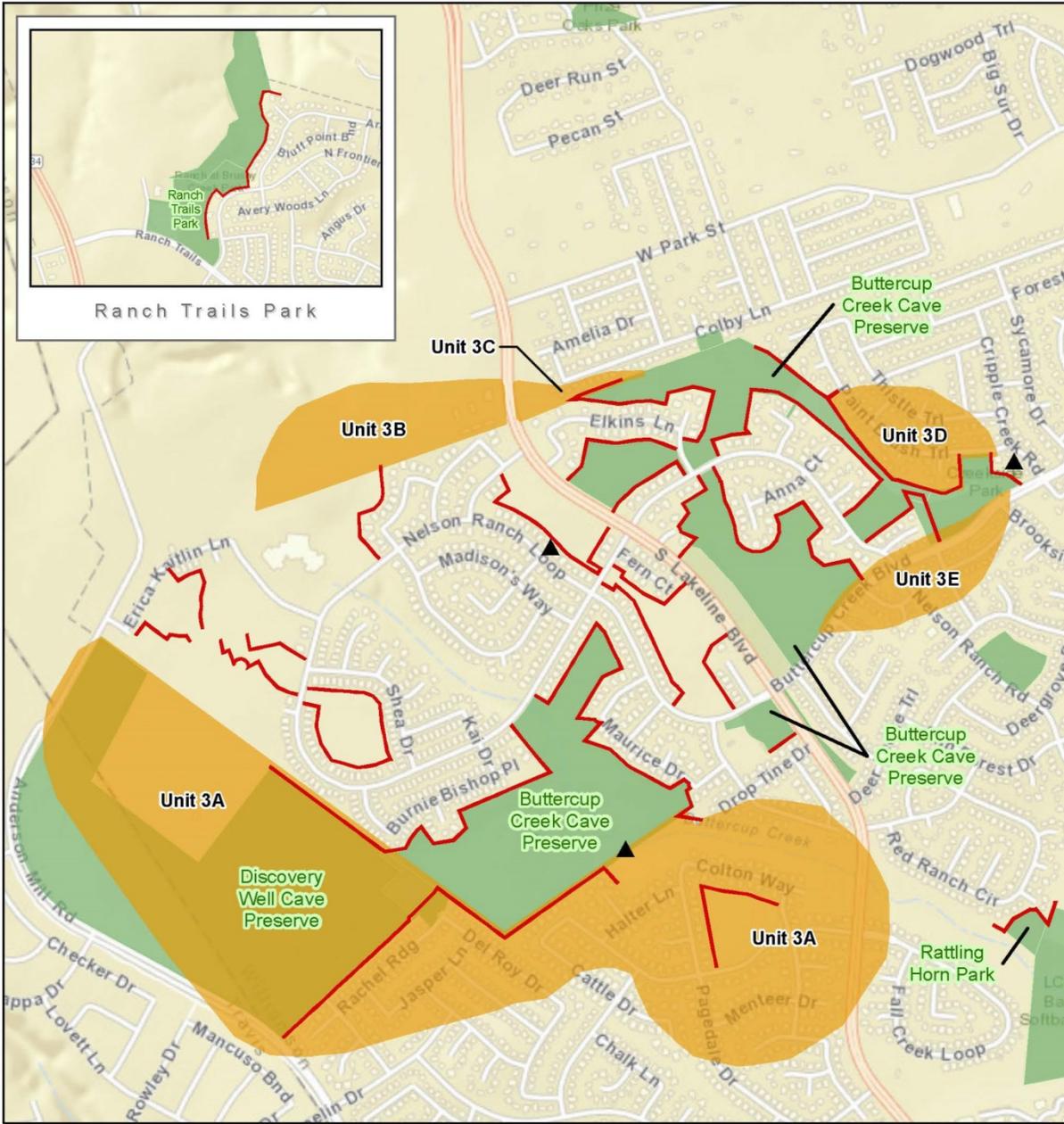
### *Jollyville Plateau Salamander*

The Jollyville Plateau salamander is a species that remains in water throughout its life cycle and does not transform into a terrestrial form. It inhabits springs, spring-runs, and wet cave aquatic habitats. They are found only in the Jollyville Plateau and Brushy Creek areas of the Edwards Plateau in Travis and Williamson counties. Designated critical habitat for the species includes spring outlets and outflow up to the high water line on surface waters and 262 feet of upstream and downstream habitat but does not include manmade structures. Subsurface critical habitat includes underground features within 984 feet of suitable cave habitat. Activities that could affect groundwater and surface water quality or quantity or that could affect spring habitats could adversely affect critical salamander habitat.

Designated critical habitat in and near the project area includes the Buttercup Creek Subsurface Unit 3. This unit is associated with Discovery Well Cave Preserve and Buttercup Creek Cave Preserve. Critical Habitat Unit 3 is approximately 323 acres and is owned by the City of Cedar Park and private landowners (**Figure 4.12**). Unit 3 is subdivided into five subunits. Subunit 3A is the largest, consisting of 260 acres, and it is located in the City of Cedar Park and on private land. Caves in the unit are occupied by Jollyville Plateau salamander, and the critical habitat includes the caves and a 984 foot radius around the cave openings. These caves are currently gated and locked (USFWS 2013a). Subunit 3B is located on 28 acres of private land. While there is no cave opening in this subunit, it includes an area that encompasses a nearby cave opening. Subunit 3C is located on private land and is approximately 3 acres, with no cave opening. Subunit 3D is located on residential private land and is approximately 16 acres, with no cave opening. Subunit 3E is 17 acres and is also located on private land. There are no cave openings in the subunit (USFWS 2013a).

Activities that could adversely modify critical habitat of the Jollyville Plateau salamander may include: (1) physically disturbing spring or subsurface habitats, (2) increasing concentrations of sediment or contaminants in surface or subsurface habitats, and (3) depletion of the aquifer to an extent that decreases or stops the flow of occupied springs or the reduction in quantity of subterranean habitat used by the salamander (USFWS 2013a).

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Data Sources: Williamson County Regional Habitat Conservation Plan (2008), USFWS (2013), CDM Smith  
Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand),

**Figure 4.12. Designated Critical Habitat for Jollyville Plateau Salamander**

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### *Bone Cave Harvestman*

The Bone Cave harvestman is restricted to Travis and Williamson Counties and is a troglobitic species. They are found in deep cave environments. There are existing Karst Conservation Areas designated for the bone cave harvestman in the Buttercup Creek and Discovery Well preserves. Because this species does not leave the deep cave environment it is dependent in part on energy inputs from species that do move in and out of the cave environment such as cave crickets (Taylor et al. 2005). USFWS has designated foraging buffers of 345 feet around cave openings for karst species (USFWS 2012). This buffer is based on research where cave crickets were found at a maximum distance of 105 m (345 feet) from cave openings (Taylor et al. 2005). The surface foraging area of the cave crickets is part of the habitat requirements for the cave obligate species.

However, the WCRHCP does not show Bone Cave harvestman to have been observed at locations near any of the action areas. The plan does show that Ranch at Brushy Creek Park is within Bone Cave harvestman potential habitat (WCCF 2008).

### *Coffin Cave Mold Beetle*

The Coffin Cave mold beetle is a troglobitic species that lives in subterranean habitats. The species requires small Edwards Limestone caves (TPWD 2014). Although there are caves within and near the project area, the species is not known to occur in the Cedar Park KFR or in the proposed action area (WCCF 2008). Therefore, there would be no effect on Coffin Cave mold beetle.

### *Tooth Cave Ground Beetle*

The Tooth Cave ground beetle has been observed in caves located in the Cedar Park KFR and is known to occur in the vicinity of the proposed action (WCCF 2008). Similar to the Bone Cave harvestman, the Tooth Cave ground beetle is also a cave obligate species and requires energy inputs into the cave environment from species such as cave crickets that forage in surface habitats within 345 feet of cave openings. Therefore, the surface area around the cave openings is considered to be part of the habitat requirements for this species (USFWS 2012).

## **Birds**

### *Black-Capped Vireo*

The Black-capped vireo requires oak-juniper woodlands with a two-layer shrub and tree structure. Woody foliage reaching the ground is used for nesting cover and deciduous or broad-leaved shrubs provide insects for successful foraging. They require some open grassy areas and a canopy that is too closed may not allow for the development of the patchy, low shrub cover that provides suitable nesting habitat. Good nesting habitat generally has between 30 to 60 percent shrub canopy. Nesting occurs between March and late summer. Potential nesting and foraging habitat exists within the Juniper-Oak Woodland habitat, and potential foraging habitat is present in the Juniper Scrubland habitat. Habitat quality may be reduced in the Juniper-Oak Woodland habitat due to a sparse shrub layer and reduced foraging opportunities. There were no observations of Black-capped vireo within the project survey area during the field surveys. The

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Black-capped vireo is not known to occur in the City of Cedar Park. There is no designated critical habitat for the Black-capped vireo (USFWS 2014b).

### *Golden-cheeked Warbler*

The Golden-cheeked warbler requires juniper-oak woodland habitat, with mature Ashe junipers, in particular, for the long fine bark from mature trees for nesting material. Mature junipers are trees that are at least 15 feet high and about 5 inches in diameter at 4 feet above the ground. Preferred habitat generally has a canopy closure of 50 to 100 percent. Nests may be constructed in trees other than the Ashe juniper. Broad-leaved trees and shrubs are required to provide insects for foraging. Similar to the Black-capped vireo, nesting occurs between March and early summer. The Juniper-Oak Woodland, Juniper Woodland, and Juniper Scrubland habitat would all provide potential nesting and foraging habitat. Mature juniper trees with sloughing bark that may provide nesting material were present throughout the project survey area. The existing tree age and height meets the Golden-cheeked warbler requirements for nesting and foraging habitat. The Golden-cheeked warbler has been observed in the vicinity of the proposed action. There is no designated critical habitat for the Golden-cheeked warbler.

### *Bald Eagle*

The Bald eagle has been delisted by the USFWS; however, this species is protected by the Bald and Golden Eagle Protection Act and may occur in Williamson County. No potential nesting or foraging for Bald eagle was identified during the field survey of the project area. Bald eagles nest from October through July; therefore, the nesting season is difficult to avoid. Since Bald eagle nests are large and readily identifiable, trees containing nests can be avoided easily.

### **State Listed Species**

The Peregrine falcon, timber/canebrake rattlesnake, and Texas horned lizard, which are state-listed threatened species, have the potential to occur within the project area since suitable habitat is present. However, none of these species was observed during the site visit. Consultation with TPWD concerning state-listed species would be the responsibility of the sub-applicant.

### **No Action Alternative**

In the absence of a major wildfire, the no action alternative would have no effect on federally threatened or endangered species because existing conditions would continue unchanged. However, a major wildfire would be more likely to spread under the no action alternative and would damage existing karst species habitats and habitat for Black-capped vireo and Golden-cheeked warbler as well as habitats that may support state-listed species.

### **Proposed Action**

The proposed action includes a variety of vegetation modification activities that may occur within habitat for listed species or near karst or cave habitats, which may directly alter habitats through brush clearing or tree removal or indirectly through changes in the surface habitats near karst or cave features. On January 20, 2015, the USFWS issued a Biological Opinion (BO) on the proposed action which outlines terms and conditions to minimize adverse effects to federally protected species, discussed in more detail below. The BO is included in Appendix C. The

## **Affected Environment, Potential Impacts, and Mitigation**

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consultation was initiated with the submission of a Biological Assessment (BA). The key findings of the BA have been described in this section, but a copy of the BA would also be available upon request.

Where temporary or permanent adverse effects occur, a post-activity report will be forwarded to the Field Supervisor at the USFWS Austin Ecological Services Field Office within 60 calendar days of the completion of such activities. This report must detail the dates activities occurred, pertinent information concerning the success in implementing the measures, an explanation of failure to meet such measures, known project effects on species listed, and occurrences of incidental take of listed species.

### *Karst Species:*

The Jollyville Plateau salamander likely occurs within the action area. Activities that could affect the salamander would be actions that could (1) physically disturb spring or subsurface habitats, (2) increase concentrations of sediment or contaminants in surface or subsurface habitats, or (3) deplete the aquifer to an extent that it decreases or stops the flow of occupied springs or reduces the quantity of subterranean habitat used by the salamander (USFWS 2013a). In addition, maintaining suitable foraging habitat for cave crickets within 345 feet of caves and karst features may be important to supply energy inputs into the cave environments.

The Bone Cave harvestman and the Tooth Cave ground beetle have similar requirements to the salamander. Activities that would physically disturb the cave environment, result in sedimentation, alter the hydrology or water quality of the cave environment, or affect the ability of cave crickets to forage within 345 feet of a cave opening would all adversely affect the listed species.

The proposed work would not remove stumps of cut trees, which would avoid a potential major source of ground disturbance. Operation of heavy equipment for 6 to 8 weeks during implementation of the proposed action could disturb ground surfaces, which would increase erosion potential during heavy rains. The proposed work could cause temporary minor adverse impacts to nearby surface waters from potential erosion and sedimentation. The following measures would prevent adverse effects related to ground disturbance:

- The work would not be conducted in creeks and would be set back from surface waters, which would avoid potential impacts to surface waters.
- City of Cedar Park will ensure that BMPs are implemented to prevent erosion and sedimentation to nearby or adjacent waters including Buttercup Creek. This includes keeping equipment storage and staging more than 500 feet from occupied caves to minimize erosion and sedimentation.
- Mulch created from cut vegetation would be used for temporary erosion control to prevent soil or sediment from reaching waterways. Appropriate barriers (such as adequate setbacks or a silt fence) would be used to prevent mulch from washing into the creeks or cave openings. No mulch would be placed within 345 feet of occupied cave openings.

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- Mechanized equipment would not be used within 100 feet of cave openings; although a rubber tired trailer may be used for hauling out cleared vegetation.

There would be no physical disturbance of subterranean habitats. The proposed work would not alter drainage patterns, which would avoid any disturbance of springs or existing conditions that may direct moisture to cave environments. The proposed action also would not significantly alter the canopy cover, which would preserve the existing condition with respect to evapotranspiration from the vegetation and the soils. Therefore, existing temperature and humidity regimes around karst features would not be altered.

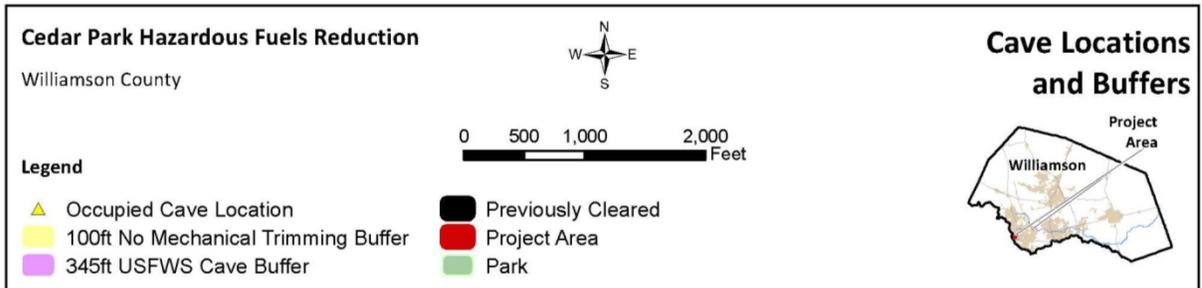
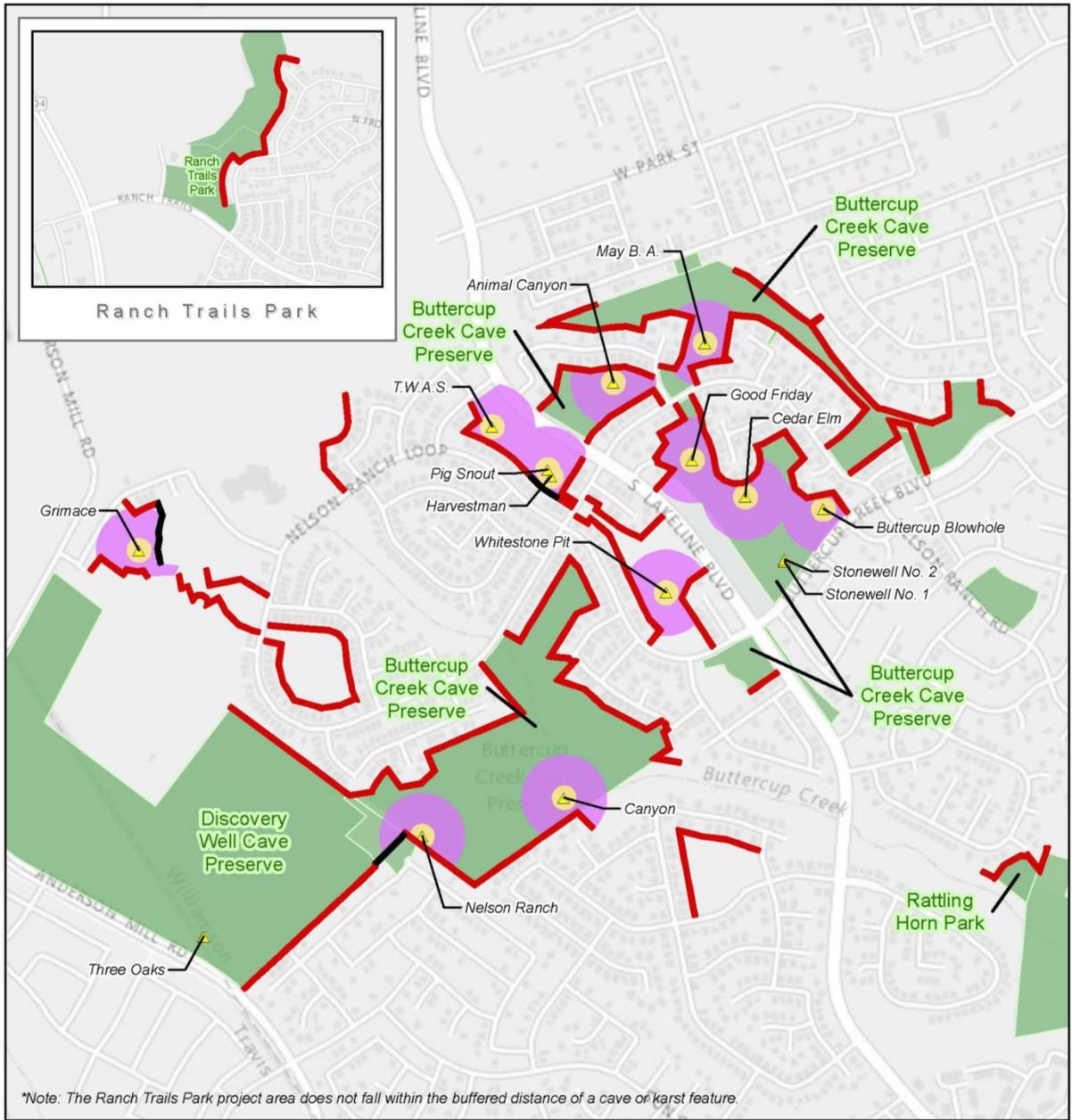
TCEQ regulates activities within the Edwards Aquifer recharge, contributing, and transition zones via 30 TAC Chapter 213. According to 30 TAC 213, clearing vegetation without disturbing the soil is not an activity that is regulated under the Edwards Aquifer rules. The proposed action would not disturb the soil nor would it clear all of the vegetation from the project area; therefore, there would be no effect on the aquifer or groundwater quality. The proposed action would not directly affect surface waters or alter stream flows. The proposed action would not contribute fecal bacteria, other organics, or legacy pollutants to Buttercup Creek or any other surface waters. No herbicides would be used during any phase of the proposed action.

Therefore, the proposed action would not adversely affect karst species because it would not physically disturb spring or subsurface habitats, increase concentrations of sediment or contaminants in surface or subsurface habitats, or deplete the aquifer to an extent that it decreases or stops the flow of occupied springs or reduces the quantity of subterranean habitat.

There are several cave or karst features within 345 feet of the proposed work zone (**Figure 4.13**) where brush would be cleared and some trees removed. The vegetation within 345 feet of an occupied cave entrance may be used by foraging cave crickets, a main source of nutrient inputs into cave ecosystems (USFWS 2012). The WCRHCP notes that caves containing listed invertebrates are known to occur in a wide variety of landscapes and that the simple presence of a surface vegetation community is sufficient to provide the needed nutrient inputs to a cave system (WCCF 2008). That is, the surface vegetation community type and condition are not predictors of the presence or absence of listed species in subterranean habitats. Even landscape vegetation associated with residential yards may be sufficient to support cave cricket foraging (WCCF 2008).

The proposed action would maintain natural vegetation within the project area and would help to reduce the hazards associated with a major wildfire, including the potential loss of all surface vegetation. Because the proposed action would maintain natural vegetative cover on the surface, the ability of cave crickets to continue to forage in their usual manner should not be affected. Treated areas mowed during maintenance efforts must be mowed to a height of 6 inches or higher.

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Data Sources: Williamson County Regional Habitat Conservation Plan (2008), CDM Smith  
 Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

**Figure 4.13. Occupied Caves and Buffers**

## Affected Environment, Potential Impacts, and Mitigation

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The proposed action has the potential to create conditions that might be more favorable for the invasive RIFA to come into areas near caves and adversely impact karst species. In order to avoid adverse impacts to karst species, mitigation measures will be implemented within two buffer zones around occupied cave openings. The occupied cave openings and buffer zones are depicted on **Figure 4.13**.

Within 100 feet of occupied cave openings the City will hand cut vegetation and remove the vegetation with rubber-tracked equipment to minimize ground disturbance. Within 345 feet of occupied cave openings the City will re-seed treated areas with native grasses, and implement boiling water treatments on RIFA colonies following the first rain of the first spring after project implementation. Boiling water treatments are most effective during early to mid-morning when the queen(s) and larvae are likely to be near the top of the mound. Mounds should not be disturbed before treatment as this causes the ants to move the queen(s) and larvae to deeper locations within the mound or to a remote location.

As part of the maintenance program, the City will conduct RIFA eradication efforts twice annually, during the spring and fall within treated areas that fall within 345 feet of occupied cave openings. This should include a regimen of two or more treatments per month. If some time has passed since the initial RIFA invasion, then control regimens can be decreased to one or fewer times per month provided RIFA mounds have decreased. Once RIFA levels are below the thresholds outlined in *Karst Preserve Management and Monitoring Recommendations* (USFWS 2014d), RIFA control can occur twice annually.

These mitigation measures would all serve to minimize adverse effects on cave cricket foraging and on karst species. The proposed action would be “not likely to adversely affect” the Jollyville Plateau salamander because it would not affect the primary constituent elements of the salamander habitat. The proposed action would also be “not likely to adversely affect” the Bone Cave harvestman because it does not occur near known harvestman habitat. However, the Tooth Cave ground beetle is known to occur near the proposed project area; therefore, the proposed action may adversely affect the Tooth Cave ground beetle.

### *Critical Habitat for Jollyville Plateau Salamander:*

Vegetation modification is proposed in the Buttercup Creek Subsurface Critical Habitat Units 3A, 3C, 3D, and 3E, associated within Discovery Well Cave Preserve, Buttercup Creek Cave Preserve, and areas to the northeast of Buttercup Creek Cave Preserve. The proposed action would not adversely modify designated critical habitat for the Jollyville Plateau salamander because it would not (1) physically disturb spring or subsurface habitats, (2) increase concentrations of sediment or contaminants in surface or subsurface habitats, nor (3) deplete the aquifer to an extent that the flow of occupied springs or subterranean habitat would be reduced. Therefore, there would be no effect on designated critical habitat for the Jollyville Plateau salamander.

### *Birds:*

Habitat for both the Black-capped vireo and Golden-cheeked warbler exists within the project area although the existing habitat quality for Black-capped vireo is poor, and the species is not known to occur in the city. Vegetation management activities would be conducted between

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September 1 and February 28 to avoid any impacts to nesting birds. Direct effects to individual Golden-cheeked warblers or Black-capped vireos are not anticipated because the proposed action would take place outside of breeding and nesting season. These species migrate south to Mexico in July and August. The warblers return to Texas in late February, with most arriving in mid-March (USFWS 2013b) and the vireos arrive in mid-March to mid-April (USFWS 2007).

In addition to the poor quality of the available habitat for Black-capped vireos, the species is not known to occur in the vicinity of the project area. Known locations are over 10 miles away and the nearest mapped habitat is over 2 miles away from the closest portions of the proposed project (WCCP 2008). The proposed action is “not likely to adversely affect” the Black-capped vireo due to 1) the poor quality and limited amount of preferred habitat, 2) the timing of the work, which would occur when the birds are not present, and 3) the vireo is not known to occur in the project area.

The hazardous fuels reduction activities would be located within the first 25 feet of the boundary of each park or greenbelt and within 150 feet of existing structures. However, the proposed action is not entirely consistent with the BMPs for treating vegetation that may pose a hazardous wildfire threat and which may also be associated with the Golden-cheeked warbler (USFWS 2013b). The proposed action may include limbing of branches higher than the recommended 4 to 8 feet above the ground and the removal of some trees larger than 8 inches in diameter.

Most of the proposed action area is within fragmented habitat patches surrounded by residential development that would not provide high quality potential habitat. However, proposed work along the edges of the Discovery Well Cave and Buttercup Creek Cave preserves, which provide larger blocks of habitat, could affect suitable Golden-cheeked warbler habitat. While vegetation management activities can benefit the Golden-cheeked warbler if they are conducted in an appropriate manner, the proposed action may adversely affect the warbler primarily due to the proposed height of the limbing and the potential size of trees that may be removed.

The proposed action could also result in a beneficial effect on Golden-cheeked warbler habitat. The proposed action would result in a reduction in the quantity of hazardous vegetative fuels in the vicinity of the City of Cedar Park and would limit the potential for movement of a wildfire between residential areas and the identified habitats. The proposed project would diminish the chance of a fire transitioning into a crown fire or sustaining as a crown fire. Reduction of wildfire threat to Golden-cheeked warbler habitat would provide an overall and long-term benefit to the species in and near the project area.

The proposed action is “likely to adversely affect” the Golden-cheeked warbler due to inconsistencies with BMPs for vegetation management in potential warbler habitat.

The wildlife and habitat surveys did not identify any potential Bald eagle nesting habitat within the project 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 USFWS before work begins.

### 4.5 Cultural Resources

This section provides an overview of the affected area and potential environmental effects of the no action and proposed action alternatives on cultural resources, including historic structures and archeological resources.

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, 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 take into account 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 archaeological 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 in the NEPA process to determine impacts on cultural resources.

To assess the potential for intact, significant cultural resources within the APE of the proposed action, an archival review of the proposed undertaking was conducted. The APE for the proposed project is approximately 24.2 acres of forested land. No structures are in the project area; however, 450 structures, mostly single family homes, are located around the perimeter of the work area. **Figure 4.14** below shows Texas Historical Commission (THC) maps for the project area (THC 2011).

Coordination with the SHPO, which is housed at the THC, was initiated via letter on July 24, 2012. On August 15, 2012, the SHPO concluded that the project was in an area of low probability for impacting archeological resources and that the project could proceed as planned without further consultation. See **Appendix C** for copies of the SHPO correspondence letters.

# Affected Environment, Potential Impacts, and Mitigation



**Cedar Park Hazardous Fuels Reduction**  
Williamson County

**Legend**

- Project Area
- Area Surveyed for Cultural Resources
- Park

**Cultural Resources**

Data Sources: THC, SHPO, CDM Smith  
Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand),

**Figure 4.14. Cultural Resources Surveys Near the Project Area**

### 4.5.1 Historic Architectural Properties

Archival research conducted via the THC Texas Sites Atlas (Atlas) indicates that no previously recorded sites are in the APE; however, one previously recorded site (41WM705) is within the immediate vicinity of the proposed project area but is outside of the APE. According to the Atlas, Williamson County has 1,200 registered historic sites (historic county courthouses, national register properties, state archeological landmarks, historical markers, cemeteries, museums, and military sites); however, no historic sites are within 500 feet of the proposed project area.

### 4.5.2 Archaeological Sites

Archival research conducted via the THC's Atlas indicated that Discovery Well Cave Preserve, Buttercup Creek Cave Preserve, and Ranch Trails Park have no previously recorded archaeological sites identified within or in the immediate vicinity of the proposed project area. For Rattling Horn Park, a site (41WM705) was identified in the immediate vicinity of the proposed project area but is located outside the APE.

### 4.5.3 Native American Cultural/Religious Sites

No federally recognized Indian tribes or traditional cultural properties are on or near the proposed project site. The Alabama and Couthatta Tribes in Livingston, Texas are the closest of the three federally recognized Indian tribes in Texas (National Conference of State Legislatures 2014). Livingston, Texas is approximately 205 miles from the City of Cedar Park, Texas.

### No Action Alternative

Under the no action alternative, no hazardous fuel reduction measures would occur; therefore, this alternative would result in no effect on cultural resources, including archeological sites and historic properties.

### Proposed Action

Based on archival research and correspondence with the SHPO, FEMA has determined that no historic properties would be affected by the proposed action. In the event that archeological deposits, including any Native American property, stone tools, bones, or human remains, are uncovered, all work in the vicinity of the discovery must be halted immediately, and all reasonable measures must be taken to avoid or minimize harm to the finds. All archeological findings will be secured, and access to the sensitive area will be restricted by the City of Cedar Park. The City of Cedar Park will inform FEMA immediately of such findings, and FEMA will consult with the SHPO. Work in sensitive areas shall not resume until consultation is completed and until FEMA determines that the appropriate measures have been taken to ensure complete project compliance with the NHPA and its implementing regulations.

## 4.6 Socioeconomics

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.

This environmental justice analysis is focused at the local (*i.e.*, census tract and city) level. 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 this project, the analysis includes census tract 17.65 in Travis County; tract 203.26 in Williamson County, which includes Discovery Well and Buttercup Creek Cave Preserves; tract 203.22 in Williamson County, inclusive of Rattling Horn Park; and tract 203.15 in Williamson County, which includes Ranch Trails Park. **Table 4.7** and **Table 4.8** provide economic and demographic characteristics for census tracts 203.26, 203.22, 203.15, and 17.65 (U.S. Census Bureau 2011). Information for Williamson County, Travis County, and the City of Cedar Park are presented for comparison.

### 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 (two adults and two children) in 2012 was \$23,681 and \$11,945 for an individual (U.S. Census Bureau 2013a). 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. This analysis also considered whether the project area's median household and per capita incomes are substantially lower than the city's average.

As shown in **Table 4.7**, census tract 17.65 has median household and family incomes higher than Travis County and the City of Cedar Park as well as a poverty level (5.8 percent) well below the Travis County average (16.6 percent) and lower than the City of Cedar Park average (6.0 percent). Census tracts 203.26 and 203.15 have median household and family incomes higher than the Williamson County and City of Cedar Park averages while median household and family incomes in census tract 203.22 are lower than the Williamson County and City of Cedar Park averages. The poverty rates for census tracts 203.26 and 203.15 are significantly lower than the Williamson County and City of Cedar Park averages. Census tract 203.22 has a poverty rate that is slightly higher than both the Williamson County and City of Cedar Park averages. Based on the income criteria above, these census tracts are not considered low-income populations.

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**Table 4.7. Income**

| Parameter                                    | Williamson County CT 203.26 | Williamson County CT 203.22 | Williamson County CT 203.15 | Travis County CT 17.65 | Williamson County | Travis County | City of Cedar Park |
|--|-----------------------------|-----------------------------|-----------------------------|------------------------|-------------------|---------------|--------------------|
| Percentage of population below poverty level | 2.2%                        | 7.2%                        | 1.1%                        | 5.8%                   | 6.3%              | 16.6%         | 6.0%               |
| Median household income                      | \$97,140                    | \$67,576                    | \$124,429                   | \$97,560               | \$71,346          | \$55,452      | \$74,030           |
| Median family income                         | \$100,435                   | \$71,488                    | \$138,750                   | \$120,742              | \$81,208          | \$72,108      | \$84,984           |

Note: CT = census tract

**Table 4.8. Minority Populations**

| Ethnic Composition                             | Williamson County CT 203.26 |              | Williamson County CT 203.22 |              | Williamson County CT 203.15 |              | Travis County CT 17.65 |              | Williamson County |              | Travis County    |              | City of Cedar Park |              |
|--|-----------------------------|--------------|-----------------------------|--------------|-----------------------------|--------------|------------------------|--------------|-------------------|--------------|------------------|--------------|--------------------|--------------|
|  | Count                       | %            | Count                       | %            | Count                       | %            | Count                  | %            | Count             | %            | Count            | %            | Count              | %            |
| White  | 4,688                       | 77.2%        | 6,226                       | 74.3%        | 2,160                       | 63.0%        | 10,991                 | 77.3%        | 262,981           | 64.2%        | 699,233          | 69.4%        | 35,990             | 76.6%        |
| Black or African American                      | 110                         | 1.8%         | 412                         | 4.9%         | 403                         | 11.8%        | 273                    | 1.9%         | 24,595            | 6.0%         | 85,468           | 8.5%         | 3,419              | 7.3%         |
| Asian  | 354                         | 5.8%         | 279                         | 3.3%         | 471                         | 13.7%        | 852                    | 6.0%         | 19,212            | 4.7%         | 58,806           | 5.8%         | 2,518              | 5.4%         |
| American Indian                                | 0                           | 0.0%         | 54                          | 0.6%         | 10                          | 0.3%         | 0                      | 0%           | 1,112             | 0.3%         | 5,633            | 0.6%         | 137                | 0.3%         |
| Native Hawaiian                                | 0                           | 0.0%         | 0                           | 0.0%         | 0                           | 0.0%         | 0                      | 0.0%         | 53                | 0.0%         | 770              | 0.1%         | 25                 | 0.1%         |
| Some Other Race/Multi-Ethnic                   | 0                           | 0.0%         | 0                           | 0.0%         | 0                           | 0.0%         | 36                     | 0.3%         | 894               | 0.2%         | 158,124          | 15.7%        | 3,412              | 7.3%         |
| <b>Total Population</b>                        | <b>6,070</b>                | <b>--</b>    | <b>8,383</b>                | <b>--</b>    | <b>3,427</b>                | <b>--</b>    | <b>14,221</b>          | <b>--</b>    | <b>409,913</b>    | <b>--</b>    | <b>1,007,264</b> | <b>--</b>    | <b>46,981</b>      | <b>--</b>    |
| Hispanic or Latino <sup>1</sup>                | 847                         | 14.0%        | 1,229                       | 14.7%        | 383                         | 11.2%        | 1,982                  | 13.9%        | 93,711            | 22.9%        | 334,240          | 33.2%        | 8,221              | 17.5%        |
| <b>Total Minority Population<sup>2,3</sup></b> | <b>1,382</b>                | <b>22.7%</b> | <b>2,157</b>                | <b>25.7%</b> | <b>1,267</b>                | <b>36.9%</b> | <b>3,230</b>           | <b>22.7%</b> | <b>146,932</b>    | <b>35.8%</b> | <b>495,714</b>   | <b>49.2%</b> | <b>15,165</b>      | <b>32.3%</b> |

Notes:

The term "Hispanic or Latino" is an ethnic category and can apply to members of any race, including respondents who self-identified as "White." The total numbers of Hispanic or Latino residents for each geographic region are tabulated separately from the racial distribution by the U.S. Census Bureau.

<sup>1</sup> A minority is defined in CEQ's environmental justice guidance as a member of the following population groups: American Indian/Alaskan Native, Asian or Pacific Islander, Black (non-Hispanic), or Hispanic (CEQ 1997).

<sup>2</sup> "Total Minority" includes all people who are not "White alone" plus Hispanics and Latinos who are white alone.

### Minority Populations

CEQ (1997) 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. This analysis is based on U.S. Census Bureau data from the American Community Survey. For the purposes of this analysis, "minority" includes all people who do not identify themselves as "White alone" plus Hispanics and Latinos who do identify themselves as "White alone."

As shown in **Table 4.8**, the census tracts 203.26, 203.22 and 17.65 have total minority populations (22.7, 25.7, and 22.7 percent, respectively) less than the county populations for Williamson and Travis County (35.8 and 49.2 percent, respectively) and less than the City of Cedar Park (32.3 percent). Census tract 203.15 has a total minority population (36.9 percent) that is slightly higher than the Williamson County average. The project area is not considered a minority population (U.S. Census Bureau 2011).

### No Action Alternative

Because no low-income or minority populations are located in the project area, the no action alternative would not have a disproportionately high or adverse impact on low-income or minority populations.

### Proposed Action

The proposed action would have a beneficial effect on all people living and working in the vicinity of the project area, including any low-income persons, as it would reduce the risk of harm to personal property and persons from wildfire. Because no low-income or minority populations are in the project area, 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, as amended by the Superfund Amendments and Reauthorization Act, and the Toxic Substances Control Act. The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, 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 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 upgradient of the project area, 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, industrial

## Affected Environment, Potential Impacts, and Mitigation

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water dischargers, hazardous facilities or sites, and multi-activity sites was conducted using the EPA Envirofacts database.

According to the Envirofacts database, no hazardous sites, including Superfund, toxic release, industrial water dischargers, hazardous waste, or multi-activity sites, exist within the project area; however, 10 facilities within 1 mile of the project area have reported hazardous waste activities. Most of these facilities are located south and east of Buttercup Creek and Discovery Well Cave Preserves. Four facilities are located north and northwest of Rattling Horn Park. **Figure 4.15** identifies the hazardous sites in closest proximity to the project areas (EPA 2014b).

### No Action Alternative

No active hazardous sites were identified within the project area 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 no hazardous facilities are in or near the project area (EPA 2013b). Deposition or accumulation of soil, trash, ashes, refuse, waste, biosolids, or any other materials at the project site as a result of the proposed action is prohibited. Cut, trimmed, dead, and downed vegetation would be mulched and distributed to parks within the City via the Parks Department. No mulch will be placed within 345 feet of occupied cave openings and mulch will not be placed more than 3 inches deep on existing trails. In the event that site contamination or evidence of contamination is discovered during implementation of the proposed action, the City of Cedar Park 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. Equipment staging, refueling, and storage of gasoline must occur more than 500 feet from the entrance of any occupied caves. Additionally, herbicides would not be used during project implementation or for long term operations and maintenance.

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**Cedar Park Hazardous Fuels Reduction**  
Williamson County

**Legend**

|  |   |   |
|--|---|---|
| <span style="border: 2px solid red; padding: 2px;"> </span> Project Area                         | EnviroFacts                               | <span style="color: red;">●</span> Toxics   |
| <span style="border: 2px dashed black; border-radius: 50%; padding: 2px;"> </span> 1-Mile Buffer | <span style="color: green;">▲</span> Air  | <span style="color: purple;">■</span> Waste |
| <span style="background-color: green; padding: 2px;"> </span> Park                               | <span style="color: green;">✕</span> Land | <span style="color: blue;">●</span> Water   |

**EPA Envirofacts**

Data Sources: EPA, CDM Smith  
Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand),

**Figure 4.15. Hazardous Waste Sites Near Project Areas**

### 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. The majority of the project area is adjacent to residential structures, green spaces, and any noise-generating activities within these areas would have the potential to affect adjacent residents and recreationists in the adjacent parks and preserves.

### No Action Alternative

Under the no action alternative, no fire hazard mitigation measures 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 in the immediate vicinity of the project areas. 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, all equipment and machinery used would meet all applicable local, state, and federal noise control regulations.

### 4.6.4 Traffic

The project areas are served by a system of primarily residential streets that access most of the proposed work zones from the private property side or by walking trails within the parks and preserves. Buttercup Creek Cave Preserve can be accessed at several points, including trailheads in residential neighborhoods located off Nelson Ranch Road, Hegarty Drive, Colton Way, Burnie Bishop Place, and Lakeline Boulevard. Discovery Well Cave Preserve has two entrances off of Nelson Ranch Loop, one entrance via Buttercup Creek Cave Preserve, and one entrance off of Anderson Mill Road. Rattling Horn Park can be accessed via a cul de sac on Red Ranch Circle. Ranch Trails Park can be accessed off of Ranch Trail Court, and North Frontier Lane.

The closest major freeway to both of the preserves is U.S. Highway 183 (U.S. 183), approximately 2 miles from the project areas.

### **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 area could close emergency access roads. Depending on location and wind direction, smoke from a wildfire could close sections of bordering roadways or sections of U.S. 183. 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 local residents or other persons traveling in the general vicinity of the project areas. Internal trail networks would be used to access the project areas, which could interfere with some recreational users at the parks and preserves. However, any potential trail closures would be temporary, and other existing trails would still be available for recreational use during implementation of the proposed action.

The proposed action would reduce the risk of a wildfire encompassing a road near, or trails within, the project areas. Thus, the potential for road or trail closures due to wildfire would be reduced. There would not be a significant effect on transportation from the proposed action.

## **4.6.5 Public Services and Utilities**

### **4.6.5.1 Utilities**

The project area electrical energy provider is Pedernales Electric Cooperative (PEC), which is a private utility owned by the members served by PEC. PEC provides electrical services to more than 230,000 homes and businesses over a service area of approximately 8,100 square miles, including the City of Cedar Park (PEC 2014).

Discovery Well Cave Preserve includes overhead power lines owned and managed by PEC. There are no publicly owned or managed power lines within the other parks and preserves.

The City of Cedar Park provides city-wide water and wastewater utility services. The city co-owns two wastewater treatment plants, which are operated by Brazos River Authority: Brushy Creek Regional East and Brushy Creek Regional West. Surface water is treated at the city's surface water treatment facility located on Lake Travis, which is the source of the city's drinking water supply. To meet growing water demand in Cedar Park and the surrounding areas, Cedar Park has partnered with the cities of Round Rock and Leander to form the Brushy Creek Regional Utility Authority (BCRUA). BCRUA is a local governing authority created to provide water supply solutions for these communities (BCRUA 2014).

### **No Action Alternative**

Under the no action alternative, utilities in the project area would not be directly affected. However, the potential for wildfires 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 areas. The proposed action would reduce the risk of a major wildfire in the project areas and would contribute to the containment of wildfires, which would prevent or reduce potential damage to existing overhead utilities.

#### **4.6.5.2 Emergency Services**

The City of Cedar Park is served by the Cedar Park Fire Department. The department is staffed with 60 professionals assigned to the emergency operations division responsible for operating four fire stations, which serves approximately 75,000 people within the city limits and the extraterritorial jurisdiction of Cedar Park. The fire station in closest proximity to the project areas at Rattling Horn Park and Buttercup Creek and Discovery Well Cave Preserves is Fire Station No. 2 on 1570 Cypress Creek Road. The fire station in closest proximity to the Ranch Trails Park project area is Fire Station No. 4 located at 150 Church Park Road. The Cedar Park Fire Department provides the city with prevention, education, fire suppression and investigation, and emergency operations. Additional emergency response services are provided by the City of Cedar Park Police Department (City of Cedar Park 2014b).

The hospital in closest proximity to the project area is Cedar Park Regional Medical Center located at 1401 Medical Parkway in the City of Cedar Park. The hospital includes a 24-hour emergency response team, surgical services, and an intensive care unit (Cedar Park Regional Medical Center 2014).

### **No Action Alternative**

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

### **Proposed Action**

Under the proposed action, hazardous fuel reduction measures would reduce the risk of 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 area and would allow emergency responders to remain available to respond to other emergencies throughout the city. Hazardous fuel reduction may also improve conditions for firefighters within the project areas.

### 4.6.6 Public Health and Safety

The risk of a catastrophic fire in the project area is high because of heavy fuel loading (closely spaced, over grown trees and shrubs, and dead and downed material) that has accumulated over time, specifically in the WUI along the parks, preserves, and green spaces. 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 fuel 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 Williamson County is 471,014. Williamson County experienced an increase in population of 11.5 percent from 2010 to 2013 (U.S. Census Bureau 2014).

### 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 along the borders of Buttercup Creek and Discovery Well Cave Preserves and Rattling Horn and Ranch Trails Parks. Implementation of the proposed action would create a safer environment for firefighters, which could allow them to more easily control the spread of a fire. Hazardous fuel reduction would not prevent wildfires but could contribute to containment, reducing the intensity and frequency of wildfires, which ultimately would reduce the risk factor for people living near and recreating in the project areas. 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 4.9** 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.

## Affected Environment, Potential Impacts, and Mitigation

**Table 4.9. Summary of Impacts and Mitigation**

| Affected Environmental Resource Area | Impacts   | Agency Coordination/ Permits | Mitigation/BMPs   |
|--------------------------------------|---|------------------------------|---|
| Soils                                | Beneficial 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 the 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 in wildfires and opening up views onto preserves in parts of the project area.   | N/A                          | N/A   |
| Surface Water                        | Minor 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                         | The City of Cedar Park must ensure that best management practices (BMPs) are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent waters including Buttercup Creek. This includes equipment storage and staging to minimize erosion and sedimentation. Cut vegetation will be mulched and left on site, except within the Cluck Creek Tributary 1 floodplain or within 345 feet of occupied cave openings. Appropriate barriers will be used to prevent mulch from being washed into the creeks. |
| Groundwater                          | No impact.  | N/A                          | No herbicides will be used to avoid impacts to the Edwards Aquifer Contributing Zone.   |
| Wetlands                             | No impact.  | N/A                          | N/A   |

## Affected Environment, Potential Impacts, and Mitigation

| Affected Environmental Resource Area                | Impacts  | Agency Coordination/ Permits | Mitigation/BMPs  |
|---|--|------------------------------|--|
| Floodplains   | Some work located within floodplain but no adverse impact to floodplain.   | N/A                          | For any work in the floodplain, the City of Cedar Park will be required to coordinate with the local floodplain administrator and obtain any required permits prior to initiating work. All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files.   |
| Vegetation  | No impact to listed species. No significant impact to vegetation communities.  | N/A                          | N/A  |
| Common Wildlife Species                             | Migratory birds may nest in project areas. Minor, short-term impacts to common wildlife species.   | USFWS, TPWD                  | The City of Cedar Park will conduct hazardous fuels reduction work only during the non-breeding season. Work is allowed from September 1 through February 28. Work cannot be conducted from March 1 through August 31. The City of Cedar Park will retain larger diameter (6 inches or greater in diameter) dead trees as snags whenever practical, at an average rate of 1 to 3 per acre while still achieving fuels reduction. Snags provide sheltering, nesting, roosting, and feeding habitat for cavity nesting and migratory bird species.   |
| Threatened and Endangered Species/ Critical Habitat | No effect on Georgetown salamander, Whooping crane, and Coffin Cave mold beetle. Proposed action may affect, but is not likely to adversely affect the Jollyville Plateau salamander, Bone Cave harvestman, and Black-capped vireo. The proposed action is likely to adversely affect the Golden-cheeked warbler and Tooth Cave ground beetle. | USFWS                        | <ul style="list-style-type: none"> <li>• Mulch may not be placed within 345 feet of occupied cave openings</li> <li>• Preconstruction coordination meetings with work crews will be held prior to implementation</li> <li>• A full-time monitor will oversee implementation</li> <li>• Buffer zones will be marked and flagging materials removed promptly when work is complete</li> <li>• Mechanized equipment will not be used within 100 feet of occupied cave openings; rubber tracked equipment may be used in this zone to remove vegetation</li> <li>• Within 345 feet of occupied cave openings, no mulch will be placed, RIFA treatments will be implemented, treated areas will be reseeded with a native seed mix, and post-treatment mowing will be 6 inches or higher</li> <li>• No refueling, equipment staging, or fuel</li> </ul> |

## Affected Environment, Potential Impacts, and Mitigation

| Affected Environmental Resource Area | Impacts    | Agency Coordination/ Permits | Mitigation/BMPs   |
|--------------------------------------|------------|------------------------------|---|
|                                      |            |                              | <p>storage may occur within 500 feet of occupied cave openings</p> <ul style="list-style-type: none"> <li>• Work may only be conducted between September 1 and February 28</li> <li>• Vegetative debris must be removed; mulch may only be placed up to 3 inches deep on existing trails.</li> <li>• Oak wounds and stumps must be sealed to prevent the spread of oak wilt fungus.</li> <li>• Boiling water treatment of RIFA colonies will be implemented following the first rain of the first spring after project implementation. Treatments should be conducted in the early morning and mounds should not be disturbed prior to treatment.</li> <li>• RIFA treatment shall be conducted twice annually during the spring and fall, include two or more treatments per month, and may be decreased in frequency if RIFA mounds have decreased</li> <li>• The City will ensure BMPs are implemented to prevent erosion and sedimentation to nearby or adjacent waters including Buttercup Creek. This includes equipment storage and staging practices to minimize erosion and sedimentation.</li> </ul> |
| Cultural Resources                   | No impact. | THC                          | <p>In the event that archeological deposits, including any Native American property, stone tools, bones, or human remains, are uncovered, all work in the vicinity of the discovery will be halted immediately, and all reasonable measures will be taken to avoid or minimize harm to the finds. All archeological findings will be secured, and access to the sensitive area will be restricted by the City of Cedar Park. The City of Cedar Park will inform FEMA immediately of such findings, and FEMA will consult with the SHPO. Work in sensitive areas shall not resume until consultation is completed and until FEMA determines that the appropriate measures have been taken to ensure complete project compliance with the NHPA and its implementing regulations.</p>  |
| Environmental Justice                | No impact. | N/A                          | N/A   |

## Affected Environment, Potential Impacts, and Mitigation

| Affected Environmental Resource Area | Impacts   | Agency Coordination/ Permits | Mitigation/BMPs  |
|--------------------------------------|---|------------------------------|--|
| Hazardous Materials                  | No impact.  | TCEQ                         | In the event that site contamination or evidence of contamination is discovered during implementation of the proposed action, the City of Cedar Park will manage the contamination in accordance with the requirements of the governing local, state, and federal regulations and guidelines. Herbicides will not be used. |
| Noise                                | 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                              | Potential for temporary trail closures.   | N/A                          | Alternate routes will remain accessible during potential closures.   |
| Public Services and Utilities        | Long-term beneficial effect 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  |
| Public Health and Safety             | Reduction of the risk of a major wildfire that would threaten public health and safety.   | 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 reasonable 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, or 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, a significant adverse cumulative impact on soils would not be expected.

The proposed vegetation modification could have an adverse effect on the Golden-cheeked warbler; however, there are no other known projects within the parks that would affect warbler habitat and the proposed project areas abut already developed lands that would not support the warblers. Therefore, there would not be a cumulative impact to the Golden-cheeked warbler in or near the project area.

Several transportation projects are planned near the project area (Texas Department of Transportation 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 since impacts from the proposed action on these resource areas are minimal with use of BMPs.

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 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**

Consultation letters and responses from resource agencies are provided in **Appendix C**.

Coordination with the SHPO, which is housed at the THC, was initiated via letter on July 24, 2012. On July 26, 2012, the SHPO concluded that the project was in an area of low probability for impacting archeological resources and that the project could proceed as planned without further consultation.

Consultation with USFWS was initiated on September 2, 2014 with the submission of a BA. On January 20, 2015, USFWS issued a BO on the project that included an incidental take statement and several terms and conditions.

### **6.2 Public Participation**

The public information process for the proposed project will include a public notice in the *Hill Country News*, the general circulation newspaper that serves the City of Cedar Park. The public notice will state that information about the proposed action, including this EA, is available at the Cedar Park City Hall located at 450 Cypress Creek Rd. Building 1, Cedar Park, Texas 78613. 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.

In compliance with EO 11988, Floodplains, the public notice will also state that the proposed action is located within the 100-year floodplain of Cluck Creek Tributary 1. Potential alternatives and impacts on floodplains are described in the draft EA, and the public will be invited to review and comment on the findings. Public comments on floodplain impacts will be considered in the preparation of the final EA. As described in **Section 4.3.3**, there would be no impacts on floodplains from the proposed action.

### **6.3 Permits**

No local, state, or federal permits appear to be necessary to implement the proposed Hazardous Fuels Reduction project. The proposed action does not require coverage under Texas Pollutant Discharge Elimination System construction stormwater 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). In addition, the proposed action does not require a permit from the TCEQ under the Edwards Aquifer Protection Program because clearing vegetation without disturbing the soil is not an activity that is regulated under the Edwards Aquifer rules.

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## SECTION 8 List of Preparers

The following is a list of preparers who contributed to the development of the Hazardous Fuels Reduction 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, and technical staff.

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| Carbo, George        | Senior Planner                                      | Project manager and editing  |
| da Costa, Larissa    | Water Resources Engineer                            | Introduction, Purpose and Need, Alternatives, Water Resources  |
| Kase, Sydney         | GIS Specialist                                      | GIS analyses and Graphics  |
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### CH2M Hill

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**Federal Emergency Management Agency**

| <b>Reviewers</b>                             | <b>Role in Preparation</b>    |
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| Weir, Dorothy Environmental Specialist       | Technical review and approval |

