APPENDIX

II. Natural Resources Assessment
NATURAL RESOURCES ASSESSMENT
SAND CREEK REGIONAL GREENWAY
MASTER PLAN UPDATE
CITY AND COUNTY OF DENVER, COLORADO

Prepared for—

Stream Design, LLC
1245 East Colfax Avenue, Suite 300
Denver, Colorado 80218

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218

ERO Project #6375

January 22, 2016
CONTENTS

Executive Summary ....................................................................................................................... iii
Introduction.....................................................................................................................................1
Site Description............................................................................................................................1
Vegetation Communities ...............................................................................................................2
  Nonnative Grassland ..................................................................................................................3
  Mixed Grassland .......................................................................................................................3
  Disturbed Grassland ................................................................................................................3
  Native Riparian ..........................................................................................................................4
  Mixed Riparian ..........................................................................................................................4
  Noxious Weeds ............................................................................................................................4
Wetlands and Waters of the U.S. ....................................................................................................4
  Background ................................................................................................................................4
  Site Conditions and Regulations ...............................................................................................5
Threatened, Endangered, and Candidate Species ................................................................. 6
  Preble’s Meadow Jumping Mouse ...............................................................................................8
  Ute Ladies’-Tresses Orchid .........................................................................................................9
  Colorado Butterfly Plant ............................................................................................................9
State Threatened, Endangered, and Species of Concern ........................................................... 10
  Black-Tailed Prairie Dog ............................................................................................................11
  Bald Eagle .................................................................................................................................12
  Burrowing Owl ..........................................................................................................................13
  Ferruginous Hawk ......................................................................................................................13
  Common Garter Snake ...............................................................................................................14
Other Species of Concern ........................................................................................................... 14
  Raptors and Migratory Birds ....................................................................................................14
Other Wildlife ..............................................................................................................................16
Conclusions....................................................................................................................................16
References......................................................................................................................................17

TABLES

Table 1. Federally threatened, endangered, and candidate species potentially found in the study area or potentially affected by projects in the study area. ........................................... 7
Table 2. State threatened, endangered, and species of concern potentially found in the study area or with potential to be affected by the project ......................................................... 11

FIGURES

Figure 1. Vicinity Map
Figures 2 through 5. Vegetation and Wildlife

PHOTOS

Photo log
Executive Summary

Stream Design, LLC (Client) retained ERO Resources Corporation (ERO) to provide a natural resources assessment for the Sand Creek Regional Greenway Master Plan Update study area in the City and County of Denver, Colorado. ERO assessed the study area for potential wetlands and waters of the U.S., threatened and endangered species, and general wildlife use. Below is a summary of the resources found at the study area and recommendations or future actions necessary based on the current site conditions and federal, state, and local regulations.

The natural resources and associated regulations described in this report are valid as of the date of this report and may be relied upon for the specific use for which it was prepared by ERO under contract to Stream Design, LLC. Because of their dynamic natures, site conditions and regulations should be reconfirmed by a qualified consultant before relying on this report for a use other than that for which ERO was contracted.

Wetlands and Other Waters of the U.S. – Sand Creek flows northwest through the study area and contains fringes to wide benches of wetlands along its banks. Sand Creek is a tributary to the South Platte River and is considered a jurisdictional water of the U.S. Any activity that would require placing dredged or fill material into Sand Creek, its tributaries, or wetlands must comply with Section 404 of the Clean Water Act. ERO recommends placing the trail away from Sand Creek where possible to create a buffer for the wetland and riparian habitat. There are several areas along the creek where improvements could be recommended to increase wetland and/or riparian habitat along the stream.

Threatened and Endangered Species – There is no suitable habitat present for any federal threatened or endangered species in the study area. Suitable habitat is present for several Colorado state-listed threatened and endangered species, including the black-tailed prairie dog, bald eagle, ferruginous hawk, and common garter snake.

Migratory Birds and Other Wildlife – Several inactive raptor nests were observed during the 2015 site visit. If any active nests are found in the study area, any work that would destroy the nests should not be conducted until the birds have abandoned the nests. If possible, ground-clearing activities should occur outside of the April 1 through August 31 migratory bird breeding season. If construction activities would occur during the migratory bird breeding season, a nest survey should be conducted immediately prior to construction.
Introduction

Stream Design, LLC (Client) retained ERO Resources Corporation (ERO) to provide a natural resources assessment for the Sand Creek Regional Greenway Master Plan Update study area in the City and County of Denver, Colorado (Figure 1). The Client is preparing the Master Plan Update on behalf of the City and County of Denver (City). On December 9, 2015, Henry Konker and Tony Romano, biologists with ERO, assessed the study area for natural resources (2015 site visit). During this assessment, activities included a review of potential wetlands, identification of potential federally threatened and endangered species habitat, and identification of other natural resources. ERO did not conduct jurisdictional wetland delineations during this assessment. This report provides information on existing site conditions and resources, as well as current regulatory guidelines related to those resources. ERO assumes the landowner is responsible for obtaining all federal, state, and local permits for construction of the project.

Site Description

The study area is in Sections 21, 22, 25, 26, and 27, Township 3 South, Range 67 West of the 6th Principal Meridian in the City and County of Denver and Adams County, Colorado (Figure 1). The UTM coordinates for the approximate center of the study area are 510255mE, 4402070mN, Zone 13 North. The latitude/longitude of the study area is 39.768496°N/104.880264°W. The elevation of the study area is approximately 5,330 feet above sea level.

The study area consists of four discontinuous areas along the Sand Creek Greenway Trail in Denver, Colorado (Figure 1). The most downstream area is the I-70 to District IV Outfall parcel, which stretches from the Interstate 70 (I-70) overpass, approximately 0.7 mile upstream along Sand Creek (Figure 2). This parcel is bounded by commercial development on the south and I-70 on the north. The parcel is predominantly
characterized by nonnative grasslands with a cottonwood gallery located along Sand Creek in the western portion (Photo 1). The existing trail parallels Sand Creek along the north bank through the parcel.

Moving upstream, the Smith Road to Westerly Creek parcel stretches 0.4 mile along Sand Creek and is bounded by light rail tracks on the north and residential development on the south (Figure 3). The majority of the parcel is dominated by disturbed grasslands north of Sand Creek and nonnative grasslands on the south (Photo 2). A native riparian buffer with wetland fringes and benches runs along the north bank of Sand Creek. The confluence with Westerly Creek is located upstream, just east of the parcel boundary. The existing trail parallels Sand Creek along the north bank through this section, with an existing bridge crossing the creek at the eastern end of the parcel.

Further upstream, the Bluff Lake parcel is located predominantly within or adjacent to the Bluff Lake Nature Center, south of Sand Creek. The existing trail runs along the outside of the Nature Center and climbs a bluff that overlooks Sand Creek and its adjacent riparian corridor. A large prairie dog colony is located within this parcel and abuts the existing trail (Figure 4). Mixed and disturbed grasslands dominate the vegetation, paralleling the trail (Photo 3), with some dense riparian habitat within the Nature Center and along Sand Creek. Residential development is located west of the parcel and the Bluff Lake Nature Center is located to the east.

At the border with Adams County and Aurora, the MLK Boulevard Extension to Peoria parcel stretches along 0.32 mile of Sand Creek and is bounded by additional undeveloped open space on the north and south (Figure 5). Disturbed grasslands dominate the vegetation, with riparian vegetation bordering Sand Creek. Two large prairie dog colonies are located within this parcel (Photo 4). The existing trail parallels Sand Creek on the south bank along a large cliff before dropping down into the floodplain near Peoria Boulevard.

**Vegetation Communities**
ERO mapped the vegetation communities and documented the species present in each community within the study area (Figures 2 through 5). These communities are described in detail below.
Nonnative Grassland
The nonnative grassland community consists of an upland prairie community that is dominated by nonnative grass species including smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), cereal rye (*Secale cereale*), and intermediate wheatgrass (*Thinopyrum intermedium*). Other prevalent nonnative species include orchard grass (*Dactylis glomerata*), cheatgrass (*Bromus tectorum*), curly dock (*Rumex crispus*), diffuse knapweed (*Centaurea diffusa*), horseweed (*Conyza canadensis*), and yellow sweetclover (*Melilotus officinalis*). Native prairie species including blue grama (*Bouteloua gracilis*), side oats grama (*Bouteloua curtipendula*), and prairie sagewort (*Artemisia frigida*) may be present but contribute only a small percentage to the overall vegetative cover. Shrubs such as yucca (*Yucca glauca*) and rabbitbrush (*Ericameria nauseosa*) occur occasionally. This community is prevalent in the two downstream sections of the study area and occur along the banks and floodplain of Sand Creek. The dominance of nonnative vegetation is likely due to previous disturbance in these areas.

Mixed Grassland
The mixed grassland community consists of an upland prairie community that is dominated by a mix of native and nonnative grass species including native wheatgrass species (*Elymus* sp.), blue grama, little bluestem (*Schizachyrium scoparium*), three awn (*Aristida purpurea*), smooth brome, cheatgrass, and intermediate wheatgrass. Less prevalent grass and forb species include sand dropseed (*Sporobolus cryptandrus*), slender wheatgrass (*Elymus trachycaulus*), horseweed, hairy golden aster (*Heterotheca villosa*), diffuse knapweed, and annual sunflower (*Helianthus annuus*). Shrub species such as yucca and rabbitbrush occur occasionally. This community occurs primarily in the two upstream sections of the study area along the floodplain of Sand Creek.

Disturbed Grassland
This upland prairie community has been heavily disturbed by active prairie dog colonies or human activities and contains very low vegetative cover (less than 20 percent cover). Plant species include a mixture of native and nonnative grasses and forbs including, but not limited to, smooth brome, intermediate wheatgrass, crested wheatgrass, blue grama, sideoats grama, horseweed, annual sunflower, hairy golden aster, and yucca.
This community occurs in all four sections of the study area mostly along the upper terraces outside of the floodplain.

**Native Riparian**

This riparian community occurs along the Sand Creek channel or in the floodplain and is dominated by native tree and shrub species including plains cottonwood (*Populus deltoides*), peachleaf willow (*Salix amygdaloides*), and sandbar willow (*Salix exigua*). Nonnative tree species including Siberian elm (*Ulmus pumila*) and Russian olive (*Elaeagnus angustifolia*) occur occasionally. Less frequently occurring native shrubs include common snowberry (*Symphoricarpos occidentalis*), golden currant (*Ribes aureum*), and wild plum (*Prunus virginiana*). Understory vegetation is dominated by a mixture of native and nonnative grasses and forbs. This community occurs in all four sections of the study area along Sand Creek or its floodplain.

**Mixed Riparian**

This riparian community is similar to the native riparian community except it has a larger presence of nonnative tree and shrub species including crack willow (*Salix fragilis*), Siberian elm, and Russian olive. Less frequently occurring native shrubs include common snowberry, golden currant, and wild plum. Understory vegetation is dominated by a mixture of native and nonnative grasses and forbs.

**Noxious Weeds**

This community is where the dominant vegetation consists of weeds on the Colorado Noxious Weed Lists including, but not limited to, Scotch thistle (*Onopordum acanthium*), musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), diffuse knapweed, and leafy spurge (*Euphorbia esula*). Other nonnative plants prevalent in these areas include yellow sweet clover, Russian thistle (*Kali tragus*), kochia (*Bassia scoparia*), and horseweed. This community only occurs in the Smith Road to Westerly Creek parcel along the western end of the parcel.

**Wetlands and Waters of the U.S.**

**Background**

The Clean Water Act (CWA) protects the physical, biological, and chemical quality of waters of the U.S. The U.S. Army Corps of Engineers’ (Corps) Regulatory Program
adминистres and enforces Section 404 of the CWA. Under Section 404, a Corps permit is required for the discharge of dredged or fill material into wetlands and other waters of the U.S. The Corps defines waters of the U.S. as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. In 2007, the Corps issued guidance in response to the Supreme Court ruling in the consolidated cases of Rapanos v. United States and Carabell v. U.S. Army Corps of Engineers (Rapanos) stating that the Corps considers traditionally navigable waters (TNWs), wetlands adjacent to a TNW, and tributaries to TNWs that are relatively permanent waters (RPWs) and their abutting wetlands to be jurisdictional waters. Other wetlands and waters that are not TNWs or RPWs will require a significant nexus evaluation to determine their jurisdiction. A significant nexus evaluation assesses the flow characteristics and functions of a tributary and its adjacent wetlands to determine if they significantly affect the chemical, physical, or biological integrity of downstream TNWs. On May 27, 2015, the Corps and Environmental Protection Agency (EPA) jointly published a final rule defining the phrase “waters of the United States” under the federal CWA. However, on October 9, 2015, the United States Court of Appeals for the Sixth Circuit halted implementation of the proposed rule nationwide. Therefore, the Corps currently bases its jurisdictional determinations on the 2007 guidance. While ERO may provide its opinion on the likely jurisdictional status of wetlands and waters, the Corps makes the final determination of jurisdiction based on the current rulings.

Site Conditions and Regulations
ERO assessed the study area for potential isolated wetlands, jurisdictional wetlands, and other waters of the U.S. In the study area, Sand Creek has a channel that varies from 30 to 60 feet wide. Wetlands along Sand Creek vary from 1- to 4-foot fringes to wide swaths of inundated vegetated areas. Wetlands in the study area are divided into two vegetation communities – emergent and scrub shrub. Emergent wetlands are dominated by reed canarygrass (Phalaris arundinacea) and narrowleaf cattail (Typha angustifolia). Scrub shrub wetlands are dominated by reed canarygrass and sandbar willow. Emergent wetlands were found along the fringe of the creek banks, within 4 feet of the ordinary high water mark. Scrub shrub wetlands were found along cut banks and further away from the creek edge. Portions of the banks along Sand Creek are eroded, with little to no
A large amount of riparian vegetation dominated by plains cottonwood (*Populus deltoides*), peachleaf willow (*Salix amygdaloides*), Siberian elm (*Ulmus pumila*), and sandbar willow form the riparian overstory of the creek. Several stretches of the banks along Sand Creek are either concrete walls or riprap lined. Stone and concrete drop structures are located along the creek through the study area.

Sand Creek is tributary to the South Platte River, a TNW. Because of its connection to the South Platte River, Sand Creek and its adjacent wetlands are considered jurisdictional waters of the U.S. Prior to work being performed on Sand Creek, a wetland delineation should be conducted and a report should be submitted to the Corps for its review.

If any of the proposed trail improvements would impact Sand Creek or its abutting wetlands, a CWA Section 404 permit would be required. These types of activities may meet criteria for authorization under the CWA Section 404 Nationwide Permit (NWP) system, specifically NWP No. 14 for Linear Transportation Projects. For activities that do not meet NWP criteria, an Individual Permit would be required.

**Threatened, Endangered, and Candidate Species**

ERO assessed the study area for potential habitat for threatened, endangered, and candidate species under the Endangered Species Act (ESA). Federally threatened and endangered species are protected under the ESA of 1973, as amended (16 U.S.C. 1531 et seq.). Significant adverse effects on a federally listed species or its habitat require consultation with the Service under Section 7 or 10 of the ESA. The Service lists several threatened and endangered species with potential habitat in the study area, or potentially affected by projects in the study area (Table 1).
Table 1. Federally threatened, endangered, and candidate species potentially found in the study area or potentially affected by projects in the study area.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status *</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preble’s meadow jumping mouse</td>
<td><em>Zapus hudsonius preblei</em></td>
<td>T</td>
<td>Shrub riparian/wet meadows</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No habitat, in block clearance zone</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior least tern **</td>
<td><em>Sterna antillarum athalassos</em></td>
<td>E</td>
<td>Sandy/pebble beaches on lakes, reservoirs, and rivers</td>
</tr>
<tr>
<td>Mexican spotted owl</td>
<td><em>Strix occidentalis</em></td>
<td>T</td>
<td>Closed canopy forests in steep canyons</td>
</tr>
<tr>
<td>Piping plover **</td>
<td><em>Charadrius melodus</em></td>
<td>T</td>
<td>Sandy lakeshore beaches and river sandbars</td>
</tr>
<tr>
<td>Whooping crane **</td>
<td><em>Grus americana</em></td>
<td>E</td>
<td>Mudflats around reservoirs and in agricultural areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No habitat and no potential to affect</td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pallid sturgeon **</td>
<td><em>Scaphirhynchus albus</em></td>
<td>E</td>
<td>Large, turbid, free-flowing rivers with a strong current and gravel or sandy substrate</td>
</tr>
<tr>
<td><strong>Plants</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colorado butterfly plant</td>
<td><em>Gaura neomexicana ssp. coloradensis</em></td>
<td>T</td>
<td>Subirrigated, alluvial soils on level floodplains and drainage bottoms between 5,000 and 6,400 feet</td>
</tr>
<tr>
<td>Ute ladies'-tresses orchid</td>
<td><em>Spiranthes diluvialis</em></td>
<td>T</td>
<td>Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 6,500 feet</td>
</tr>
<tr>
<td>Western prairie fringed orchid **</td>
<td><em>Platanthera praecaela</em></td>
<td>T</td>
<td>Mesic and wet prairies, sedge meadows</td>
</tr>
</tbody>
</table>

*T = Federally Threatened Species, E = Federally Endangered Species.

**Water depletions in the South Platte River may affect the species and/or critical habitat in downstream reaches in other counties or states.

Source: Service 2016.

The proposed project would not directly affect the Mexican spotted owl because of the lack of potentially suitable habitat in the study area. The interior least tern, piping plover, whooping crane, pallid sturgeon, and western prairie fringed orchid are species that are affected by continued or ongoing depletions to the Platte River system. Based on ERO’s knowledge of the types of activities likely to be implemented as part of the Master...
Plan Update, there would be no depletions to the South Platte River. If the project would result in new bodies of open water, the Service may require a depletions consultation.

Potential habitat for Preble’s meadow jumping mouse (Preble’s), Colorado butterfly plant (CBP), and Ute ladies’-tresses orchid (ULTO) is more prevalent within development sites across the Front Range. Because these species are more likely to be addressed by counties and regulatory agencies such as the Corps, a more detailed discussion is provided below.

**Preble’s Meadow Jumping Mouse**

*Species Background*

Preble’s was listed as a threatened species on May 13, 1998. On July 10, 2008, the Service removed the Preble’s populations in Wyoming from the list of species protected under the ESA. The Service also amended the listing for Preble’s to indicate the subspecies remains threatened in the Colorado portion of its range. Under existing regulations, either a habitat assessment or a full presence/absence survey for Preble’s is required for any habitat-disturbing activity within areas determined to be potential Preble’s habitat (generally stream and riparian habitats along the Colorado Front Range). Typically, Preble’s occurs below 7,600 feet in elevation, generally in lowlands with medium to high moisture along permanent or intermittent streams and canals (Meaney et al. 1997). Preble’s occurs in low undergrowth consisting of grasses and forbs, in open wet meadows, riparian corridors near forests, or where tall shrubs and low trees provide adequate cover (Service 1999; Meaney et al. 1997). Preble’s typically inhabits areas characterized by well-developed plains riparian vegetation with relatively undisturbed grassland and a water source nearby.

*Potential Habitat and Possible Effects*

ERO assessed the study area for potential Preble’s habitat. The study area is located within an area designated by the Service as the Preble’s Denver Metro Block Clearance Zone. In designating a block clearance zone, the Service eliminated the need for individuals or agencies to coordinate with the Service prior to conducting activities in habitats that otherwise would be deemed to have potential to support Preble’s (Carlson 2000).
Recommendations

Because the study area is located within the block clearance zone, no further action is necessary regarding Preble’s.

Colorado Butterfly Plant
Species Background

CBP is federally listed as threatened and is found in small areas in southeastern Wyoming, western Nebraska, and north-central Colorado (Service 2004). CBP is a short-lived perennial herb found in moist areas of floodplains. It occurs on subirrigated alluvial soils on level or slightly sloping floodplains, and drainage bottoms at elevations from 5,000 to 6,400 feet. Colonies are often found in low depressions or along bends in wide, active, meandering stream channels that are periodically disturbed. Historically, the main cause of disturbance was probably flooding (Service 2004). CBP flowers from June to September and produces fruit from July to October (Spackman et al. 1997).

Potential Habitat and Possible Effects

The Service has not established survey guidelines for CBP; however, no suitable habitat is present in the study area. There are no subirrigated wetlands in the study area and the wetlands are too dense to allow the establishment of CBP.

Recommendations

If any activities are planned within the wetland or riparian habitat along Sand Creek, a threatened and endangered species habitat assessment should be submitted to the Service providing site-specific documentation of the lack of CBP habitat in the study area.

Ute Ladies’-Tresses Orchid
Species Background

ULTO is federally listed as threatened. ULTO occurs at elevations below 6,500 feet in moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes where the soil is seasonally saturated within 18 inches of the surface. Generally, the species occurs where the vegetative cover is relatively open and not overly dense or overgrazed. Once thought to be fairly common in low-elevation riparian areas in the interior western United States, ULTO is now rare (Service 1992a).
In Colorado, the Service requires surveys in areas of suitable habitat on the 100-year floodplain of the South Platte River, Fountain Creek, and Yampa River, and their perennial tributaries; or in any area with suitable habitat in Boulder and Jefferson counties (Service 1992a). ULTO does not bloom until late July to early September (depending on the year) and the timing of surveys must be synchronized with blooming (Service 1992b).

**Potential Habitat and Possible Effects**

ERO assessed the study area for potential ULTO habitat and determined that no suitable habitat is present. Sand Creek has been significantly disturbed by development and the wetlands in the study area do not contain species usually associated with ULTO. In addition, the soils in the study area do not include the gravelly alluvium in which ULTO is found (Service 1992b).

**Recommendations**

If any activities are planned within the wetland or riparian habitat along Sand Creek, a threatened and endangered species habitat assessment should be submitted to the Service providing site-specific documentation of the lack of ULTO habitat in the study area.

**State Threatened, Endangered, and Species of Concern**

ERO assessed the study area for potential habitat for state-listed threatened, endangered, and species of special concern (Table 2). According to Colorado law (Colo. Rev. Stat. Ann. §§ 33-2-102-106), the state must maintain a list of species determined to be endangered or threatened within the state. State-listed wildlife species that are not already protected under the ESA are protected under State Statute 33, which is regulated by Colorado Parks and Wildlife (CPW).

The habitat affinities, presence of potential habitat, and impacts on these species or habitats are provided in the following discussion. No regulations currently exist for state species of concern. However, if any species were to be listed during construction, state regulations could be enforced.

The study area contains suitable or potentially suitable habitat for several state-listed wildlife species – black-tailed prairie dog, bald eagle (foraging), burrowing owl,
ferruginous hawk, and common garter snake. The potential habitat and possible effects on these species are described in more detail below. Currently, no potential habitat for the northern leopard frog occurs within the study area.

Table 2. State threatened, endangered, and species of concern potentially found in the study area or with potential to be affected by the project.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
<th>Habitat</th>
<th>Suitable Habitat Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern leopard frog</td>
<td><em>Rana pipiens</em></td>
<td>SC</td>
<td>Wetlands, streams, beaver ponds, stock ponds, wet meadows, and floodplains; typically clear streams with sandy soils</td>
<td>No</td>
</tr>
<tr>
<td>Black-tailed prairie dog</td>
<td><em>Cynomys ludovicianus</em></td>
<td>SC</td>
<td>Shortgrass prairie</td>
<td>Yes</td>
</tr>
<tr>
<td>Bald eagle</td>
<td><em>Haliaeetus leucocephalus</em></td>
<td>SC</td>
<td>Trees near rivers and lakes; forages in open water, at times in prairie dog towns</td>
<td>Yes</td>
</tr>
<tr>
<td>Burrowing owl</td>
<td><em>Athene cunicularia</em></td>
<td>ST</td>
<td>Shortgrass prairie with prairie dog colonies</td>
<td>Yes</td>
</tr>
<tr>
<td>Ferruginous hawk</td>
<td><em>Buteo regalis</em></td>
<td>SC</td>
<td>Shortgrass prairie</td>
<td>Yes – winter</td>
</tr>
<tr>
<td>Common garter snake</td>
<td><em>Thamnophis sirtalis</em></td>
<td>SC</td>
<td>Marshes, ponds, and stream edges</td>
<td>Yes</td>
</tr>
</tbody>
</table>

ST = State Threatened Species, SC = State Species of Special Concern.

Black-Tailed Prairie Dog

*Species Background*

The black-tailed prairie dog is a Colorado species of special concern (CPW 2016). Black-tailed prairie dogs are important components of the short and mesic grasslands systems. Threats to this species include habitat loss and degradation, habitat fragmentation, disease (sylvatic plague), and lethal control activities. Typically, areas occupied by prairie dogs have greater cover and abundance of perennial grasses and annual forbs compared with nonoccupied sites (Whicker and Detling 1988; Witmer et al. 2002).
Potential Habitat and Possible Effects

Active prairie dog colonies were present throughout the study area during the 2015 site visit (Figures 2 through 5). Although prairie dogs are no longer in line for protected status under the ESA, CPW recommends attempting to remove or exterminate prairie dogs prior to bulldozing an active prairie dog town for humane reasons. Currently, the City does not have a prairie dog management plan for county-owned or city-owned open space and parkland.

If prairie dogs must be removed for any proposed activities, two options typically exist for prairie dog removal: relocation and extermination. Currently, relocation to other parts of the State of Colorado is not an option due to limited resources for new populations. CPW requires permits to move prairie dogs. Private companies can be hired to relocate prairie dogs, although relocation sites are difficult to secure. If extermination of prairie dogs is the only option, several independent companies provide treatments for prairie dog control. Prior to any work that would disturb a colony between March 1 and October 31, colonies should be surveyed for burrowing owls.

Bald Eagle

Species Background

The bald eagle is protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act and is listed as a Colorado species of special concern (CPW 2016). Most bald eagle nesting in Colorado occurs near lakes or reservoirs, or along rivers. Typical bald eagle nesting habitat consists of forests or wooded areas that contain tall, aged, dying, and dead trees (Martell 1992). Bald eagles typically seek aquatic habitat for foraging and prefer fish, although they also feed on birds, mammals, and carrion, particularly in winter (Buehler 2000; Sharps and Uresk 1990). Prairie dogs provide a major food resource for bald eagles in Colorado (Environmental Science and Engineering 1988; Kingery 1998). In the winter, bald eagles communally roost in large trees for warmth and protection (Buehler 2000).

Potential Habitat and Possible Effects

According to the CPW, no known bald or golden eagle nest sites occur within or near the study area. Prairie dogs within the study area provide potential prey, and numerous poles and structures provide perching opportunities for eagles and other raptors. This
area experiences nearly continuous human activity and construction within the study area would not appreciably increase the level of disturbance. Thus, construction activities would not likely adversely impact eagles. The Smith Road to Westerly Creek and Bluff Lake parcels overlap bald eagle winter range and winter foraging area. The Bluff Lake parcel also overlaps a bald eagle roost site.

**Burrowing Owl**

*Species Background*

The western burrowing owl is listed as a threatened species in Colorado (CPW 2016). This small migratory owl typically inhabits grassland, shrubland, and desert habitats using burrows created by other species, most notably those excavated by prairie dogs and other ground squirrels. The burrowing owl is also protected under the MBTA. Burrowing owls are typically present in Colorado between March 1 and October 31.

*Potential Habitat and Possible Effects*

The prairie dog burrows in the study area are potential habitat for burrowing owls. Inadvertent killing of burrowing owls could occur during prairie dog poisoning, construction, or earth-moving projects if owls are present near the study area. CPW has a recommended buffer of 150 feet surrounding active burrowing owl nests (Colorado Division of Wildlife 2008). Since a prairie dog colony is present in the study area, burrowing owls could be directly affected by project activities.

As a precaution, CPW suggests surveying for burrowing owls if prairie dog towns would be affected by activities during the breeding season, or if activities would occur within the 150-foot buffer. If burrowing owls are found within a prairie dog town, the recommended CPW buffer for construction activities (150 feet) should be applied to avoid violation of the MBTA. If construction would occur within 150 feet of a burrow occupied by a burrowing owl, CPW suggests waiting until after the burrowing owls have left the area before initiating construction.

**Ferruginous Hawk**

*Species Background*

The ferruginous hawk is the largest hawk in North America and is a Colorado species of special concern (CPW 2016). This species inhabits open prairie and desert habitats
and is strongly associated with primary prey species such as ground squirrels and jackrabbits. Ferruginous hawks are relatively common winter residents in eastern Colorado, particularly in association with black-tailed prairie dogs (Preston and Beane 1996). This species has not been known to breed in or near the study area. However, the presence of black-tailed prairie dogs indicates the study area may be used as foraging habitat in the winter. The ferruginous hawk is also protected under the MBTA.

**Potential Habitat and Possible Effects**

ERO surveyed potential raptor nesting sites within ½ mile of the study area and did not find any active or inactive nests of ferruginous hawks. Ferruginous hawks may occasionally forage during migration and winter, but are not known to nest in the study area.

**Common Garter Snake**

**Species Background**

The common garter snake is listed as a state species of special concern in Colorado. It inhabits marshes, ponds, and edges of streams. In Colorado, the common garter snake is restricted to floodplains of the South Platte River and its tributaries (Hammerson 1999). In Colorado, this species is seldom found far from water (Hammerson 1999).

**Potential Habitat and Possible Effects**

The riparian area along Sand Creek is potential habitat for the common garter snake. The trail activities would not likely adversely affect this species. Any stream improvements to widen wetland habitat would be beneficial to the species.

**Other Species of Concern**

**Raptors and Migratory Birds**

Migratory birds, as well as their eggs and nests, are protected under the MBTA. The MBTA does not contain any prohibition that applies to the destruction of a bird nest alone (without birds or eggs), provided that no possession occurs during the destruction. While destruction of a nest by itself is not prohibited under the MBTA, nest destruction that results in the unpermitted take of migratory birds or their eggs is illegal and fully prosecutable under the MBTA (Migratory Bird Permit Memorandum, Service, April 15,
The regulatory definition of a take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.

Under the MBTA, the Service may issue nest depredation permits, which allow a permittee to remove an active nest. The Service, however, issues few permits and only under specific circumstances, usually related to human health and safety. Obtaining a nest depredation permit is unlikely and involves a process that takes from four to eight weeks. The best way to avoid a violation of the MBTA is to remove vegetation outside of the active breeding season, which typically falls between March and August, depending on the species. Public awareness of the MBTA has grown in recent years, and most MBTA enforcement actions are the result of a concerned member of the community reporting a violation.

**Potential Habitat**

Several inactive raptor nests were observed during the 2015 site visit (Figure 2 and Figure 4). Active raptor buffers can have a ⅓ or ¼ mile buffer from human activity, depending on the species. The riparian vegetation in the study area provides abundant nesting habitat for a variety of raptors and songbirds, and cattails provide nesting habitat for red-winged blackbirds. It is likely that many active nests are present during the nesting season.

**Recommendations**

If active nests are identified within or near the study area, activities that would directly affect the nest should be restricted. Habitat-disturbing activities (e.g., tree removal, grading, scraping, and grubbing) should be conducted in the nonbreeding season to avoid disturbing active nests, or to avoid a “take” of the migratory bird nests within the study area. Nests can be removed during the nonbreeding season, September 1 through March 31, to preclude future nesting and avoid violations of the MBTA. There is no process for removing nests during the nonbreeding season; however, nests may not be collected under MBTA regulations. If the construction schedule does not allow vegetation removal outside of the breeding season, a nest survey should be conducted prior to vegetation removal to determine if the nests are active and by which species.
Grasslands within the study area also are potential nesting habitat for migratory birds, including ground-nesting birds. To avoid destruction of potential ground-nesting migratory bird nests, grassland vegetation should be removed outside of the April 1 through August 31 breeding season.

**Other Wildlife**

The open water and wetland vegetation found along Sand Creek are suitable habitat for migratory songbirds and waterfowls. Waterfowls likely use Sand Creek for foraging and loafing when it is not frozen. Some birds may nest in the cattails or on the small islands in the creek, but the small size of the area and the proximity of development would likely reduce the quality of nesting habitat. Raptors forage in the riparian corridor and adjacent uplands throughout the study area, but particularly in the Bluff Lake parcel. Although not observed during the 2015 site visit, red-winged blackbirds often nest in cattail wetlands and likely nest in the cattail wetlands along the creek. Additional raptor nests or other stick nests are likely present. Any wildlife using the creek, wetlands, or riparian areas in the study area have likely become adapted to human disturbance due to the prevalence of urban and light-industrial development already surrounding the study area.

The study area overlaps suitable foraging habitat for great blue herons (*Ardea herodias*) and Canada geese (*Branta canadensis*). The study area is also located within portions of the winter range and production area for Canada geese. The Bluff Lake parcel overlaps the overall range and foraging area for the white pelican (*Pelecanus erythrorhynchos*). Resident populations and limited use areas for mule deer (*Odocoileus hemionus*) are located adjacent to the study area. The overall range for mule deer and white-tailed deer (*Odocoileus virginianus*) overlaps the entire study area. Overall, it is likely these species use the study area as a migration corridor and foraging area.

**Conclusions**

The study area contains a variety of vegetation communities along the Sand Creek corridor. Many of the upland communities are disturbed and restoration activities to increase native vegetation in these areas is recommended. The wetlands and riparian habitat along Sand Creek varies in width and diversity but provides quality habitat for a
variety of wildlife. There are several sections along Sand Creek where the banks are eroded or contain little vegetation and any activities to improve these areas and restore wetland and riparian habitat is recommended. Sand Creek and its adjacent wetlands are jurisdictional waters of the U.S. and, therefore, Section 404 authorization under either a NWP or Individual Permit would be required prior to any activities in the stream or its wetlands.

There is no suitable habitat present for any federal threatened or endangered species, but there is suitable habitat for several state threatened and endangered species. Many other species likely use the study area as a migration corridor or foraging area including a variety of migratory birds and raptors, mule deer, white-tailed deer, coyotes, foxes, and raccoons. Several black-tailed prairie dog colonies are present in the study area and provide potential nesting habitat for burrowing owls. Where possible, relocating the existing trail away from Sand Creek would be beneficial by creating a buffer for species that use the creek as nesting or breeding habitat, foraging, or as a migration corridor. Migratory birds nest in the study area and impacts on active nests must be avoided, whether by removing vegetation during the nonnesting season (November 1 through March 31) or performing nest surveys prior to construction during the nesting season.

References


Sand Creek Regional Greenway Master Plan Update
Sections 21, 22, 25, 26, and 27, T3S, R67W; 6th PM
UTM NAD 83: Zone 13N; 510255mE, 4402070mN
Latitude, Longitude: 39.768496°N, 104.880264°W
USGS Commerce City and Montbello, CO Quadrangles

City and County of Denver and Adams County, Colorado
Copyright © 2013 National Geographic Society, i-cubed
Content may not reflect National Geographic's current map policy. Sources: National
Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO,
NOAA, increment P Corp.

Portions of this document include intellectual property of ESRI and its licensors and are used herein under license. Copyright © 2015 ESRI and its licensors. All rights reserved.

Figure 1
Vicinity Map

Prepared for: The City and County of Denver
File: 6375 Figure 1.mxd [dlH]
January 20, 2016
Figure 3
Vegetation and Wildlife

Sand Creek Regional Greenway Master Plan Update – Smith Road to Westerly Creek

- Observed Raptor Nest
- Prairie Dog Colony
- Wetlands
  - Wetland, Emergent
  - Wetland, Scrub Shrub
- Vegetation Type
  - Nonnative Grassland
  - Mixed Grassland
  - Disturbed Grassland
  - Landscaped
  - Native Riparian
  - Mixed Riparian
- Noxious Weeds
- Open Water
- Unvegetated
Figure 4
Vegetation and Wildlife

Sand Creek Regional Greenway Master Plan Update – Bluff Lake

- Study Area
- Observed Raptor Nest
- Prairie Dog Colony

Wetlands
- Wetland, Emergent
- Wetland, Scrub Shrub

Vegetation Type
- Nonnative Grassland
- Mixed Grassland
- Disturbed Grassland
- Landscaped
- Native Riparian
- Mixed Riparian
- Noxious Weeds
- Open Water
- Unvegetated
Figure 5
Vegetation and Wildlife

Sand Creek Regional Greenway Master Plan Update – MLK Boulevard Extension to Peoria

- Wetlands
  - Wetland, Emergent
  - Wetland, Scrub Shrub
- Vegetation Type
  - Nonnative Grassland
  - Mixed Grassland
  - Disturbed Grassland
  - Landscaped
  - Native Riparian
  - Mixed Riparian
  - Noxious Weeds
  - Open Water
  - Unvegetated

Study Area
- Observed Raptor Nest
- Prairie Dog Colony

Sand Creek Regional Greenway Master Plan Update - MLK Boulevard Extension to Peoria
Path: P:\6300 Projects\6375 Sand Creek Regional Greenway Master Plan Update\Maps\6375 Figures 2-5.mxd
January 22, 2016
Prepared for: The City and County of Denver
File: 6375 Figures 2-5.mxd [dlH]
Photo 1 - View to the north of the overstory within the I-70 to District IV Outfall parcel.

Photo 2 - View to the west along Sand Creek in the Smith Road to Westerly Creek parcel.
Photo 3 - View to the north of the vegetation and prairie dogs in the Bluff Lake parcel.

Photo 4 - View to the west of a prairie dog colony along the Sand Creek Trail in the MLK Boulevard Extension to Peoria parcel.