mined suitable orchid habitat because of the presence of clay soils and highly disturbed conditions in roadside wetlands. However, most of the South Platte River wetlands are dominated by dense stands of sandbar willow and reed canarygrass, which would typically preclude the orchid. Areas along the South Platte River with more open wetland vegetation were surveyed for the orchid in August 2004, but none were found.

Colorado Butterfly Plant

The Colorado butterfly plant is a short-lived perennial herb found in moist areas of floodplains. This species is federally listed as threatened under the ESA and is found within a small area in southeastern Wyoming, western Nebraska, and north-central Colorado. It occurs on sub-irrigated, alluvial soils on level or slightly sloping floodplains and drainage bottoms at elevations between 5,000 and 6,000 feet. Its habitat is generally considered to coincide with that of the Ute ladies'-tresses orchid.

As is the case with Ute Ladies'-tresses orchid, the Colorado butterfly plant is not likely to be present in the project area because of a lack of suitable habitat. Areas along the South Platte River with more open wetland vegetation were surveyed for the Colorado butterfly plant in August 2004, but none were found.

Bald Eagle

The bald eagle is listed as threatened under the ESA. Its habitat ranges across most of North America near large bodies of open water such as lakes and marshes. In Colorado, bald eagles are often found near reservoirs or other areas where fish are abundant. Their diet consists of fish, injured waterfowl, muskrats, rabbits, and prairie dogs.

Bald eagles are known to frequently fly along the South Platte River and they occasionally forage or perch in the vicinity of the project area. There has been a report of a new bald eagle nest on private land north of South Platte Park. This nest is located approximately one mile from C-470 near Cooley Lake, outside the project area. A young pair of eagles began building onto a red-tailed hawk nest at this location in 2004. However, the pair did not successfully reproduce in 2004. Great horned owls took over this nest during the 2005 nesting season. Observational data indicates that these eagles are feeding on rabbits, unidentified small mammals, waterfowl, and fish.

In addition to the new nest, there are other cottonwood trees in and near the project area large enough to provide suitable nest substrate. No eagles have exhibited nest-building behavior in these trees. Because of the proximity of the new nest, it is unlikely another nesting pair would begin construction along the South Platte River in or near the project area, but it is possible the current pair may abandon the existing nest in favor of an alternative nest site.

Platte River Species

Whooping crane, least tern, Eskimo curlew, piping plover, pallid sturgeon, and western prairie fringed orchid are species that rely heavily on habitat provided by the South Platte River system. None of these species are known to occur in the project area. Any depletion to the South Platte River system will have an adverse affect on these species.

State Listed Threatened and Endangered Species

As part of its wildlife species conservation program, the State of Colorado has developed a list of wildlife species that it considers to be threatened or endangered within Colorado. Federally listed species are also listed by the state, but because the state designation is focused strictly on species' ranges within Colorado, in addition to federally listed species, several state listed species are not federally listed. **Table 3-43** identifies the state listed species and the likelihood of their occurrence in the project area. Of the state listed terrestrial species shown on **Table 3-43,** based on habitat requirements and current distribution, the burrowing

owl is the only terrestrial species likely to occur in the area.

BURROWING OWL. The burrowing owl, a state threatened species, is a small migratory owl that occupies sparsely vegetated areas on the plains (typically prairie dog towns in eastern Colorado) during the summer breeding season. As a bird species, federal and state laws, including the MBTA, prohibit the killing of burrowing owls or destroying their active nests. The owl is active during the day and uses abandoned prairie dog burrows for nesting and roosting. When plague or poisoning kills the prairie dogs in a colony or when the grass around their burrows gets more than ankle high, burrowing owls will abandon their nest burrows. Burrowing owl breeding in Colorado occurs from early May to late August. Burrowing owls are typically present in Colorado until late October, when they migrate south to Mexico and Central America.

During the 2003 field review, 21 black-tailed prairie dog colonies covering a total of about 90 acres were observed on vacant land throughout the project area. The colonies provide potential habitat for the burrowing owl and may support active nests during the breeding season.

STATE LISTED AQUATIC SPECIES. Of the nine state listed fish, only six have habitat present in the South Platte River. These small-bodied fish that occur in rivers, streams, ponds, and lakes in the eastern Colorado plains including the lake chub, northern redbelly dace, common shiner,

Table 3-43
State Listed Threatened and Endangered Species

Species	Status	Likelihood of Occurrence in the Project area
Terrestrial Species		
Boreal toad	State Endangered	Low
Burrowing owl	State Threatened	High
Kit fox	State Endangered	Low
Lesser prairie-chicken	State Threatened	Low
Plains sharp-tailed grouse	State Endangered	Low
River otter	State Threatened	Low
Wolverine	State Endangered	Low
Aquatic Species		
Rio Grande sucker	State Endangered	Low
Lake chub	State Endangered	Low
Plains minnow	State Endangered	Low
Suckermounth minnow	State Endangered	Low
Northern redbelly dace	State Endangered	Low
Southern redbelly dace	State Endangered	Low
Brassy minnow	State Threatened	Low
Common shiner	State Endangered	Low
Arkansas darter	State Threatened	Low

suckermouth minnow, plains minnow, and brassy minnow. None of the species are present in great number in any parts of the state. The known locations of the listed species are limited to reaches of the South Platte River east of Sterling and the upper South Platte River tributary system. The nearest tributary known to support one of the six species (northern redbelly dace) is West Plum Creek above Chatfield Reservoir, which is upstream of the project area. None of the species were captured during fish sampling done by CDOW in 2003 on the South Platte River in or near the project area. Based on available information, it is unlikely the state-listed species are present in the study area and the project would not affect them.

3.4.2.2 Environmental Consequences

In compliance with the ESA, the alternatives under consideration in this EA were evaluated for potential effects to federal threatened or endangered species. Because there would not be depletions to the South Platte River, none of the alternatives would have an effect on listed species affected by depletions. Although potential habitat is present for the Preble's meadow jumping mouse, the Ute ladies'-tresses orchid, and the Colorado butterfly plant, the species are not likely to be present based on habitat assessments and previous surveys. As a result, CDOT and the FHWA have determined that the alternatives would not have an adverse effect on Preble's, the orchid, or the butterfly plant. In a letter dated January 6, 2006 (see **Appendix B**), the USFWS concurred with the determination that the effects of this project are not likely to adversely affect the continued existence of the Preble's, orchid, butterfly plant, or the bald eagle. This letter further provides concurrence that this project would not result in depletions to the Platte River, and would therefore not have an adverse effect on the federally listed Platte River aquatic species. If conditions change, and it is later determined that this project would result in an adverse effect to any of these federally listed species, a formal consultation would be inititated with the USFWS.

The potential effects to the bald eagle, Platte River species, and burrowing owl from each alternative are described in the following sections.

No-Action Alternative

The No-Action Alternative would not involve activity that would have a direct or indirect effect on any federally listed threatened, endangered, or candidate species.

General Purpose Lanes Alternative

BALD EAGLE. The GPL Alternative would not result in permanent damage to any known bald eagle roosts or nests. Loss of black-tailed prairie dogs would result in some reduction to available bald eagle prey. However, the prairie dog colonies impacted within a three-mile radius of the active eagle nest near Cooley Lake, represent only 1.5 percent of the total prairie dog prey base available. In addition, there are other sources of prey in the project area that would be minimally affected by this alternative, such as rabbits, waterfowl, and fish. Construction activity may temporarily change the eagles' movement, foraging, and perching behaviors.

PLATTE RIVER SPECIES. Water quality detention, dust abatement, and wetland mitigation for the GPL Alternative would not result in depletions to the South Platte River system. Therefore, this alternative would not affect any of the federally listed South Platte River aquatic species.

BURROWING OWL. Loss of prairie dog colonies from the GPL Alternative would result in the loss of burrowing owl nesting habitat. Due to the abundance of habitat available along the Front Range, the loss of burrowing owl nesting habitat would have only a minor effect on the burrowing owl.

Express Lanes Alternative (Preferred Alternative)

The EL Alternative is considered to have similar effects to threatened and endangered species as compared to the GPL Alternative. The EL Alternative would not result in permanent damage to any known bald eagle roosts or nests. Loss of black-tailed prairie dogs would result in some reduction to available bald eagle prey. However, there are other sources of prey in the project area that would be minimally affected by this alternative, such as rabbits, waterfowl, and fish. Construction activity may temporarily change the eagles' movement, foraging, and perching behaviors.

Water quality detention facilities, dust abatement, and potential wetland mitigation activities would be the same for the EL Alternative as for the GPL Alternative, and would not result in depletions to the South Platte River system. The EL Alternative would result in loss of burrowing owl nesting habitat when prairie dog colonies are abandoned. However, this would not have an adverse effect on the long-term viability of the burrowing owl.

3.4.2.3 Mitigation

Although they are unlikely to be affected by any of the alternatives, CDOT would confirm the habitat characteristics and status of Preble's meadow jumping mouse habitat, Ute ladies'-tresses orchid, and the Colorado butterfly plant with USFWS within one year prior to construction. If habitat conditions have improved and USFWS requires it, CDOT would survey for Preble's. CDOT would also perform surveys for the orchid and the butterfly plant. In the event any of the species were present, CDOT would coordinate with USFWS to develop a plan to avoid and minimize detrimental effects and mitigate where such effects are unavoidable.

Before construction, the project area and its vicinity would be surveyed again for any additional bald eagle nests. CDOT would also plant vegetation as suitable cover for alternative prey habitat, install perch poles for hunting roosts, a nesting platform, and a nest basket to encourage nesting attempts within the three-mile foraging area of the existing nest. Some of the prairie dogs from the affected colonies would also be relocated within this area.

The project area would also be surveyed for the presence of the burrowing owl according to survey techniques outlined by CDOW. If burrowing owls were present, prairie dog evacuation and initial disturbance of prairie dog colonies would be planned between October 31 and March 1, when burrowing owls would not be present in the project area. CDOT would work with the USFWS and CDOW to develop any additional mitigation measures if seasonal restrictions on construction were not practical.

3.4.3 Wetlands and Waters of the U.S.

In recognition of the ecological value of wetlands and open water, the Federal government has issued two pieces of legislation relevant to this EA. Section 404 of the CWA gives the USACE regulatory authority over the discharge of dredged or fill material into regulated surface water and any associated wetlands. The USACE's jurisdiction applies only to wetlands that have a surface connection to regulated surface water. The 404(b)(1) Guidelines require that effects to all wetlands and waters of the U.S. be avoided or minimized to the best extent possible. Unavoidable effects must be mitigated. The second piece of legislation, Executive Order 11990 Protection of Wetlands, protects isolated wetlands (those not connected to a regulated water of the U.S.) by directing the lead agency, in this case the FHWA, to avoid direct or indirect effects to wetlands wherever there is a practicable alternative for projects with federal funding or oversight. Executive Order 11990 Protection of Wetlands (1977) and Department of Transportation Order 5660.1A, Preservation of the Nation's Wetlands (1978), require the FHWA and CDOT to mitigate for impacts to non-jurisdictional wetlands. For additional information on wetland delineation, see the *Wetland Delineation Report* (February 2005).

In accordance with the USACE delineation manual, *U.S. Army Corps of Engineers Wetlands Delineation Manual* (1987), wetlands were identified and mapped on the basis of three environmental characteristics including the prevalence of wetland vegetation, wetland hydrology, and hydric soils. Wetland, or hydrophytic, vegetation is composed of plants that are adapted to, or tolerant of, wet environments and are able to become established, grow, and reproduce in wet areas. Wetland hydrology is present in areas where water has an overriding influence on characteristics of vegetation and soils. These characteristics are commonly found in areas that are inundated or that have soils saturated continuously for at least five percent of the growing season in most years. For the Denver metro area, an area can be considered to have wetland hydrology if it is inundated or saturated for as few as five consecutive days during the growing season. Hydric soils are soils that contain enough water during the growing season to allow anaerobic conditions and characteristics to develop in the upper layer of the soil. Under anaerobic conditions, changes in soil chemistry produce characteristic wetland indicators such as very dark soil, sulfidic odor, or mottled soil.

Using National Wetland Inventory (NWI) maps and Natural Resource Conservation Service (NRCS) soil maps, the biologists initially identified locations where wetlands were likely to occur within the project area. These areas were then field verified based on the presence of vegetation, hydrology, and soils as outlined in the USACE delineation manual. During August and September 2004, biologists delineated wetlands and open water in the project area. All wetland, open water, and isolated ditch wetland boundaries in the project area were delineated and mapped.

3.4.3.1 Affected Environment

A total of 151 wetland sites totaling 29.4 acres of wetlands were identified and delineated during field investigations of the project area. The areas include both shrub wetlands and herbaceous wetlands. The majority of the wetlands in the project area are adjacent to perennial streams that are tributary to the South Platte River. The principal streams and rivers within the C-470 project area include Massey Draw, the South Platte River, Marcy Gulch, Dad Clark Gulch, Lee Gulch, Big Dry Creek, and Willow Creek. Other wetlands are associated with hillside seeps or with drainage ditches along roads and do not have a surface connection to a regulated water of the U.S. The wetlands identified in the study are shown in **Figure 3-39**. Wetland numbers are identified in Table 1 of the Wetland Finding located in **Appendix C**.

Wetlands found adjacent to open water are typically located on narrow benches or terraces along streams. Many of the streams in the project area are incised and support only narrow fringes of wetland vegetation. Wetland vegetation along streams is dominated by Emory's sedge (*Carex emoryi*), reed canarygrass (*Phalaris arundinacea*), and sandbar willow (*Salix exigua*). Other species that occur less frequently include bulrush (*Scirpus lacustris*), broad-leaf cattail (*Typha latifolia*), Baltic rush (*Juncus balticus*), barnyard grass (*Echinochloa crus-galli*), Canada thistle (*Cirsium arvense*), meadow fescue (*Festuca pratensis*), and curly dock (*Rumex crispus*). Canada thistle is usually found in uplands and meadow fescue can be found in both wetlands and uplands.

Wetlands with no surface connection to a stream or open water are typically located in roadside drainage swales along C-470 or in small depressions in the highway ROW. Vegetation in these wetlands is dominated by foxtail barley (*Hordeum jubatum*), barnyard grass (*Echinochloa muricata*), and meadow fescue (*Festuca pratensis*).

In addition to natural streams, portions of two irrigation waterways, the High Line Canal and City Ditch, pass through the project area. The High Line Canal passes through the project area approximately one mile east of the South Platte River, and again as it crosses Dad Clark Gulch. This canal supplies irrigation water to the plains east of Denver. City Ditch flows through the