

3.13 THREATENED, ENDANGERED, AND STATE SENSITIVE SPECIES

This section addresses federally listed threatened and endangered species; state-listed threatened, endangered, and species of concern; and other sensitive species. Two federally listed threatened wildlife species and two federally listed plant species potentially occur in the regional study area.

3.13.1 Regulatory Framework

Colorado Department of Transportation (CDOT) projects must comply with federal, state, and local laws and regulations protecting wildlife species including:

- ▶ The Endangered Species Act of 1973 (16 USC 1531 et seq.)
- ▶ The Bald and Golden Eagle Protection Act of 1940, as amended (16 USC 668-668d)
- ▶ Colorado State Statute 33 (CRS Ann. §§33-2 to 102-106)

In addition, CDOT has a prairie dog policy that applies to all CDOT projects. Federal and state laws and CDOT policies are described below.

Federally listed threatened and endangered species are protected under the Endangered Species Act (ESA) of 1973, as amended (16 USC 1531 et seq.). Potential effects on a federally listed species or its habitat resulting from a project with a federal action require consultation with U.S. Fish and Wildlife Service (USFWS) under Section 7 of the ESA. Projects that may result in adverse modification of designated critical habitat for a federally listed species also require consultation with USFWS. Upon final selection of an alternative package for the Final Environmental Impact Statement (FEIS), a Biological Assessment and formal Section 7 consultation (if necessary) would be undertaken for the North I-25 Corridor.

In January 2004, the Colorado Department of Transportation (CDOT), Colorado Department of Natural Resources Division of Wildlife, the Federal Highway Administration, and the Fish and Wildlife Service (USFWS) and public and private partners agreed on a "Shortgrass Prairie Initiative" as an alternative way to address species impacts in the eastern third of the state. The Shortgrass Prairie Initiative (initiative) provides programmatic clearance for CDOT activities on the existing road network in the eastern third of Colorado for the next 20 years. Covered transportation projects include; 1) bridge repairs for all existing bridges, 2) approximately 4,310 miles of resurfacing/overlays and accompanying shoulder

What's in Section 3.13?

3.13 Threatened, Endangered, and State Sensitive Species

- 3.13.1 Regulatory Framework
- 3.13.2 Affected Environment
 - 3.13.2.1 Federally Listed Threatened Endangered, and Candidate Species
 - 3.13.2.2 State Listed Threatened, Endangered, and Species of Special Concern
 - 3.13.2.3 Other Sensitive Wildlife Species
 - 3.13.2.4 Threatened and Endangered Plant Species
- 3.13.3 Environmental Consequences
 - 3.13.3.1 No-Action Alternative
 - 3.13.3.2 Package A
 - 3.13.3.3 Package B
 - 3.13.3.4 Summary of Impacts to Threatened, Endangered, and Sensitive Species
 - 3.13.3.5 Indirect Impacts for All Build General Purpose Lanes, Commuter Rail, and Tolled Express Lanes
- 3.13.4 Mitigation Measures
 - 3.13.4.1 No-Action Alternative
 - 3.13.4.2 Packages A and B

1 improvements, 3) maintenance along existing transportation corridors, and 4) safety,
2 reconstruction, capacity and other transportation improvements (USFWS 2004, Venner
3 2001). The initiative covers three federally listed endangered, threatened and candidate
4 species, as well as 29 species of concern. Species covered by the initiative that potentially
5 occur within the project area include the bald eagle, Colorado butterfly plant, black-tailed
6 prairie dog, western burrowing owl, mountain plover, ferruginous hawk, northern leopard frog,
7 plains topminnow and brassy minnow. Species explicitly not covered in the Biological
8 Opinion (USFWS 2000), include black-footed ferret, Preble's meadow jumping mouse and
9 Ute ladies tresses' orchid. The programmatic biological opinion was amended in February
10 2008 to address the change in status for the bald eagle (USFWS 2008).

11 The Bald and Golden Eagle Protection Act (16 USC 668-668d) includes several prohibitions
12 not found in the Migratory Bird Treaty Act of 1918, such as molestation or disturbance. In
13 1962, the Act was amended to include the golden eagle.

14 As directed by Colorado Revised Statute 33 (CRS Ann. §§33-2 to 102-106), the Colorado
15 Wildlife Commission issues regulations and develops management programs implemented by
16 the Colorado Division of Wildlife (CDOW) for wildlife species not federally listed as threatened
17 or endangered. This includes maintaining a list of state threatened and endangered species.
18 CDOW also maintains a list of species of concern but these are not protected under Colorado
19 State Statute 33.

20 Additional CDOT and local guidelines and recommendations applicable to wildlife include the
21 CDOT Prairie Dog Policy, which consists of a series of steps that include avoiding
22 disturbance to prairie dog colonies. More detail on all regulations pertaining to wildlife
23 resources is provided in the *Wildlife Technical Report* (ERO, 2008).

24 **3.13.2 Affected Environment**

25 Threatened and endangered species were reviewed during initial screening of alternatives
26 using existing information from readily available sources. Existing information was reviewed
27 and special concerns related to the project were identified through coordination and
28 consultation with USFWS, CDOW, and Colorado Natural Heritage Program (CNHP)
29 personnel, and local open space management agencies. Once the proposed project area was
30 identified, detailed habitat evaluations were performed in the project area based on fieldwork.
31 Additional reviews were conducted of existing information regarding Preble's meadow
32 jumping mouse (*Zapus hudsonius preblei*), bald eagle (*Haliaeetus leucocephalus*), and black-
33 tailed prairie dog (*Cynomys ludovicianus*) colonies. Specific methods used for data collection
34 are described in detail in the *Wildlife Technical Report* (ERO, 2008).

1 **3.13.2.1 FEDERALLY LISTED THREATENED, ENDANGERED, AND CANDIDATE**
2 **SPECIES**

3 Federally listed threatened, endangered, and candidate wildlife species that potentially occur in
4 the project area are shown in **Table 3.13-1** (USFWS, 2005a). **Table 3.13-2** lists species
5 potentially affected by water depletions to the Platte River system (USFWS, 2005a).

6 **Table 3.13-1 Federally Listed Threatened, Endangered and Candidate Wildlife**
7 **Species Potentially Occurring in the Project Area**

Common Name	Scientific Name	Status*	Habitat	Potential to Occur in North I-25 Project Area
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	FT	Riparian areas along major drainages with adequate shrub and tree cover	Known to occur in riparian habitat on Big Thompson River at I-25 and Likely to occur in riparian habitat on Little Thompson River at I-25; suitable habitat is present on other major drainages, but is unlikely to be occupied based on trapping data

Source: USFWS, 2005a.

FT – Federally listed as threatened

Note: No endangered species or candidate species for listing under the ESA occur within the project area

8 **Table 3.13-2 Federally Listed Wildlife Species Potentially Affected by Depletions to**
9 **the Platte River System**

Common Name	Scientific Name	Federal Status	Habitat	Potential to Occur in North I-25 Project Area
Whooping crane	<i>Grus americana</i>	FE	Platte River and surrounding habitat in Nebraska	Not present, but may be affected by depletions to the Platte River system
Least tern	<i>Sterna antillarum</i>	FE	Platte River and surrounding habitat in Nebraska	Not present, but may be affected by depletions to the Platte River system
Eskimo curlew	<i>Numenius borealis</i>	FE	Platte River and surrounding habitat in Nebraska	Not present, but may be affected by depletions to the Platte River system
Piping plover	<i>Charadrius melodus</i>	FT	Platte River and surrounding habitat in Nebraska	Not present, but may be affected by depletions to the Platte River system
Pallid sturgeon	<i>Scaphirhynchus albus</i>	FE	Platte River in Nebraska	Not present, but may be affected by depletions to the Platte River system

Source: USFWS, 2005a.

FE = Federally listed as endangered FT = Federally listed as threatened

Note: No candidate species for listing under the ESA occur in the project area.

1 Other federally listed species that occur in the northern Colorado Front Range were evaluated
2 in the *Wildlife Technical Report* (ERO, 2008) and eliminated from further consideration because
3 of the lack of suitable habitat.

4 *Preble's Meadow Jumping Mouse*

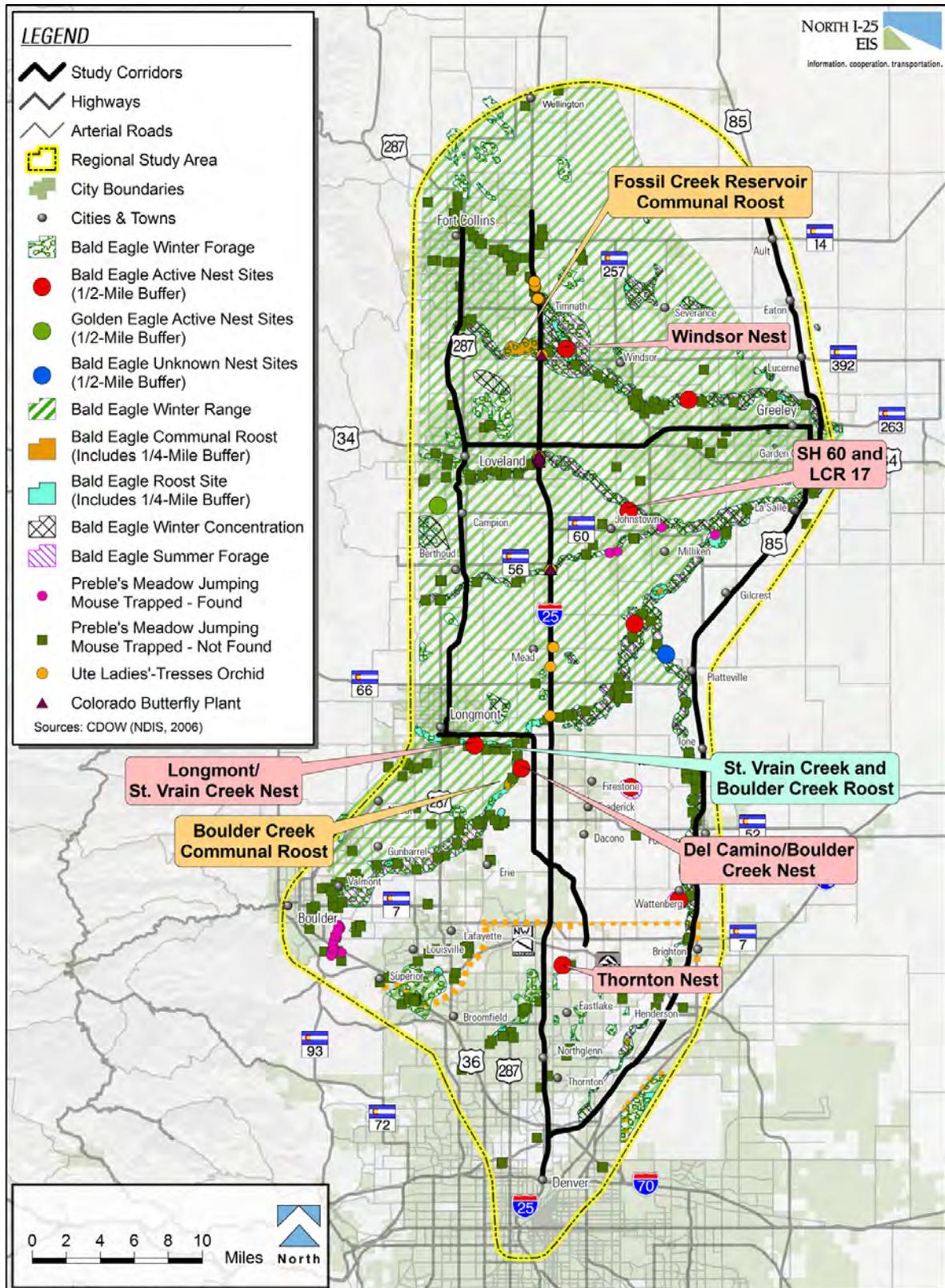
5 Based on site visits and past trapping records, a number of riparian areas in the project area
6 offer potential habitat for Preble's meadow jumping mouse (Preble's). These include the
7 Big Thompson River, Cache la Poudre River, Dry Creek, Fossil Creek, Little Thompson River,
8 St. Vrain Creek, South Platte River, and Spring Creek. Trapping surveys have found Preble's in
9 riparian habitat near the Big Thompson less than one mile downstream from I-25 (USFWS,
10 2005b). No trapping surveys have been conducted within one mile of I-25 on the Little
11 Thompson River; however, trapping surveys have found Preble's more than one mile
12 downstream from I-25 (USFWS 2005b). Preble's is assumed to be present in riparian habitat
13 along the Big Thompson and Little Thompson rivers. Other drainages in the project area were
14 surveyed extensively for Preble's in the past and available information indicates that these sites
15 are unlikely to support populations of Preble's. Critical habitat was designated in Larimer
16 County; however, no designated critical habitat for this species occurs in the project area
17 (see **Figure 3.13-1**).

18 **3.13.2.2 OTHER FEDERALLY PROTECTED SPECIES**

19 *Bald Eagle*

20 The bald eagle was recently removed from the federal list of threatened and endangered
21 species, but continues to be protected by the Bald and Golden Eagle Protection Act. Four
22 active bald eagle nests occur within 3 miles of the sections of I-25 proposed for widening or the
23 proposed rail alignment. These nests were monitored in 2006 by the Rocky Mountain Bird
24 Observatory's Bald Eagle Watch Program (Gamble, 2006). Nest locations are shown in
25 **Figure 3.13-1** and are described below.

1 **Figure 3.13-1** Roost/Nests and Possible Preble's Meadow Jumping Mouse Habitat in
2 the Regional Study Area



Map Document - CKB (EJ_Planners_Services_sis.mxd)
1-19-2007

1 CDOW mapping shows another active nest located approximately 0.5 mile northwest of the
2 intersection of Highway (Hwy) 60 and Larimer County Road (LCR) 17 (NDIS, 2006). This site is
3 approximately 1.5 miles west of the proposed rail line and is occupied by golden eagles rather
4 than bald eagles. This nest has successfully produced young golden eagles every year for at
5 least 6 years as of 2006 (Ryel, personal communication, 2006).

6 CDOW defines bald eagle roost sites as groups of trees or individual trees used by less than 15
7 eagles for diurnal and/or nocturnal perches. CDOW defines communal roost sites as groups of
8 trees or individual trees used by more than 15 eagles for diurnal and/or nocturnal perches.
9 CDOW has identified roost sites at several locations that are adjacent to or within 1 mile of the
10 project area (see **Figure 3.13-1**). These sites are:

- 11 ▶ **Fossil Creek Reservoir Communal Roost.** CDOW has mapped a communal roost site at
12 Fossil Creek Reservoir about 0.5 mile west of I-25 (NDIS, 2006). CDOW considers the
13 reservoir as a whole when mapping the limits of the roost. It extends the roost boundary
14 about 0.25 mile from the edge of the reservoir, not including Swede Lake, because most of
15 the larger trees surrounding the reservoir are used by eagles in winter. Specific roost
16 locations and levels of use can vary depending on prey availability, weather, and other
17 factors.
- 18 ▶ **St. Vrain Creek and Boulder Creek Roost.** CDOW has mapped as a bald eagle roost site
19 the section of St. Vrain Creek from west of US 287 to east of I-25, and the section of Boulder
20 Creek from the confluence of Boulder Creek with St. Vrain Creek, upstream to a point about
21 five miles from the confluence. This area was active as a winter roost in February and March
22 2005 (ERO, 2008).
- 23 ▶ **Boulder Creek Communal Roost.** A communal roost site is located about 3 miles
24 southwest of the intersection of I-25 and SH 119 on Boulder Creek (NDIS, 2006).

25 **3.13.2.3 STATE-LISTED THREATENED, ENDANGERED, AND SPECIES OF SPECIAL** 26 **CONCERN**

27 State endangered, threatened, and species of concern with potentially suitable habitat in the
28 regional study area are listed in **Table 3.13-3** and **Table 3.13-4** and are described below.
29 Colorado Revised Statute 33 states that it is unlawful for any person to take, possess, transport,
30 export, process, sell or offer for sale, or ship and for any common or contract carrier to
31 knowingly transport or receive for shipment any species or subspecies of wildlife appearing on
32 the state list of threatened and endangered wildlife (CRS Ann. §§33-2-105). While species of
33 special concern are not protected by statute, CDOT is committed to their conservation. Some
34 state-listed species were dropped from further consideration because of the lack of suitable
35 habitat (ERO, 2008).

1

Table 3.13-3 State Threatened, Endangered, and Species of Special Concern Potentially Occurring in the Regional Study Area (Terrestrial)

Common Name	Scientific Name	Status ¹	Habitat	Potential to Occur in North I-25 Project Area
Mammals				
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	SC	Open space and vacant land	Known to occur throughout the project area
Swift fox	<i>Vulpes velox</i>	SC	Shortgrass prairie	Potentially occurs east of I-25 in Larimer and Weld counties
Townsend's big-eared bat	<i>Plecotus townsendii</i>	SC	Caves and mineshafts, urban areas, and riparian areas	Potentially occurs in urban areas and riparian areas
Birds				
Western burrowing owl	<i>Athene cunicularia</i>	ST	Nests in prairie dog colonies	Known to occur in the prairie dog colony at US 34 and SH 257; possibly occurs in other prairie dog colonies
Ferruginous hawk	<i>Buteo regalis</i>	SC	Nests in grasslands and often forages in prairie dog colonies	Likely to occur in prairie dog colonies in winter
Great blue heron	<i>Ardea herodias</i>	None ²	Nests in colonies in groves of trees on major rivers and reservoirs, and forages in all aquatic habitats	Known to occur; three heron nesting areas occur in or near the project area
Reptiles/Amphibians				
Common gartersnake	<i>Thamnophis sirtalis</i>	SC	Streams, ditches, and ponds	Known to occur on major streams and rivers and other aquatic habitats in the project area
Northern leopard frog	<i>Rana pipiens</i>	SC	Streams, lakes, ponds, marshes, and wet meadows	Known to occur in Cache la Poudre, Big Thompson, St. Vrain, and South Platte drainages

2
3

¹ Key to CDOW species ranking system: SE: State Endangered, ST: State Threatened, SC: Special Concern.

² Great blue heron is not listed on state list, but is protected by the Migratory Bird Treaty Act.

1

Table 3.13-4 State Threatened, Endangered, and Species of Special Concern Potentially Occurring in the Regional Study Area (Aquatic)

Common Name	Scientific Name	Status*	Habitat	Potential to Occur in North I-25 Project Area
Fish				
Common shiner	<i>Notropis cornutus</i>	SE	Cool, clear streams with moderate gradient, gravelly bottoms, and shady areas	Known to occur in St. Vrain Creek and South Platte River
Brassy minnow	<i>Hybognathus hankinsoni</i>	ST	Cool, clear streams with abundant aquatic vegetation and mud or gravel substrate	Known to occur in Cache la Poudre River, Fossil Creek, St. Vrain Creek, and South Platte River
Iowa darter	<i>Etheostoma exile</i>	SC	Lakes with rooted aquatic vegetation and streams with cool, clear water, undercut banks, and vegetation extending from the bank into the water	Known to occur in Cache la Poudre and Big Thompson rivers, and St. Vrain Creek
Stonecat	<i>Noturus flavus</i>	SC	Streams with strong current and rubble, rocks, or woody debris	Known to occur in St. Vrain Creek
Invertebrates				
Cylindrical papershell	<i>Anodontooides ferussacianus</i>	SC	Mud and sand in small creeks	Potentially occurs in small streams in the project area

Sources: CDOW 2005c; NDIS 2006.

* Key to CDOW species ranking system: SE: State Endangered, ST: State Threatened, SC: Special Concern. Although great blue heron is not listed as a species of concern by either CDOW or CNHP, it was added to the list of species to be reviewed at the request of CDOW (Sherman, personal communication, 2006).

2 **3.13.2.4 OTHER SENSITIVE WILDLIFE SPECIES**

3 A rare stonefly (*Mesocapnia frisoni*) is the only CNHP listed species with potentially suitable
 4 habitat in the regional study area (ERO, 2007). In Colorado, this species is known to occur only
 5 in the Little Thompson River (CNHP, 2005). In the project area, the stonefly is known to occur in
 6 the reach of the Little Thompson River that includes the crossing at US 287 and the BNSF
 7 Railway (CNHP, 2005).

8 **3.13.2.5 THREATENED AND ENDANGERED PLANT SPECIES**

9 The USFWS (2006) has identified the Colorado butterfly plant (*Gaura neomexicana* subsp.
 10 *coloradensis*) and Ute ladies'-tresses orchid (*Spiranthes diluvialis*) as potentially occurring in all
 11 counties within the regional study area (see **Table 3.13-5**). As such, field surveys were conducted
 12 during the summer/fall of 2005 and 2006 to assess if populations of these species or potential
 13 habitat for these species existed within the project area.

1

Table 3.13-5 Federally Listed Threatened and Endangered Plant Species Potentially Occurring in the Regional Study Area

Common Name	Scientific Name	Status*	Habitat	Acres of Existing Potential Habitat
Colorado butterfly plant	<i>Gaura neomexicana</i> subsp. <i>coloradensis</i>	Federally Endangered	Zone between wetlands and upland prairies in sub-irrigated drainage bottoms of active, meandering streambeds	5.01 acres
Ute ladies'-tresses orchid	<i>Spiranthes diluvialis</i>	Federally Threatened	Open riparian areas, floodplains, and alluvial meadows	19.19 acres

Sources: USFWS 2006.

2 **Colorado Butterfly Plant**

3 The Colorado butterfly plant is a perennial evening primrose that is approximately 20 to 32 inches
4 in height with reddish, pubescent stems and a narrow, elongate inflorescence of white flowers,
5 which turn pink or reddish with age. Primary habitat for this species is generally located between
6 5,000 to 6,400 feet in elevation in a zone between wetlands and upland prairie in the sub-irrigated,
7 alluvial soils of drainage bottoms with an active, meandering stream.

8 Based on the field surveys, potential habitat for the Colorado butterfly plant exists within the
9 project area along the Cache la Poudre River floodplain in Larimer County; however, no
10 populations or individuals of this species were observed during the surveys.

11 **Ute Ladies'-tresses Orchid**

12 The Ute ladies'-tresses orchid is a perennial, terrestrial orchid characterized by 8- to 20-inch
13 stems, thick tuberous root system, narrow leaves, and white flowering stalk. The stalk is
14 comprised of a spike arrangement at the top of the stem with few to many small white or ivory
15 flower clusters. Primary habitat typically found in elevations below 6,500 feet in open riparian
16 areas, alluvial meadows, floodplains of perennial stream, and edges of springs and lakes.

17 Based on the field surveys, potential habitat for the Ute ladies'-tresses orchid exists within the project
18 area floodplains of the Big Thompson River, the Little Thompson River, and St. Vrain Creek;
19 however, no populations or individuals of this species were observed during the surveys.

20 **3.13.3 Environmental Consequences**

21 This section describes the consequences of the No-Action Alternative and Packages A and B to
22 federally listed threatened and endangered species; state-listed threatened, endangered, and
23 species of concern; and other sensitive species.

24 Given the large scale of the project, and the large size of the regional study area, effects were
25 estimated on a broad scale using data from a variety of sources including USFWS, CDOW, and
26 project-specific data collected by CDOT contractors. Direct effects to sensitive species or their
27 habitat were quantified where possible by measuring acres of habitat within the project limits of
28 disturbance using Geographic Information System (GIS) overlays.

- 1 ▶ **Preble's Habitat.** Effects to Preble's habitat were estimated by assuming that Preble's is
2 present in riparian habitat within 1 mile upstream and downstream of known capture sites.
3 Riparian vegetation was defined based on vegetation data (**Section 3.10 Vegetation**).
- 4 ▶ **Bald Eagle Habitat.** Effects to bald eagle habitat were estimated based on the number of
5 nests within 0.5 mile of the project area and the acreage of summer or winter forage areas
6 within the project area affected by a given project component.
- 7 ▶ **Platte River Species Habitat.** Effects to Platte River species in Nebraska (whooping crane,
8 least tern, Eskimo curlew, piping plover, pallid sturgeon, or western prairie fringed orchid)
9 due to depletions are not addressed because no depletions are expected as a result of the
10 project. As currently proposed, the project would not result in depletions for the following
11 reasons:
- 12 • Water quality ponds would be dry facilities and would release detained water within
13 40 hours; therefore, they would not result in discernable water loss via evaporation.
 - 14 • Water used for dust abatement would be obtained from municipal sources that have
15 previously undergone depletion consultations.
 - 16 • Wetland mitigation will be at a 1:1 ratio; therefore, there would not be water loss via
17 transpiration.
- 18 ▶ **Black-Tailed Prairie Dog Habitat.** Effects to black-tailed prairie dogs were quantified based
19 on mapping of prairie dog colonies supplied by CDOW and verified by ERO using current
20 aerial photography and field visits. Effects to other sensitive species often associated with
21 prairie dogs, such as western burrowing owls, were estimated from the effects on prairie dog
22 colonies.
- 23 ▶ **Blue Heron Habitat.** Effects on great blue herons were estimated based on data from
24 CDOW, showing known nesting areas for this species (NDIS, 2006).
- 25 ▶ **Northern Leopard Frog/Gartersnake Habitat.** Effects to potential habitat for northern
26 leopard frogs and common gartersnakes were estimated by assuming that habitat for these
27 species coincides with wetlands and riparian vegetation. All types of wetland and riparian
28 habitat, including open water, were considered potential habitat for these two species.
- 29 ▶ **Sensitive Aquatic Species Habitat.** Effects to sensitive aquatic species, including common
30 shiner, brassy minnow, Iowa darter, stonecat, and cylindrical papershell, were estimated
31 based on acres of impacts to streams where these species are known to occur or have the
32 potential to occur.
- 33 ▶ **Colorado Butterfly Plant / Ute Ladies'-tresses Orchid Habitat.** Effects to the Colorado
34 butterfly plant and Ute ladies'-tresses orchid were identified based on existing area of
35 potential habitat for these species as identified by the USFWS and through the habitat
36 assessments conducted in 2006.

3.13.3.1 NO-ACTION ALTERNATIVE

The No-Action Alternative includes major and minor structure rehabilitation, replacement or rehabilitation of existing pavement, and minor safety modifications by 2030. These are actions that would take place regardless of whether any of the proposed improvements in Packages A and B occur. The No-Action Alternative is described in detail in **Chapter 2**.

The No-Action Alternative would not affect threatened and endangered species. Existing conditions, described in **Section 3.13.2**, would continue. However, with increasing traffic volumes and continuing commercial and residential development in the project area, some effects to threatened, endangered, and sensitive species would be expected. Effects from existing traffic volumes would include mortality from vehicle collisions and disturbance from vehicle lights and noise. With increasing traffic and congestion, roadway pollution and sediment runoff may increase, which could eliminate sections of potential habitat and increase the possibility for noxious weed invasions. Existing habitat fragmentation due to I-25 would continue. Effects from continued development would include direct loss of habitat and increasing habitat fragmentation from development.

3.13.3.2 PACKAGE A

Package A includes construction of additional general purpose and auxiliary lanes on I-25, the construction and implementation of commuter rail, and the implementation of commuter bus service. The alternatives are described in detail in **Chapter 2**. A discussion of impacts for each Package A component is provided below.

Highway Components

Overall, effects to threatened and endangered species from Package A highway components would result primarily from road widening, replacement and construction of new bridges, and installation of new lights. The types of effects from highway components include habitat loss, habitat fragmentation, disturbance during construction, and increased mortality from collisions with vehicles. Most effects would occur in permanently degraded areas, such as mowed rights-of-way adjacent to the existing highway. Effects to threatened, endangered, and species of concern from Package A highway components are described below.

Preble's Meadow Jumping Mouse. Package A highway components A-H2 and A-H3 would disturb approximately 0.81 acre of riparian habitat that provide potential habitat for Preble's at the Big Thompson and Little Thompson rivers. Temporary disturbance to riparian habitat during bridge replacement at these two rivers could affect Preble's habitat on these drainages. Direct effects to Preble's could include loss of potential habitat, mortality from crushing by construction equipment, or disruption of hibernation during winter. Any new street lights near bridges could increase susceptibility of Preble's to predation. Indirect effects could include increased habitat fragmentation and decreased use of the area as a movement corridor due to increased width of the I-25 bridge crossings of the Big Thompson and Little Thompson rivers.

1 **Bald Eagle.** Package A highway components potentially affect bald eagle nests, roosts, and
2 foraging habitat:

- 3 ▶ Current data indicate that no active nests occur within 0.5 mile of the Package A highway
4 components as of the 2006 – 2007 breeding season; however, several bald eagle nests
5 are known to occur near the project area. New breeding pairs of bald eagles could
6 construct nests within 0.5 mile of the project area in the future, or a pair of eagles using
7 one of the existing nests could relocate to a new nest closer to the project area. If
8 construction activities occur within 0.5 mile of an active nest during the courting or
9 breeding season, effects could include behavioral disturbance and potential nest
10 abandonment.
- 11 ▶ The roost located at Fossil Creek Reservoir would not be adversely affected by Package A
12 highway component A-H2 because proposed work in this area consists of upgrading
13 interchange and frontage roads, and because the roost is separated from the highway by
14 existing and proposed development. New lighting at the intersection would either increase
15 light pollution at the roost or, depending on design, decrease effects of light on the roost.
16 The roost area is already heavily impacted by light pollution and eagles have likely
17 acclimated to the existing disturbance. Bald eagle roosting areas change from year to year,
18 new roosting areas could become established or existing roosts could be abandoned by
19 the time of construction, so effects described above are considered representative of
20 effects that could occur.
- 21 ▶ Package A highway components would affect 186.50 acres of bald eagle foraging habitat.
22 Bald eagles frequently forage in prairie dog colonies and riparian areas along major
23 streams and rivers in the project area, especially in winter. Long-term impacts include loss
24 of foraging habitat from road widening or other project components.

25 Potential direct effects to bald eagle forage habitat from Packages A and B are summarized in
26 **Table 3.13-7 (Section 3.13.3.4).**

27 **Black-Tailed Prairie Dog.** Package A highway components would directly affect 40.93 acres
28 of black-tailed prairie dog colonies. Direct effects to black-tailed prairie dogs could include
29 being crushed by machinery or displaced during construction. Implementation of CDOT's
30 prairie dog policy would result in avoidance or minimization of most impacts to prairie dogs,
31 especially direct mortality due to construction (CDOT, 2005). Prairie dogs would also be
32 indirectly affected by loss of habitat within the highway right-of-way as a result of construction
33 and by habitat fragmentation. Effects to occupied prairie dog habitat from Packages A and B
34 are shown in **Table 3.13-8 (Section 3.13.3.4).**

35 **Western Burrowing Owl.** Package A highway components would affect 40.93 acres of prairie
36 dog colonies, which could indirectly affect burrowing owls because prairie dog colonies provide
37 potential nesting habitat for this species. Direct effects to burrowing owls could include being
38 crushed by machinery or being forced to abandon their nests if construction occurs during the
39 time the owls are present in Colorado from March 1 to October 31, or during the nesting
40 season from April 1 to July 31 (CDOW, 2002). No burrowing owls are known to nest within the
41 project area associated with Package A highway components. For the purposes of comparing
42 impacts between packages, impacts to prairie dog colonies are considered representative of
43 potential impacts to burrowing owl habitat. Effects to occupied prairie dog habitat from
44 Packages A and B are shown in
45 **Table 3.13-8 (Section 3.13.3.4).**

1 **Great Blue Heron.** Package A highway components would not result in direct effects to great
2 blue heron nesting areas because no impacts would occur within the 500-meter (0.31-mile)
3 buffer from the edge of great blue heron nesting areas recommended by CDOW. Great blue
4 herons would be affected by loss of foraging habitat in wetland and riparian areas. Impacts to
5 great blue heron foraging areas would be similar to impacts for other riparian species. Indirect
6 impacts could include potential changes in aquatic species composition or abundance that affect
7 the availability of heron prey. Impacts to aquatic resources (and thus impacts to herons) would
8 be small (see **Section 3.7** Water Resources).

9 **Northern Leopard Frog and Common Gartersnake.** Package A highway components would
10 affect 15.90 acres of habitat for northern leopard frogs and common gartersnakes. These two
11 species would be affected by loss or fragmentation of riparian areas and wetlands as a result of
12 construction. Direct effects could include mortality from being crushed by equipment during
13 construction. Indirect effects could include habitat fragmentation and reduced movement
14 between habitat patches located on opposite sides of new or widened bridges or culverts.
15 Indirect effects to these two species would result from temporary declines in water quality from
16 the project, but would be expected to be short-term (see **Section 3.7**). Direct effects to potential
17 northern leopard frog and common gartersnake habitat from Packages A and B are shown in
18 **Table 3.13-9 (Section 3.13.3.4)**.

19 **State Threatened, Endangered, and Sensitive Aquatic Species.** Package A highway
20 components would directly affect 0.30 acres of habitat for state threatened, endangered, and
21 sensitive aquatic species, such as common shiner, brassy minnow, Iowa darter, stonecat, and
22 cylindrical papershell (**Table 3.13-11**). Potential adverse effects to these species during
23 construction would include temporary loss of habitat during construction of piers, bridges,
24 culverts, and other work within streams. Increased erosion during construction could result in
25 increased sediment loads, which would adversely affect sensitive aquatic species. Working
26 directly in streams would increase sediment loads, which could change water temperature.
27 Working directly in streams could also interfere with seasonal movements of sensitive fish
28 species. These impacts would be short-term and would be mitigated through use of construction
29 best management practices. Increases in traffic could result in increased contaminants in
30 roadway runoff, including deicer, and would increase the risk of accidental spills of hazardous
31 materials, which could affect these species. Package A highway components include
32 construction of new water quality ponds, which would result in an indirect benefit to state
33 threatened, endangered, and sensitive aquatic species by improving water quality in streams
34 and water bodies downstream compared to the No-Action Alternative. Construction of new
35 culverts or lengthening of existing culverts would adversely affect sensitive aquatic species by
36 increasing shading or replacing natural streambed with concrete. Stream habitat could be
37 potentially improved through the replacement of existing culverts with more numerous culverts
38 or free-spanning bridges. Removal or redesign of drops that act as barriers would also benefit
39 sensitive fish species. Removal of the existing drop structure on St. Vrain Creek just
40 downstream from I-25 is planned as part of the project and would remove a barrier to small fish
41 movement.

42 **Other State Threatened, Endangered, and Species of Special Concern.** Potential impacts to
43 other species of concern (swift fox, Townsend's big eared bat, and ferruginous hawk) from
44 Package A highway components are described in **Table 3.13-10 (Section 3.13.3.4)**.

1 **Colorado Butterfly Plant.** No Colorado butterfly plant or Ute ladies'-tresses orchid species
2 populations or individuals were observed within the project area during the field surveys, so no direct
3 impacts to these species would be anticipated. However, approximately 2.25 acres of potential
4 habitat would be disturbed through construction activities, and because potential habitat exists within
5 the project area, presence/absence surveys are recommended prior to construction.

6 The addition of a highway lane on either side of the existing roadway would increase impervious
7 surfaces, thereby increasing runoff and exposing the surrounding vegetation to higher levels of
8 pollutants.

9 **Ute Ladies'-tresses Orchid.** No Colorado butterfly plant or Ute ladies'-tresses orchid species
10 populations or individuals were observed within the project area during the field surveys, so no direct
11 impacts to these species would be anticipated. However, approximately 4.15 acres of potential
12 habitat would be disturbed through construction activities, and because potential habitat exists within
13 the project area, presence/absence surveys are recommended prior to construction.

14 *Transit Components*

15 Effects to federal or state-listed threatened and endangered species from transit components of
16 Package A would result primarily from construction of new tracks, replacement and construction
17 of new bridges, and construction of other transit facilities, such as new transit stations and water
18 quality ponds. Most effects would occur in permanently degraded areas, such as rights-of-way
19 adjacent to the existing tracks, especially for the double-tracked commuter rail line using the
20 existing BNSF railroad track plus one new track from Fort Collins to downtown Longmont (A-T1).
21 The commuter rail segment from Longmont to the FasTracks North Metro end-of-line station in
22 Thornton (A-T2) would consist of a new double-tracked commuter rail line and would be located
23 next to existing highways in areas that are less disturbed than other portions of the project area.
24 Impacts to threatened, endangered, and sensitive species from the Package A transit
25 components are described below.

26 **Preble's Meadow Jumping Mouse.** Package A transit components would not affect occupied
27 Preble's habitat. Although potentially suitable habitat is present along several drainages affected
28 by Package A transit components, there have been no recent captures of Preble's within most of
29 the suitable habitat, so no effects to Preble's are expected. Potential direct effects to Preble's
30 habitat for Packages A and B are summarized in **Table 3.13-6 (Section 3.13.3.4)**. Actual
31 impacts may be different at time of construction because new data on Preble's distribution may
32 be available in the future. Effects shown in **Table 3.13-6** are representative of the effects that
33 are expected to occur based on currently available data.

34 **Bald Eagle.** Package A transit components potentially affect bald eagle nests, roosts, and
35 foraging habitat:

- 36 ▶ Current data indicate that no active nests occur within 0.5 mile of the Package A transit
37 components as of the 2006 – 2007 breeding season; however, several bald eagle nests are
38 known to occur near the project area. New breeding pairs of bald eagles could construct
39 nests within 0.25 mile of the project area in the future, or a pair of eagles using one of the
40 existing nests could relocate to a new nest closer to the study area. If construction activities
41 occur within 0.5 mile of an active nest during the courting or breeding season, effects could
42 include behavioral disturbance and potential nest abandonment.

- 1 ▶ Package A transit component A-T2 could affect the bald eagle roost on St. Vrain Creek. The
2 proposed rail alignment from Longmont to Thornton would run parallel to SH 119 on the
3 north side of the highway, crossing St. Vrain Creek via a new bridge north of SH 119.
4 Approximately 0.08 acre of riparian habitat that provide suitable perching or roosting sites for
5 bald eagles would be directly affected at this location, and approximately 5 acres within the
6 0.25-mile buffer around eagle roosting habitat would also be affected. Although it is unlikely
7 that bald eagles actually roost immediately adjacent to SH 119, a busy highway, the loss of
8 riparian habitat in this area would reduce the amount of available roosting habitat further
9 downstream. Construction of the commuter rail line in this area could also lead to indirect
10 impacts to roosting bald eagles through increases in noise, vibration, and visual disturbance
11 such as lights, from passing trains. Bald eagle roosting areas change from year to year, and
12 new roosting areas could become established or existing roosts could be abandoned by the
13 time of construction, so effects described above are considered representative of effects that
14 could occur.
- 15 ▶ Package A transit components would affect 21.09 acres of bald eagle foraging habitat. Bald
16 eagles frequently forage in prairie dog colonies and riparian areas along major streams and
17 rivers in the project area, especially in winter. Long-term impacts would include loss of
18 foraging habitat from road widening or other project components.

19 Potential direct effects to bald eagle forage habitat from are summarized in **Table 3.13-7**
20 **(Section 3.13.3.4).**

21 **Black-Tailed Prairie Dog.** Package A transit components would directly affect 15.1 acres of
22 black-tailed prairie dog colonies. Direct effects to black-tailed prairie dogs could include being
23 crushed by machinery or displaced during construction. Implementation of CDOT's prairie dog
24 policy would result in avoidance or minimization of most impacts to prairie dogs, especially direct
25 mortality due to construction (CDOT, 2005). Prairie dogs would also be indirectly affected by
26 loss of habitat within the railroad right-of-way as a result of construction and by habitat
27 fragmentation. Effects to occupied prairie dog habitat from Packages A and B are shown in
28 **Table 3.13-8 (Section 3.13.3.4).**

29 **Western Burrowing Owl.** The Package A transit component A-T1 would affect 15.1 acres of
30 prairie dog colonies, which could indirectly affect burrowing owls. Types of direct and indirect
31 effects would be the same as for Package A highway components. No burrowing owls are
32 known to nest within the project area associated with Package A transit components. For the
33 purposes of comparing impacts between alternative packages, impacts to prairie dog colonies
34 are considered representative of potential impacts to burrowing owl habitat. Effects to occupied
35 prairie dog habitat from Packages A and B are shown in **Table 3.13-8.**

36 **Great Blue Heron.** Package A component A-T1 would result in disturbance to 3.34 acres within
37 the 500-meter (0.31-mile) buffer around a great blue heron nesting area at Ish Reservoir. The
38 0.31-mile buffer is based on recommendations by CDOW. No direct impacts to great blue heron
39 nesting areas would occur. Great blue herons would be affected by loss of foraging habitat in
40 wetland and riparian areas. Great blue herons could be affected by noise, light, or human
41 encroachment within this buffer during nesting season, which is approximately March 15 through
42 July 31. Effects could include nest abandonment or reduced nesting success. Impacts to great
43 blue heron foraging areas would be similar to impacts for other riparian and aquatic species.

44 **Northern Leopard Frog and Common Gartersnake.** Package A transit components would
45 affect 4.96 acres of potential habitat for northern leopard frogs and common gartersnakes.

1 Types of effects would be the same as for Package A highway components. Direct effects to
2 potential northern leopard frog and common gartersnake habitat from Packages A and B are
3 summarized in **Table 3.13-9 (Section 3.13.3.4)**.

4 **State Threatened, Endangered, and Sensitive Aquatic Species.** Package A transit
5 components would directly affect 0.08 acres of habitat for state threatened, endangered, and
6 sensitive aquatic species, such as common shiner, brassy minnow, Iowa darter, stonecat, and
7 cylindrical papershell (**Table 3.13-11, Section 3.13.3.4**). Potential adverse effects to these
8 species during construction would include temporary loss of habitat during construction of piers,
9 bridges, culverts, and other work within streams. Accidental spills of hazardous materials in
10 streams could occur during construction, which would adversely affect sensitive aquatic species.
11 Working directly in streams would increase sediment loads, which could indirectly change water
12 temperature and cover eggs. Working directly in streams could also interfere with seasonal
13 movements of sensitive fish species. These impacts would be short-term and would be mitigated
14 through use of construction best management practices.

15 The Package A transit components include construction of water quality ponds, which result in an
16 indirect benefit to state threatened, endangered, and sensitive aquatic species by improving
17 water quality in streams and water bodies downstream. Construction of new culverts, lengthening
18 of existing culverts, or widening of existing bridges would adversely affect sensitive aquatic
19 species by replacing natural streambed with concrete and by increasing shade. Stream habitat
20 could be potentially improved through the replacement of existing culverts with more numerous
21 culverts or free-spanning bridges. Removal or redesign of drops that act as barriers would also
22 benefit sensitive fish species. **Table 3.13-11 (Section 3.13.3.4)** summarizes direct effects to
23 habitat for state-listed threatened, endangered, and sensitive aquatic species from Packages A
24 and B.

25 In addition to direct impacts to habitat, the project would lead to increases in impervious surface
26 areas, which would lead to increased flows during storm events. Increases in flows could lead
27 in turn to increased channelization and incision of streams, sedimentation, and loss of riparian
28 vegetation (refer to **Section 3.7 Water Resources**). These impacts could result in degraded
29 habitat conditions for state listed threatened, endangered, and sensitive aquatic species.
30 Impacts would be greater for Package B than for Package A because Package B would result in
31 a greater increase in impervious surfaces.

32 In addition to effects to habitat from increased flows, increases in impervious surfaces in the project
33 area could also result in increased loads of contaminants in streams. The Driscoll water quality
34 model predicted that loads of several contaminants reaching aquatic habitat after storm events
35 would increase under both Package A and Package B compared to the No-Action Alternative, with
36 Package B resulting in greater increases in loads than Package A due to the greater increase in
37 impervious surface under Package B (refer to **Section 3.7 Water Resources**).

38 **Other State Threatened, Endangered, and Species of Special Concern.** Potential impacts to
39 other species of concern (swift fox, Townsend's big eared bat, and ferruginous hawk) from Package
40 A transit components are described in **Table 3.13-10 (Section 3.13.3.4)**.

41 **Colorado Butterfly Plant.** No Colorado butterfly plant or Ute ladies'-tresses orchid species
42 populations or individuals were observed within the project area during the field surveys, so no
43 direct impacts to these species would be anticipated. No areas of potential habitat were identified
44 for this species within the transit component corridors and therefore no presence/absence surveys
45 for this species would be necessary prior to construction.

1 **Ute Ladies'-tresses Orchid.** No population or individual species were observed during habitat
2 assessments, so no direct impacts would be anticipated on this species. No areas of potential
3 habitat were identified for this species within the transit component corridors and therefore no
4 presence/absence surveys for this species would be necessary prior to construction.

5 **3.13.3.3 PACKAGE B**

6 Package B includes construction of tolled express lanes on I-25, and the implementation of bus
7 rapid transit service. The alternatives are described in detail in **Chapter 2 Alternatives**. Impacts
8 from each Package B component are described below.

9 *Highway Components*

10 Overall, effects on threatened and endangered species from Package B highway components
11 would result primarily from road widening, and replacement and construction of new bridges.
12 The types of effects from highway components would be the same as for Package A highway
13 components. Effects to threatened, endangered, and species of concern from Package B
14 highway components are described below.

15 **Preble's Meadow Jumping Mouse.** Package B highway components would disturb
16 approximately 0.80 acres of riparian habitat that provides potential habitat for Preble's at the Big
17 Thompson and Little Thompson rivers. Types of direct and indirect effects would be the same as
18 for Package A highway components. Potential direct effects to Preble's habitat for Packages A
19 and B are summarized in **Table 3.13-6 (Section 3.13.3.4)**. Actual impacts may be different at
20 time of construction because new data on Preble's distribution may be available in the future.
21 Effects shown in **Table 3.13-6** are representative of the effects that are expected to occur based
22 on currently available data.

23 **Bald Eagle.** Package B highway components potentially affect bald eagle nests, roosts, and
24 foraging habitat:

- 25 ▶ Current data indicate that no active nests occur within 0.5 mile of the Package B highway
26 components as of the 2006 – 2007 breeding season. Types of impacts would be the same
27 as with Package A highway components if a pair of bald eagles were to nest within 0.5 mile
28 of the project area.
- 29 ▶ The roost located at Fossil Creek Reservoir would not be adversely affected by the Package
30 B highway components because the proposed work in this area consists of upgrading
31 interchange and frontage roads, and because the roost is separated from the highway by
32 existing and proposed development. Types of impacts from lighting would be the same as
33 with Package A highway components.
- 34 ▶ Package B highway components would affect 230.68 acres of bald eagle foraging habitat.
35 Types of impacts would be the same as with Package A highway components.

36 Potential direct effects to bald eagle forage habitat are summarized in **Table 3.13-7**
37 **(Section 3.13.3.4)**.

38 **Black-Tailed Prairie Dog.** Package B highway components would directly affect 97.32 acres of
39 black-tailed prairie dog colonies. Types of effects would be the same as with Package A highway
40 components. Effects to occupied prairie dog habitat from Packages A and B are shown in **Table**
41 **3.13-8 (Section 3.13.3.4)**.

1 **Western Burrowing Owl.** Package B highway components would affect 97.32 acres of prairie dog
2 colonies, which could indirectly affect burrowing owls because prairie dog colonies provide potential
3 nesting habitat for this species. Types of effects would be the same as with Package A highway
4 components. No burrowing owls are known to nest within the project area associated with Package
5 B highway components. For the purposes of comparing impacts between packages, impacts to
6 prairie dog colonies are considered representative of potential impacts to burrowing owl habitat.
7 Effects to occupied prairie dog habitat from Packages A and B are shown in **Table 3.13-8**.

8 **Great Blue Heron.** Package B highway components would not result in direct effects to great blue
9 heron nesting areas because no impacts would occur within the 500-meter (0.31-mile) buffer from
10 the edge of great blue heron nesting areas recommended by CDOW. Indirect effects to great blue
11 herons would be similar to impacts from Package A highway components. Impacts would include
12 loss of foraging habitat in wetland and riparian areas and potential changes in aquatic species
13 composition or abundance that affect the availability of heron prey. Impacts to aquatic resources
14 (and thus impacts to herons) would be small (see **Section 3.7 Water Resources**).

15 **Northern Leopard Frog and Common Gartersnake.** Package B highway components would affect
16 20.76 acres of habitat for northern leopard frogs and common gartersnakes. The types of effects to
17 these two species would be the same as with Package A highway components. Direct effects to
18 potential northern leopard frog and common gartersnake habitat from Packages A and B are shown
19 in **Table 3.13-9 (Section 3.13.3.4)**.

20 **State Threatened, Endangered, and Sensitive Aquatic Species.** Package B highway components
21 would directly affect 0.35 acre of habitat for state threatened, endangered, and sensitive aquatic
22 species, such as common shiner, brassy minnow, Iowa darter, stonecat, and cylindrical papershell.
23 Types of effects would be the same as with Package A highway components. As with Package A
24 transit components, the construction of water quality ponds as part of the project would likely result
25 in a net benefit to water quality and to sensitive aquatic species by improving water quality in
26 streams downstream from the project area. **Table 3.13-11** summarizes direct effects to habitat for
27 state-listed threatened, endangered, and sensitive aquatic species from Packages A and B.

28 **Other State Threatened, Endangered, and Species of Special Concern.** Potential impacts to
29 other species of concern (swift fox, Townsend's big eared bat, and ferruginous hawk) from Package
30 B highway components are summarized in **Table 3.13-10 (Section 3.13.3.4)**.

31 **Colorado Butterfly Plant.** No Colorado butterfly plant populations or individuals were observed
32 within the project area during the field surveys, so no direct impacts to these species would be
33 anticipated. However, approximately 2.42 acres of potential habitat would be disturbed through
34 construction activities, and because potential habitat exists within the project area,
35 presence/absence surveys are recommended prior to construction.

36 The improvements on either side of the existing roadway would increase impervious surfaces,
37 thereby increasing runoff and exposing the surrounding vegetation to higher levels of pollutants.

38 **Ute Ladies'-tresses Orchid.** No Ute ladies'-tresses orchid populations or individuals were observed
39 within the project area during the field surveys, so no direct impacts to these species would be
40 anticipated. However, approximately 4.85 acres of potential habitat would be disturbed through
41 construction activities, and because potential habitat exists within the project area,
42 presence/absence surveys are recommended prior to construction.

1 *Transit Components*

2 Overall, effects on threatened, endangered, and sensitive species from Package B transit
3 components would result from construction of new transit stations, parking lots and queue
4 jumps. Types of impacts would include habitat loss and disturbance during construction. Most
5 habitat loss would occur in permanently degraded areas. Effects to threatened, endangered,
6 and sensitive species are described below.

7 **Preble's Meadow Jumping Mouse.** No effects to Preble's would occur from Package B transit
8 components because no occupied habitat would be affected. Potential direct effects to Preble's
9 habitat for Packages A and B are summarized in **Table 3.13-6 (Section 3.13.3.4)**.

10 **Bald Eagle.** No effects to bald eagle nests, roosts, or foraging habitat would occur from
11 Package B transit components. Potential direct effects to bald eagle forage habitat from
12 Packages A and B are summarized in **Table 3.13-7 (Section 3.13.3.4)**.

13 **Black-Tailed Prairie Dog.** Package B transit components would directly affect 6.25 acres of
14 black-tailed prairie dog colonies. Types of effects would be the same as with Package A
15 highway components. Effects to occupied prairie dog habitat from Packages A and B are shown
16 in **Table 3.13-8 (Section 3.13.3.4)**.

17 **Western Burrowing Owl.** Package B transit components would affect 6.25 acres of prairie dog
18 colonies, which could indirectly affect burrowing owls because prairie dog colonies provide
19 potential nesting habitat for this species. Types of effects would be the same as with Package A
20 highway components. No burrowing owls are known to nest within the project area associated
21 with Package B highway components. Effects to occupied prairie dog habitat from Packages A
22 and B are shown in **Table 3.13-8**.

23 **Great Blue Heron.** Package B transit components would not result in direct effects to great blue
24 heron nesting areas because no impacts would occur within the 500-meter (0.31-mile) buffer
25 from the edge of great blue heron nesting areas.

26 **Northern Leopard Frog and Common Gartersnake.** Package B transit components would
27 affect 0.53 acres of habitat for northern leopard frogs and common gartersnakes. The types of
28 effects to these two species would be the same as with Package A highway components. Direct
29 effects to potential northern leopard frog and common gartersnake habitat from Packages A and
30 B are shown in **Table 3.13-9 (Section 3.13.3.4)**.

31 **State Threatened, Endangered, and Sensitive Aquatic Species.** Package B transit
32 components would not affect habitat for state threatened, endangered, and sensitive aquatic
33 species, such as common shiner, brassy minnow, Iowa darter, stonecat, and cylindrical
34 papershell. **Table 3.13-11 (Section 3.13.3.4)** summarizes direct effects to habitat for state-
35 listed threatened, endangered, and sensitive aquatic species from Packages A and B.

36 **Other State Threatened, Endangered, and Species of Special Concern.** Potential impacts to
37 other species of concern (swift fox, Townsend's big eared bat, and ferruginous hawk) from
38 Package B transit components are summarized in **Table 3.13-10 (Section 3.13.3.4)**.

39 **Colorado Butterfly Plant.** The types of effects would be the same as with Package A transit
40 components.

1 **Ute Ladies'-tresses Orchid.** The types of effects would be the same as with Package A transit
2 components.

3 **3.13.3.4 SUMMARY OF IMPACTS TO THREATENED, ENDANGERED, AND**
4 **SENSITIVE SPECIES**

5 **Table 3.13-6** through **Table 3.13-11** summarize effects to threatened, endangered, and
6 sensitive species by component.

7 **Table 3.13-6** summarizes potential direct effects to Preble's habitat for Packages A and B.
8 Actual impacts may be different at time of construction because new data on Preble's
9 distribution may be available in the future. Effects shown in **Table 3.13-6** are representative of
10 the effects that are expected to occur based on currently available data.

Table 3.13-6 Summary of Effects to Occupied Preble's Meadow Jumping Mouse Habitat

Component		Acres of Habitat	Component		Acres of Habitat
Package A Highway Components			Package B Highway Components		
A-H1	Safety Improvements: SH 1 to SH 14	0	B-H1	Safety Improvements: SH 1 to SH 14	0
A-H2	General Purpose Improvements: SH 14 to SH 60	0.53	B-H2	Tolled Express Lanes: SH 14 to SH 60	0.52
A-H3	General Purpose Improvements: SH 60 to E-470	0.28	B-H3	Tolled Express Lanes: SH 60 to E-470	0.28
A-H4	Structure Upgrades: E-470 to US 36	0	B-H4	Tolled Express Lanes: E-470 to US 36	0
Total Package A Highway:		0.81	Total Package B Highway:		0.80
Package A Transit Components			Package B Transit Components		
A-T1	Commuter Rail: Fort Collins to Longmont	0	B-T1	BRT: Fort Collins/Greeley to Denver;	0
A-T2	Commuter Rail: Longmont to North Metro	0	B-T2	BRT: Fort Collins/Greeley to DIA	0
A-T3/ A-T4	Commuter Bus: Greeley to Denver and DIA	0			
Total Package A Transit:		0	Total Package B Transit:		0
Total of Effects for Package A:		0.81	Total of Effects for Package B:		0.80

1 **Table 3.13-7** summarizes effects to bald eagle foraging habitat by component.

2 Bald eagles frequently forage in prairie dog colonies and riparian areas along major streams and
3 rivers in the regional study area, especially in winter. Long-term impacts from road widening or
4 other project components could include loss of foraging habitat or displacement of eagles from
5 foraging habitat. For the purposes of determining impacts to bald eagles from loss of important
6 foraging habitat, the most important foraging habitat is assumed to consist of prairie dog
7 colonies or open water within 3 miles of a nest or communal winter night roost. No large bodies
8 of open water such as lakes or reservoirs would be affected by the proposed project. **Table**
9 **3.13-8** shows expected impacts to important bald eagle foraging habitat.

10 **Table 3.13-7 Summary of Effects to Bald Eagle Forage Habitat**

Component		Forage Habitat (acres) ¹	Component		Forage Habitat (acres) ¹
Package A Highway Components			Package B Highway Components		
AH-1	Safety Improvements: SH 1 to SH 14	0	BH-1	Safety Improvements: SH 1 to SH 14	0
AH-2	General Purpose Improvements: SH 14 to SH 60	166.42	BH-2	Tolled Express Lanes: SH 14 to SH 60	187.05
AH-3	General Purpose Improvements: SH 60 to E-470	20.08	BH-3	Tolled Express Lanes: SH 60 to E-470	20.31
AH-4	Structure Upgrades: E-470 to US 36	0	BH-4	Tolled Express Lanes: E-470 to US 36	23.32
Total Package A Highway:		186.50	Total Package B Highway:		230.68
Package A Transit Components			Package B Transit Components		
A-T1	Commuter Rail: Fort Collins to Longmont	6.18	B-T1	BRT: Fort Collins/Greeley to Denver;	0
A-T2	Commuter Rail: Longmont to North Metro	4.92	B-T2	BRT: Fort Collins/Greeley to DIA	0
AT-3/ AT-4	Commuter Bus: Greeley to Denver and DIA	6.09			
Total Package A Transit:		17.19	Total Package B Transit:		0
Total Effects Package A:		203.69	Total Effects Package B:		230.68

¹ Forage habitat is defined by NDIS, 2006.

1 **Table 3.13-8 Summary of Effects to Important Bald Eagle Foraging Habitat Within**
2 **3 miles of Nests and Roosts.**

Nest or Roost <i>within 3 miles of project area</i>	Prairie dogs within 3-mile buffer (acres)¹	Open water within 3-mile buffer (acres)	Important foraging habitat within 3-miles (acres)²	Package A impacts to prairie dogs within 3-mile buffer³	Package B impacts to prairie dogs within 3-mile buffer³
Fossil Creek Reservoir/ Timnath roost; Windsor nest	846	2,169	3,015	28	38
Longmont/St. Vrain nest; Delcamino/Boulder Creek nest; St. Vrain/ Boulder Creek roosts	824	1,355	2,179	7.8	2.0
Berthoud nest	0	1,621	1,621	0	0
Thornton nest	1,956	424.	2,381	6.7	5.5
Total	3,626	5,569	9,195	42	45

¹ Prairie dogs mapped by CDOW 2002, not field verified.

² Prairie dogs (acres) + Open water (acres).

³ Prairie dogs mapped by ERO in 2006. Impacts within project footprint.

3 **Table 3.13-9** summarizes direct effects to black-tailed prairie dog habitat by component. Many
4 prairie dog colonies in the project area are located within private property that is likely to be
5 developed in the near future. Other prairie dog colonies are located adjacent to undeveloped
6 land and have the potential to expand in the future. Prairie dog colonies are also occasionally
7 affected by sylvatic plague, which may wipe out a colony or greatly reduce the number of prairie
8 dogs. For all of these reasons, the area of occupied prairie dog habitat affected by the project is
9 likely to be different from current conditions at the time of construction. The quantities in **Table**
10 **3.13-9** are considered representative of impacts that could occur.

1 **Table 3.13-9 Summary of Effects to Black Tailed Prairie Dog Occupied Habitat**

Component		Occupied Habitat (acres)	Component		Occupied Habitat (acres)
Package A Highway Components			Package B Highway Components		
A-H1	Safety Improvements: SH 1 to SH 14	0	B-H1	Safety Improvements: SH 1 to SH 14	0
A-H2	General Purpose Improvements: SH 14 to SH 60	21.93	B-H2	Tolled Express Lanes: SH 14 to SH 60	38.30
A-H3	General Purpose Improvements: SH 60 to E-470	19.00	B-H3	Tolled Express Lanes: SH 60 to E-470	24.63
A-H4	Structure Upgrades: E-470 to US 36	0	B-H4	Tolled Express Lanes: E-470 to US 36	34.39
Total Package A Highway:		40.93	Total Package B Highway:		97.32
Package A Transit Components			Package B Transit Components		
A-T1	Commuter Rail: Fort Collins to Longmont	0.11	B-T1	BRT: Fort Collins/Greeley to Denver;	6.54
A-T2	Commuter Rail: Longmont to North Metro	9.20	B-T2	BRT: Fort Collins/Greeley to DIA	0
AT-3/ AT-4	Commuter Bus: Greeley to Denver and DIA	1.06			
Total Package A Transit:		10.37	Total Package B Transit:		6.54
Total Package A:		51.30	Total Package B:		103.86

Source: CDOW, 2002 and ERO, 2008.

2 **Table 3.13-10** summarizes effects to potential northern leopard frog and common gartersnake
3 habitat by component.

1 **Table 3.13-10 Summary of Effects to Potential Northern Leopard Frog and Common**
2 **Gartersnake Habitat**

Component		Habitat ¹ (acres)	Component		Habitat ¹ (acres)
Package A Highway Components			Package B Highway Components		
A-H1	Safety Improvements: SH 1 to SH 14	0	B-H1	Safety Improvements: SH 1 to SH 14	0
A-H2	General Purpose Improvements: SH 14 to SH 60	10.62	B-H2	Tolled Express Lanes: SH 14 to SH 60	14.27
A-H3	General Purpose Improvements: SH 60 to E-470	5.28	B-H3	Tolled Express Lanes: SH 60 to E-470	5.52
A-H4	Structure Upgrades: E-470 to US 36	0	B-H4	Tolled Express Lanes: E-470 to US 36	0.97
Total Package A Highway:		15.90	Total Package B Highway:		20.76
Package A Transit Components			Package B Transit Components		
A-T1	Commuter Rail: Fort Collins to Longmont	0.75	B-T1	BRT: Fort Collins/Greeley to Denver;	0.52
A-T2	Commuter Rail: Longmont to North Metro	3.49	B-T2	BRT: Fort Collins/Greeley to DIA	0
A-T3/ A-T4	Commuter Bus: Greeley to Denver and DIA	0			
Total Package A Transit:		4.24	Total Package B Transit:		0.52
Total Package A:		20.14	Total Package B:		21.28

¹Wetlands and riparian vegetation are considered potential habitat for these species.

3 **Table 3.13-11** summarizes impacts to other state threatened, endangered, and species of
4 concern.

5 **Table 3.13-11 Summary of Effects to Other State Threatened, Endangered, and Species**
6 **of Special Concern Potentially Affected by Packages A and B**

Common Name	Type of Effect	Relative Magnitude of Effect
Swift fox	Potential loss of foraging habitat and displacement during and after construction.	Low – disturbed areas would be low quality habitat for this species, on fringes of occupied range.
Townsend's big-eared bat	Potential loss of foraging habitat and displacement during and after construction.	Low – no caves or mines that could provide roosting or hibernation sites would be affected.
Ferruginous hawk	Potential loss of foraging habitat	Low – no nesting habitat would be disturbed

7

- 1 **Table 3.13-12** summarizes impacts to habitat for state threatened, endangered, and sensitive
2 aquatic species by component.

Table 3.13-12 Summary of Direct Effects to Habitat for State Threatened, Endangered, and Sensitive Aquatic Species from Packages A and B

Component	Aquatic Habitat (Species Potentially Affected)	Activity	Acres Directly Affected
Package A Highway Components			
A-H1: Safety Improvements: SH 1 to SH 14	N/A	N/A	0
A-H2: General Purpose Improvements: SH 14 to SH 60	Cache la Poudre River (brassy minnow and Iowa darter)	Replace existing bridges at I-25 northbound, I-25 southbound, and Harmony Road	0.15
	Big Thompson River (Iowa darter)	Replace existing bridges at I-25 northbound, I-25 southbound, and I-25 service road	0.15
A-H3: General Purpose Improvements: SH 60 to E-470	St. Vrain Creek (common shiner, brassy minnow, Iowa darter, and stonecat)	No-Action at existing bridges over at I-25	0
A-H4: Structure Upgrades: E-470 to US 36	N/A	N/A	0
Total Package A Highway:			0.30
Package A Transit Components			
A-T1: Commuter Rail: Fort Collins to Longmont	Big Thompson River (Iowa darter)	Construct new tracks and crossing adjacent to existing crossing	0
A-T2: Commuter Rail: Longmont to North Metro	St. Vrain Creek (common shiner, brassy minnow, Iowa darter, and stonecat)	Construct new rail alignment and bridge on north side of SH 119	0.08
A-T3/A-T4: Commuter Bus: Greeley to Denver and DIA	N/A	N/A	0
Total Package A Transit:			0.08
Package B Highway Components			
B-H1: Safety improvements: SH 1 to SH 14	N/A	N/A	0
B-H2: Tolled Express Lanes: SH 14 to SH 60	Cache la Poudre River (brassy minnow and Iowa darter)	Replace existing bridges at I-25 northbound, I-25 southbound, and Harmony Road	0.20
	Big Thompson River (Iowa darter)	Replace existing bridges at I-25 northbound, I-25 southbound, and I-25 service road	0.15
B-H3: Tolled Express Lanes: SH 60 to E-470	St. Vrain Creek (common shiner, brassy minnow, Iowa darter, and stonecat)	No-Action at existing bridges over at I-25	0
B-H4: Tolled Express Lanes: E-470 to US 36	N/A	N/A	0
Total Package B Highway:			0.35
B-T1: BRT: Fort Collins/Greeley to Denver;	N/A	N/A	0
B-T2: BRT: Fort Collins/Greeley to DIA	N/A	N/A	0
Total Package B Transit:			0

1 **Table 3.13-13** Summarizes the direct impacts to threatened and endangered species for
2 Packages A and B, by component.

3 **Table 3.13-13 Summary of Direct Effects to Threatened and Endangered Species by**
4 **Component, in Acres**

Component	Preble's Habitat	Bald Eagle Forage	Bald Eagle Roosts	Prairie Dogs	N. Leopard Frog and C. Gartersnake	Sensitive Fish Species
Package A Highway Components	0.81	186.50	1.98	40.93	15.90	0.30
Package A Transit Components	0	17.19	5.05	10.37	4.24	0.08
Total of Effects for Package A:	0.81	203.69	7.03	51.30	20.14	0.38
Package B Highway Components	0.80	230.68	2.01	97.32	20.76	0.35
Package B Transit Components	0	0	0	6.54	0.52	0
Total of Effects for Package B:	0.80	230.68	2.01	103.86	21.28	0.35

5 **3.13.4 Indirect Impacts For All Build General Purpose Lanes,**
6 **Commuter Rail, and Tolled Express Lanes**

7 The addition of a highway lane on either side of the roadway, the installation of commuter rail
8 lines, or the installation of interchanges or commuter stations would increase impervious
9 surfaces, thereby increasing runoff and exposing the surrounding vegetation to higher levels of
10 pollutants. Soil disturbance from construction equipment would create favorable conditions for
11 weedy species to further establish in areas of potential habitat for threatened or endangered
12 species. The invasion of noxious weeds into potential habitat is one of the greatest threats to
13 species of special concern.

14 Other indirect impacts include the decrease or elimination of upland tree and/or shrub buffers
15 between the proposed roadway and vegetation areas adjacent to perennial and intermittent
16 waterways. Buffers filter pollutants before they reach wetlands, streams, and lakes as well as
17 provide habitat for wildlife.

18 Because proposed roadway and rail alignments primarily follow existing lines, existing
19 vegetation communities including potential habitat for threatened and endangered species
20 currently receive indirect effects from roadway, railway, and maintenance activity. However, the
21 magnitude of indirect effects could increase with implementation of Package A or Package B.

22 **3.13.5 Mitigation Measures**

23 This section describes recommendations for reducing or mitigating proposed project impacts to
24 threatened and endangered species, and presents possible mitigation opportunities. Whenever
25 possible, mitigation measures to avoid or reduce impacts to threatened and endangered species
26 were incorporated into the alternative, including avoiding sensitive habitat, maintaining existing
27 alignments where practicable, using best management practices to control erosion and drainage
28 improvements, and promptly revegetating disturbed areas.

29 The proposed project area falls within the Shortgrass Prairie Initiative, an agreement between
30 CDOT, CDOW, FHWA, and USFWS. The Shortgrass Prairie Initiative included a biological

1 assessment and mitigation measures for FHWA funding of CDOT's routine maintenance and
2 upgrade of existing transportation corridors in eastern Colorado for a 20-year period beginning
3 in 2003. The biological assessment includes all of I-25 within Colorado. A Biological Opinion
4 was issued by the USFWS, which covers the bald eagle and 29 species of concern (USFWS,
5 2003). The opinion includes a list of measures to minimize effects to bald eagle, including
6 protecting off-site shortgrass prairie habitat and implementation of on-site best management
7 practices (BMPs). It also includes proposed conservation measures for sensitive, non-listed
8 species including black-tailed prairie dog, burrowing owl, native fish and mussels (including
9 brassy minnow, common shiner, plains minnow, and cylindrical papershell), and northern
10 leopard frog. The Biological Opinion lists BMPs for each of these species and provides that if
11 any of these species are listed, appropriate protective measures will be incorporated into the
12 opinion. The Shortgrass Prairie Initiative does not cover Preble's, because CDOT is engaging in
13 a separate consultation for this species in Douglas and El Paso counties.

14 Specific mitigation recommendations, in addition to those in the Shortgrass Prairie Initiative, are
15 described below.

16 **3.13.5.1 NO-ACTION ALTERNATIVE**

17 No additional mitigation measures would be proposed under the No-Action Alternative. Routine
18 maintenance and upgrades to I-25 will fall under the Shortgrass Prairie Initiative Biological Opinion
19 described above and mitigation measures described in the opinion apply.

20 **3.13.5.2 PACKAGES A AND B**

21 *Preble's Meadow Jumping Mouse*

- 22 ▶ Mitigation measures for occupied Preble's habitat may be required as part of Section 7
23 consultation with the USFWS for impacts to federally listed threatened and endangered
24 species. Mitigation measures will focus on avoidance and minimization of impacts during
25 construction. Avoidance and minimization measures will include limiting timing of construction
26 to Preble's inactive season (November through April) and use of visible barriers to limit the area
27 of construction.
- 28 ▶ If culverts in Preble's habitat are replaced or upgraded, the new culverts could incorporate
29 ledges to facilitate small mammal passage.
- 30 ▶ Where impacts are unavoidable, compensatory mitigation will be provided through replacement
31 with suitable habitat for Preble's. Mitigation measures for Preble's could be combined with
32 wetlands mitigation. Wetland mitigation measures may also replace any impacts to suitable
33 unoccupied Preble's habitat.

34 *Bald Eagle*

- 35 ▶ A raptor nest survey (to include bald eagles) will be conducted prior to construction to identify
36 bald eagle nests in the project area. If an active bald eagle nest is found within 0.5 mile of the
37 project area, the buffers and seasonal restrictions recommended by CDOW (no human
38 encroachment within 0.5 mile of the nest from November 15 to July 31) will be established
39 during construction to avoid nest abandonment.
- 40 ▶ No construction will occur within 0.25 mile of active nocturnal roosts between November 15 and
41 March 15. If perch or roost trees are removed during construction, they will be replaced at a 2
42 to 1 ratio with native cottonwood trees.

- 1 ▶ Mitigation for wetland impacts will also provide mitigation for impacts to riparian habitats used
2 for foraging by bald eagles.

3 *Black-Tailed Prairie Dog*

4 Prairie dog distribution in the project area is likely to change between the time field surveys were
5 conducted and the time construction occurs, so prairie dogs colonies will need to be resurveyed
6 prior to construction.

7 In areas where avoidance of prairie dogs is not possible, CDOT will follow its Impacted Black-
8 tailed Prairie Dog Policy (CDOT, 2005). CDOT's prairie dog policy is described in greater detail in
9 the *Wildlife Technical Report* (ERO, 2007), and includes avoidance and minimization of impacts to
10 prairie dog colonies during design and construction of CDOT projects. If avoidance is not
11 practicable, the policy calls for relocation, donation to raptor rehabilitation facilities, or donation to
12 the black-footed ferret reintroduction program. If relocation or donation to raptor or ferret facilities
13 is not practicable, prairie dogs will be humanely euthanized prior to construction. At no time will
14 CDOT authorize earth-moving activities that result in the burying of living prairie dogs. Any prairie
15 dog relocation or removal activities will be carried out in accordance with CRS 35-7-203, as well
16 as any other applicable laws or regulations, and with close coordination with CDOW.

17 *Western Burrowing Owl*

- 18 ▶ Burrowing owl surveys will be conducted prior to any work in prairie dog colonies between
19 March 15 and October 31 when burrowing owls are present in Colorado (CDOW, 2007). If
20 burrowing owls are present, prairie dog removal will be scheduled to occur outside this time
21 period.
- 22 ▶ If burrowing owls are found within the construction footprint during preconstruction surveys,
23 nests will be left undisturbed and additional avoidance measures will be developed in
24 coordination with CDOW. No human encroachment or disturbance will occur within 150 feet
25 of a known nesting site until after November 1, or until it can be confirmed that owls have left
26 the prairie dog town (CDOW, 2007).
- 27 ▶ Direct impacts to burrowing owls will be avoided by covering or destroying prairie dog
28 burrows prior to construction (prior to March 15) in order to prevent burrowing owls nesting in
29 the construction area. Prairie dogs will be humanely removed following CDOT's prairie dog
30 policy prior to destruction of burrows.

31 *Great Blue Heron*

32 Direct impacts to nesting great blue herons will be avoided by prohibiting work within the 500-
33 meter (0.31-mile) buffer from nest sites recommended by CDOW (NDIS, 2006). Impacts within
34 this buffer will be limited during the great blue heron nesting season, which occurs from mid-
35 March through July.

1 *Common Gartersnake and Northern Leopard Frog*

- 2 ▶ Mitigation measures for wetlands and Preble's, including wetlands replacement and riparian
3 enhancement, will also mitigate for impacts to northern leopard frogs and common
4 gartersnakes.
- 5 ▶ Replacement of culverts with larger culverts or free-spanning bridges will also mitigate for
6 potential impacts to northern leopard frog and common gartersnake.

7 *State Threatened, Endangered, and Sensitive Aquatic Species*

8 The project will comply with Colorado Senate Bill (SB) 40, which requires any agency of the
9 State of Colorado to obtain wildlife certification from CDOW when the agency plans construction
10 in any stream or its bank or tributaries (CDOT, 2003). An application for SB 40 wildlife
11 certification would be submitted to CDOW. CDOW will review the plans to ensure that the
12 project adequately protects fish and wildlife resources, and will provide recommendations if the
13 proposed project would adversely affect a stream.

14 To offset temporary impacts to aquatic species from habitat disturbance, aquatic habitats will be
15 restored after construction activities have ceased. The following design measures will mitigate
16 potential impacts to aquatic species, including native fish.

- 17 ▶ Riffle and pool complexes will be maintained and/or created.
- 18 ▶ Natural stream bottoms will be maintained.
- 19 ▶ Culverts will be partially buried and the bottom will be covered with gravel/sand and have a
20 low gradient to the maximum extent practicable.
- 21 ▶ Culverts to be replaced will be replaced with one of equal or greater size.
- 22 ▶ Culverts will not have grates, energy dissipaters, or any other features that would impede
23 fish movement.
- 24 ▶ To avoid erosion-induced siltation and sedimentation, erosion control measures will be
25 applied, such as the immediate reseeding of disturbed areas after construction and, if
26 necessary, the application of mulch and mulch tackifier to stabilize slopes.
- 27 ▶ Erosion control blankets will be "wildlife friendly", consisting of 100% biodegradable materials.
- 28 ▶ Access points to streams during construction will be limited to minimize degradation of the
29 banks.
- 30 ▶ No new fish passage barriers will be created.
- 31 ▶ Existing drop structures that create a barrier to fish movements will be removed or
32 redesigned where practicable. An example is the drop structure located east of the frontage
33 road at I-25 and St. Vrain Creek, which is planned to be modified to facilitate fish passage as
34 part of this project.

35 CDOT's water quality BMPs will be applied, and include the installation of mechanisms to
36 collect, contain, and/or treat roadway run-off. Mitigation measures, such as habitat
37 replacement/enhancement and replacement of existing culverts with larger or more numerous
38 culverts and/or free-spanning bridges, would also improve fish habitat. These measures are
39 designed to offset impacts to wetlands, Ute ladies'-tresses orchid, and Preble's.

1 The mitigation measures for state sensitive fish species described above, including SB 40
2 certification and water quality BMPs, also benefit sensitive aquatic invertebrates, such as the
3 cylindrical papershell and *Mesocapnia frisoni* stonefly.

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

5 No specific mitigation measures are proposed for swift fox, Townsend's big eared bat, and
6 ferruginous hawk because impacts to these species are expected to be minor or non-
7 existent.

8 *Colorado Butterfly Plant and Ute Ladies'-tresses Orchid*

9 Potential Colorado butterfly plant and Ute ladies'-tresses orchid habitat within the project
10 area, along the Cache la Poudre, Big Thompson and Little Thompson rivers and along
11 St. Vrain Creek, will be surveyed during the flowering season just prior to construction.
12 Surveys are to be conducted by a biologist who meets qualifications established by the
13 USFWS for performing presence/absence surveys for these species. Findings of the survey
14 will be documented in a biological finding report and submitted to USFWS for concurrence
15 prior to beginning any construction activities. In the unlikely event either Colorado butterfly
16 plant or Ute ladies'-tresses orchid is found within the project area, specific conservation
17 measures will be developed in coordination with the USFWS. Conservation measures could
18 include avoiding impacts by establishing a No-Work Zone or, in the event of unavoidable
19 impacts, enhancing adjacent or off-site habitat.