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**FINAL
PROGRAMMATIC BIOLOGICAL ASSESSMENT**

**NORTH I-25
ADAMS, BOULDER, BROOMFIELD, DENVER, LARIMER,
AND WELD COUNTIES, COLORADO**

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JULY 2011

Executive Summary

The Colorado Department of Transportation (CDOT) is preparing a Final Environmental Impact Statement (FEIS) to analyze solutions to improve mobility, provide multimodal opportunities, and address aging infrastructure in an area known as the North Interstate 25 (I-25) FEIS regional study area (regional study area). In support of the North I-25 FEIS, this Programmatic Biological Assessment (PBA) has been prepared to address effects of the Preferred Alternative to federally listed species (listed species) in compliance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1536(c)). After submittal of the PBA, The U.S. Fish and Wildlife Service (Service) will issue a Programmatic Biological Opinion (PBO) that will be used by CDOT as a guidance document for avoidance/minimization of adverse effects of project actions on federally listed species. The PBA presents how the Preferred Alternative as a whole would affect federally listed species, the biological consequences of these impacts, and the cumulative effects. Because the proposed timeframe for the Preferred Alternative is unknown at this time and may occur in numerous phases over many years, the actual effects and the listed species affected could change over time. The PBA provides a process for project-specific consultation with the Service on a construction project-by-project basis. Consultation with the Service will occur at least twice during the design and construction of each distinct construction project. During design of each distinct construction project, CDOT will reevaluate and update the project-specific Environmental Baseline, and consult with the Service to determine if the baseline conditions have changed to such an extent that the effects determination in the PBA needs to be revisited. The consultation will include the updated baseline for the construction project being designed, reporting on impacts related to the construction

project, and updating anticipated cumulative impacts of all construction projects related to the Preferred Alternative. In addition, because of the potential time lapse between final design and initiation of construction, the Federal Highway Administration (FHWA) and/or CDOT will consult with the Service prior to each construction project to implement revised habitat assessments and/or clearance surveys according to Service guidelines and protocols in effect at the time of construction. If new species are listed or habitat conditions and/or species distribution of currently listed species is found to have changed, then FHWA/CDOT will consult with the Service to ensure ESA compliance at the time of construction.

1. Introduction

CDOT is preparing a FEIS to analyze solutions to improve mobility, provide multimodal opportunities, and address aging infrastructure in the North I-25 FEIS regional study area. In support of the North I-25 FEIS, this PBA has been prepared to address effects to federally listed species in compliance with Section 7 of the ESA. The Preferred Alternative includes improvements on multiple corridors, as shown in Figure 1 and summarized in more detail in Section 4—Project Description. Generally, the Preferred Alternative would improve I-25 by adding additional general purpose and tolled express lanes (lanes restricted to high occupant vehicles and tolled single occupant vehicles), improving or relocating frontage roads and carpool lots, and upgrading 17 interchanges along the I-25 corridor. Additionally, the Preferred Alternative would provide express bus service from northern Colorado communities to Denver, provide U.S. Highway 85 (U.S. 85) commuter bus service, and provide commuter rail from Fort Collins to Denver. The I-25 improvements include widening I-25 with general purpose lanes and tolled express lanes, and reconstructing or upgrading substandard interchanges to accommodate future travel needs. The construction start date is unknown at this time, but most work is projected to begin after 2030; however, some work could start as early as 2015.

The Preferred Alternative includes areas covered under the Shortgrass Prairie Initiative (SGPI). In January 2004, CDOT, Colorado Department of Natural Resources Division of Wildlife (CDOW), FHWA, Service, 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 SGPI provides programmatic clearance for CDOT activities on the existing road network in the eastern third of Colorado for 20 years after 2004 (through 2024). It is expected that the SGPI will be extended if mitigation credit is still available after 20 years (Peterson, pers. comm. 2009; Michael, pers. comm. 2009). After five years, only 5.5 percent of available mitigation credits have been used (Peterson, pers. comm. 2009). Covered transportation projects include: 1) repairs for all existing bridges; 2) approximately 4,310 miles of resurfacing/overlays and accompanying shoulder improvements; 3) maintenance along existing transportation corridors; and 4) safety, reconstruction, capacity, and other transportation improvements (Service 2004a; Venner 2001). The SGPI covers three federally listed threatened and endangered (T&E) species [piping plover (*Charadrius melodus*), interior least tern (*Sterna antillarum*), and Colorado butterfly plant (CBP) (*Gaura neomexicana coloradensis*)]; three candidate species [lesser prairie chicken (*Tympanuchus pallidicinctus*), black-tailed prairie dog (*Cynomys ludovicianus*), and Arkansas darter (*Etheostoma Cragini*)]; and 29 species of concern. Species explicitly not covered in the SGPI Biological Opinion (BO) (Service 2004a) include black-footed ferret (*Mustela nigripes*), Preble’s meadow jumping mouse (Preble’s) (*Zapus hudsonius preblei*), and Ute ladies’-tresses orchid (ULTO) (*Spiranthes diluvialis*). Some of the components of the Preferred Alternative are covered by the SGPI, while other components (e.g., commuter rail) are not. The SGPI BO was amended in February 2008 to address the change in status for the bald eagle (*Haliaeetus leucocephalus*) (Service 2008).

Included in this PBA is a description of the Preferred Alternative, a description of the existing conditions in the regional study area, an analysis of potential impacts from the Preferred Alternative on federally listed species, a description of proposed conservation measures, and the general process for future consultation with the Service as the Preferred Alternative moves forward. Because of their potential presence in the area, the effects analysis is focused on the federally threatened Preble’s, ULTO, and CBP and their suitable habitat. Effects to the mountain plover (*Charadrius montanus*) was originally evaluated in the Draft PBA, but the proposed listing as a threatened species was

withdrawn on May 12, 2011 and will not be further evaluated in this document. Because of the extended construction timeframe of the Preferred Alternative and the dynamic nature of the ESA, species listings, and populations and habitat of protected species, many of the species and habitats addressed in this PBA will be reassessed during subsequent consultation with the Service prior to construction as described in Section 7 of this document.

2. Federal Action

The ESA requires federal agencies to consult with the Service on actions that have the potential to affect federally listed species or their designated critical habitat. Because the FHWA is the lead federal agency for the North I-25 FEIS, Section 7 ESA consultation with the Service is required.

3. Consultation History

On July 7, 2005, CDOT sent a letter to the Service requesting a list of federally listed species potentially occurring in the regional study area. On July 14, 2005, the Service responded in a letter with a list of species potentially occurring in the regional study area (Service 2005). ERO revised the list of species potentially occurring based on the March 2010 list updated by the Service (Service 2010a). An agency scoping meeting was held on June 19, 2006 and was attended by Alison Michael of the Service. Preliminary scoping and resource agency meetings also were held with Alison Michael on February 26, 2004; February 2, 2005; May 11 2005; and May 2, 2006.

4. Project Description

The Preferred Alternative consists of highway and transit improvements in the area from Fort Collins south to Denver. The Preferred Alternative includes the following elements:

- **I-25 Highway Improvements:** One new general purpose lane in each direction of I-25 between State Highway (SH) 66 and SH 14; one buffer-separated tolled express lane in each direction of I-25 from the existing high occupancy vehicle/toll lanes at 84th Avenue to SH 14; rebuilding or relocating frontage roads; construction of carpool lots; and upgrades to 17 interchanges along the I-25 corridor.

- **I-25 Express Bus:** Express bus service with 13 stations along I-25, U.S. Highway 34 (U.S. 34), and Harmony Road with service from Fort Collins and Greeley to downtown Denver, and from Fort Collins to Denver International Airport (DIA). At some locations, the express bus station would be shared with carpool lots.
- **Commuter Rail:** Commuter rail service from Fort Collins to the anticipated FasTracks North Metro end of line. Service to Denver would connect Fort Collins to Longmont and Thornton and include nine stations at numerous northern Colorado communities. The commuter rail would largely be a single track using the existing Burlington Northern Santa Fe (BNSF) Railroad generally paralleling U.S. 287 with passing tracks at four locations. Passengers also may connect to the FasTracks northwest rail in Longmont, which will travel to Boulder.
- **U.S. 85 Commuter Bus:** Commuter bus service with eight stations along U.S. 85 connecting Greeley to downtown Denver. Queue jumps, allowing buses to bypass queued traffic at some signalized intersections would be included. Queue jumps are bus-only lanes that typically require modifying an intersection to provide a short lane for the bus between the right-turn lane and through lanes.
- **Other Preferred Alternative Features:** The Preferred Alternative would include retaining walls, water quality ponds, and drainage structures. Retaining walls are used to minimize impacts to sensitive areas, and drainage structures and water quality ponds are used to comply with water quality standards. The impacts from the construction and operation of these features are evaluated in this PBA.

4.1. Regional Study Area

The regional study area is bounded generally by U.S. 287 on the west, U.S. 85 on the east, Wellington on the north, and Denver on the south (Figure 1). The regional study area is primarily in Adams, Boulder, Larimer, and Weld counties; and includes small sections in Broomfield and Denver counties. The regional study area includes all areas that were addressed during the initial alternatives screening and FEIS.

4.2. Project Area

The project area is defined as the footprint of the Preferred Alternative, including highway and transit improvements summarized above. The width of the construction footprint, including existing highway right-of-way (ROW), along I-25 ranges from 230 feet at the Cache la Poudre River to about 90 feet at the St. Vrain River. This area includes both permanent disturbance such as areas that will be paved, and areas along both sides that will be disturbed temporarily during construction then restored. The width of the construction footprint along the BNSF alignment from Fort Collins to Longmont is

about 30 feet along sections where a single track will be constructed, 70 feet where a double track will be constructed, and about 100 feet at the Sugarmill Road site where several tracks will be constructed (Figure 2, examples a, b, and c, and d). In many cases, construction impacts will be limited; often passenger rail will be added to the existing freight rail track. From Longmont to the North Metro area, new rail construction will require grading and construction of retaining walls to minimize disturbance to sensitive resources (Figure 2, example d). The width of the construction footprint along this portion of the alignment ranges from 35 to 150 feet. The width of the construction footprint at the St. Vrain River at SH 119, where two tracks would be constructed, would be about 90 feet.

5. Environmental Baseline

This section describes the general ecological setting of the regional study area, including general vegetation and wildlife communities and descriptions of federally listed species, their habitats, and ranges within the regional study area. The Environmental Baseline also presents how the Preferred Alternative would affect federally listed threatened and endangered species, the biological consequences of these impacts, and cumulative effects.

5.1. Description of Action Area

The Action Area is defined under the ESA as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. The Action Area for this PBA is the same as the regional study area defined in the North I-25 FEIS and the term regional study area will be used for Action Area in this document for consistency with the FEIS. Vegetation and wildlife communities in the regional study area and project area are described in detail in the vegetation section of the North I-25 FEIS, and are summarized below.

5.1.1. Vegetation

The regional study area consists primarily of agricultural land (irrigated and nonirrigated), urban areas, and developed areas, and is dominated by nonnative plants. Roadside vegetation is dominated by species typical of disturbed sites, such as kochia

(*Bassia scoparia*), barnyard grass (*Echinochloa crus-galli*), and western wheatgrass (*Pascopyrum smithii*). Vegetation in residential and commercial development consists of bluegrass lawns, ornamental trees, and shrubs. Narrow bands of riparian vegetation are present along streams and irrigation canals. Common trees in riparian areas include plains cottonwood (*Populus deltoides*), Siberian elm (*Ulmus pumila*), and Russian olive (*Elaeagnus angustifolia*). Wetland species typically include sandbar willow (*Salix exigua*), cattail (*Typha* sp.), reed canarygrass (*Phalaroides arundinacea*), sedges (*Carex* sp.), rushes (*Juncus* sp.), reedtop (*Agrostis stolonifera*), and curly dock (*Rumex crispus*).

Along I-25 the Preferred Alternative would mostly affect land within the CDOT ROW. The median would be used where widening is needed in the southern one-third of the project area, between SH 7 and SH 66. Land within the CDOT ROW and median consists mostly of mowed grasslands with riparian trees and shrubs along major drainages. Outside of the CDOT ROW, the surrounding land is mostly privately owned irrigated cropland, nonirrigated cropland, and commercial development. The bus transit stations and carpool lots primarily would be on agricultural or vacant lands.

The commuter rail line primarily would affect land within the BNSF Railroad ROW between Fort Collins and Longmont, or within the abandoned Union Pacific Railroad (UP) ROW from about Weld County Road (WCR) 10 to the connection with the proposed North Metro Corridor. Between Longmont and WCR 10, the commuter rail line would follow SH 119 east, and would then turn south to follow WCR 7. Land within the BNSF and UP ROWs consists mostly of unmowed grasslands dominated by smooth brome (*Bromopsis inermis*) with riparian trees and shrubs at crossings of major rivers and streams. Land use surrounding the commuter rail alignment is mostly agricultural, with residential development in Fort Collins, Longmont, and other communities along the alignment. Land along SH 119 consists of a mixture of publicly owned open space and private land that is mostly developed. The rail transit stations would be primarily on agricultural or vacant lands covered by kochia, smooth brome, and other invasive species.

Major drainages crossing the project area run in an easterly direction and include, from north to south, the Cache la Poudre River, Fossil Creek, Big Thompson River, Little Thompson River, St. Vrain River, Little Dry Creek, Big Dry Creek, and the South Platte

River. Vegetation along these drainages is typically dominated by cattail, sandbar willow, reed canarygrass, plains cottonwood, Russian olive, and Siberian elm.

5.1.2. General Wildlife

The regional study area is along the base of the eastern foothills of the Rocky Mountains in the Great Plains ecosystem. Wildlife habitat in the regional study area is fragmented by urban development, cultivated fields, and numerous roads and highways. Protected open space or otherwise undeveloped land, which preserves several habitat types as well as movement corridors between different habitat areas, is scattered throughout the regional study area. Big game species such as mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus*), and white-tailed deer (*Odocoileus virginianus*) are found in the regional study area. Carnivores common in the regional study area include coyote (*Canis latrans*), raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), and striped skunk (*Mephitis mephitis*). A variety of small mammals and birds are found in association with the various habitat types in the regional study area. Wildlife species present in the regional study area are described in greater detail in the North I-25 Wildlife Technical Report (ERO 2008) and Wildlife Technical Report Addendum (ERO 2011).

5.2. Federally Threatened, Endangered, and Candidate Species Potentially Affected by the Preferred Alternative

Several federally listed threatened, endangered, and candidate species potentially occur in the regional study area (Table 1). Federally threatened and endangered species are protected under the ESA (16 U.S.C. 1531 et seq.). Potential effects to a federally listed species or its habitat resulting from a project with a federal action require consultation with the Service under Section 7 of the ESA. No regulations require consultations for effects to candidate species; however, FHWA policy requires that they be treated as listed species. Additionally, if any candidate species were to become listed during final design or prior to construction, consultation with the Service would be required.

Federally listed threatened, endangered, and candidate species that potentially occur in the regional study area are presented in Table 1. The federally threatened Mexican spotted owl (*Strix occidentalis lucida*), Canada lynx (*Lynx canadensis*), and greenback

cutthroat trout (*Oncorhynchus clarki stomias*) also occur in at least one county covered by the regional study area (Service 2010a), but no habitat for these species is present in the regional study area. The endangered North Park phacelia (*Phacelia formosula*) potentially occurs in western Larimer County, but is outside of the regional study area. The bald eagle also potentially occurs in the regional study area, but was removed from the federal list of T&E species in 2007.

Table 1. Federally listed threatened and endangered species potentially occurring in the regional study area.

Common Name	Scientific Name	Status
Colorado butterfly plant	<i>Gaura neomexicana coloradensis</i>	Threatened
Ute ladies'-tresses orchid	<i>Spiranthes diluvialis</i>	Threatened
Black-footed ferret*	<i>Mustela nigripes</i>	Endangered
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Threatened
Mountain plover	<i>Charadrius montanus</i>	Proposal to list withdrawn May 12, 2011

*The black-footed ferret is assumed by the Service to be absent from the regional study area, which lies within a block clearance area where black-footed ferret surveys are not required.
 Source: Service 2010a.

Table 2 lists species that could potentially be affected by continued or ongoing water depletions to the Platte River system. Species on this list could be adversely affected downstream of the regional study area by water depletions associated with a variety of project elements including detention ponds and dust-abatement activities.

Table 2. Federally listed species with potential to be affected by depletions to the Platte River system.

Common Name	Scientific Name	Likelihood of Occurrence in the Regional Study Area	Federal Status
Whooping crane	<i>Grus Americana</i>	Low	Endangered
Least tern	<i>Sternula antillarum</i>	Low	Endangered
Piping plover	<i>Charadrius melodus</i>	Low	Threatened
Pallid sturgeon	<i>Scaphirhynchus albus</i>	Low	Endangered
Western prairie fringed orchid	<i>Platanthera praeclara</i>	Low	Threatened

Source: Service 2010a.

The following Sections 5.2.1 through 5.2.5 provide a description of habitat requirements for the species listed in Tables 1 and 2, an assessment of the potential for

habitat in the regional study area to support the species, and a description of possible effects associated with the Preferred Alternative.

5.2.1. Colorado Butterfly Plant (CBP)

5.2.1.1. Species Background, Habitat Requirements, and Distribution

The CBP is listed as a threatened species under the ESA (65 Fed. Reg. 62302 (October 18, 2000)). The CBP is a perennial evening primrose, approximately 20 to 32 inches tall with reddish pubescent stems and a narrow, elongated inflorescence of white flowers that turn pink or reddish with age. Widely scattered populations of CBP are present in Colorado, Nebraska, and Wyoming. CBP occurs in the transition zone between wetlands and upland prairie in subirrigated, alluvial soils of low gradient stream valleys at elevations from 5,000 to 6,000 feet (CNPS 1989). Colonies are often found in low depressions or along bends in wide, active floodplains along meandering perennial stream channels a short distance upslope of the actual channel. Commonly associated species include redtop, scratchgrass muhly (*Muhlenbergia asperifolia*), bluegrass (*P. sp.*, *P. compressa*), threesquare bulrush (*Schoenoplectus pungens*), arctic rush (*Juncus arcticus*), sedges, showy milkweed (*Asclepias speciosa*), wild licorice (*Glycyrrhiza lepidota*), Flodman's thistle (*Cirsium flodmanii*), curlycup gumweed (*Grindelia squarrosa*), and smooth horsetail (*Hippochaete laevigata*). Sandbar willow is immediately adjacent to some populations. Typical CBP habitat is relatively open without dense or overgrown vegetation (65 Fed. Reg. 62302 (October 18, 2000)).

5.2.1.2. Suitable Habitat

In Colorado, CBP is known to occur in Adams, Boulder, Douglas, Jefferson, Larimer, and Weld counties (Spackman et al. 1997; Michael, pers. comm. 2011). Known populations of CBP occur on the western edge of the regional study area on Walnut Creek in Westminster and north of the regional study area on land owned by the City of Fort Collins north of Fort Collins near the Wyoming border. The Service has designated critical habitat for CBP, but no critical habitat occurs within the regional study area (Service 2004b). No known CBP populations occur within the project area. A new population of CBP was discovered on Clear Creek near I-25 in 2011. Clear Creek, including the 100-year floodplain, would not be disturbed by any construction related to

the Preferred Alternative. The Service has not established official survey guidelines for the CBP; however, wetlands associated with an intermittent or perennial stream with an active floodplain are considered suitable habitat. Habitat evaluations for CBP were conducted at major stream drainages of the regional study area. Presence/absence surveys for CBP were not conducted as part of this PBA because the proposed construction date is more than 10 years away.

Habitat evaluations found that no suitable habitat for CBP was present at or near the following locations (Table 3):

- BNSF alignment and Sugarmill Road,
- Unnamed ditch at SH 66 and North 115th Street,
- Oligarchy Ditch at SH 119,
- Ish Ditch at the BNSF alignment,
- Oligarchy Ditch at the BNSF alignment, and
- BNSF alignment near Divide Reservoir.

These locations lack suitable habitat and are not associated with the floodplain of an intermittent or perennial drainage. As a result, no further presence/absence surveys would be needed unless new suitable habitat or new CBP populations are identified nearby.

Suitable habitat for CBP was identified within riparian areas along the St. Vrain, Little Thompson, Big Thompson, and Cache la Poudre rivers where these drainages are crossed by I-25 or the proposed commuter rail alignment (Figure 3). These sites are within the 100-year floodplain of tributaries to the South Platte River and are described in greater detail in Table 3.

Table 3. Waters evaluated for suitable CBP and ULTO habitat.

Site Name	Parcel Number	County	Latitude/ Longitude (N/W)	Location (township, range, section, quadrangle)	Habitat Description	Suitable Habitat/Recommendation
Wetlands near BNSF alignment and Sugarmill Road	131511000038	Boulder	40.16043°/ 105.08835°	T2N, R69W, S2, Longmont	Cattail-dominated wetland. Adjacent uplands are dominated by musk thistle (<i>Carduus nutans</i>), catmint (<i>Nepeta cataria</i>), and goosefoot (<i>Chenopodium</i> sp.).	Not suitable habitat for either species. No further surveys are required.
Unnamed Ditch at SH 66 and North 115 th Street	120523000008	Boulder	40.20411°/ 105.09136°	T3N, R69W, S23, Longmont	Irrigation ditch with highly disturbed vegetation, surrounded by agricultural fields.	Not suitable habitat for CBP. Unlikely to be suitable habitat, but will require preconstruction habitat evaluation for ULTO due to location in Boulder County.
Oligarchy Ditch at SH 119	131512000049	Boulder	40.15911°/ 105.06892°	T2N, R69W, S12, Longmont	Irrigation ditch has been recently cleared of vegetation. Small patches of reed canarygrass are present.	Not suitable habitat for either species. No further surveys are required.
Ish Ditch at BNSF alignment	120502000007	Boulder	40.25386°/ 105.07801°	T3N, R69W, S2, Berthoud	Irrigation ditch with steep banks and scattered cottonwoods (no access).	Not suitable habitat for CBP. Unlikely to be suitable habitat, but will require preconstruction habitat evaluation for ULTO due to location in Boulder County.
Oligarchy Ditch at BNSF alignment	120535206025	Boulder	40.18663°/ 105.09277°	T3N, R69W, S35, Longmont	Irrigation ditch in highly disturbed urban area (no access).	Not suitable habitat for either species. No further surveys are required.
Wetlands on BNSF alignment near Divide Reservoir	BNSF ROW	Boulder	40.23160°/ 105.09334° 40.23643°/ 105.08774°	T3N, R69W, S15 T3N, R69W, S11, Longmont	Appears to be cattail and sandbar willow wetlands based on aerial photography (no access).	Not suitable habitat for CBP. Unlikely to be suitable habitat, but will require preconstruction habitat evaluation due to location in Boulder County.

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Site Name	Parcel Number	County	Latitude/ Longitude (N/W)	Location (township, range, section, quadrangle)	Habitat Description	Suitable Habitat/Recommendation
St. Vrain River at SH 119	CDOT ROW	Weld	40.16021°/ 105.00816°	T2N, R68W, S9, Longmont	Subirrigated alluvial gravel soils. Vegetation dominated by reed canarygrass, sandbar willow, and goldenrod, with patches of exposed bare soil.	Low likelihood of occurrence, but will require preconstruction presence/absence survey for ULTO and CBP due to location within 100-year floodplain of perennial tributary to the South Platte River.
St. Vrain River at I-25	CDOT ROW	Weld	40.17515°/ 104.98017°	T3N, R68W, S34, 35, Gowanda	No habitat present between bridges due to recent construction. East and west of overpasses, vegetation consists of sandbar willow, saltgrass (<i>Distichlis spiccata</i>), curly dock, and perennial pepperweed (<i>Lepidium latifolium</i>).	Low likelihood of occurrence, but will require preconstruction presence/absence survey for ULTO and CBP due to location within 100-year floodplain of perennial tributary to the South Platte River.
Little Thompson River at I-25	CDOT ROW	Weld	40.30083°/ 104.98032°	T4N, R68W, S22, 23, Johnstown	Vegetation dominated by reed canarygrass, smooth brome, sandbar willow, plains cottonwood. Weedy uplands dominated by crested wheatgrass (<i>Agropyron desertorum</i>) and whitetop (<i>Cardaria draba</i>). Some habitat is present between the bridges.	Low likelihood of occurrence, but will require preconstruction presence/absence survey for ULTO and CBP due to location within 100-year floodplain of perennial tributary to the South Platte River.
Little Thompson River at BNSF alignment	BNSF ROW	Larimer	40.28956°/ 105.07384°	T4N, R69W, S25, 26, Berthoud	Observation from public roads and from aerial photography shows vegetation consists of cottonwood, riparian shrubs, and reed canarygrass (no access)	Will require preconstruction habitat evaluation and possible survey for ULTO and CBP due to location within 100-year floodplain of perennial tributary to the South Platte River.

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Site Name	Parcel Number	County	Latitude/ Longitude (N/W)	Location (township, range, section, quadrangle)	Habitat Description	Suitable Habitat/Recommendation
Big Thompson River at I-25	8522000910 and CDOT ROW	Larimer	40.39733°/ 104.99327°	T5N, R68W, S15, Windsor	Subirrigated gravel soils. Vegetation is dominated by sandbar willow, reed canarygrass, slender wheatgrass (<i>Elymus trachycaulus</i>), peachleaf willow (<i>Salix amygdaloides</i>), cottonwood, and smooth brome. Some habitat occurs between bridges. Reed canarygrass is generally too dense for ULTO, but a few patches of suitable habitat occur.	Low likelihood of occurrence, but will require preconstruction presence/absence survey for ULTO and CBP due to location within 100-year floodplain of perennial tributary to the South Platte River.
Big Thompson River at BNSF alignment	BNSF ROW	Larimer	40.38902°/ 105.07902°	T5N, R69W, S23, Loveland	Observation from public roads and from aerial photography shows vegetation consists of cottonwood, sandbar willow, and reed canarygrass (no access)	Will require preconstruction habitat evaluation and possible survey for ULTO and CBP due to location within 100-year floodplain of perennial tributary to the South Platte River.
Cache la Poudre River at I-25	CDOT ROW	Larimer	40.53099°/ 104.99349°	T7N, R68W, S34, Timnath	Mostly dominated by reed canarygrass, sandbar willow, and smooth brome. Reed canarygrass is generally too dense for ULTO, but a few patches of suitable habitat occur. East of I-25, vegetation changes to lady's thumb (<i>Polygonum persicaria</i>) and barnyard grass (<i>Echinochloa crus-galli</i>). Sandy soils.	Low likelihood of occurrence, but will require preconstruction presence/absence survey for ULTO and CBP due to location within 100-year floodplain of perennial tributary to the South Platte River.

5.2.1.3. Effects of the Preferred Alternative

No known populations of CBP occur in or near the project area; however, suitable habitat is present at several river crossings along both the I-25 and BNSF routes. Based on the current conditions described below, and additional avoidance and minimization commitments incorporated into the project, it was determined that the Preferred Alternative may affect, but is not likely to adversely affect, CBP. Because of the quality of suitable habitat present, final presence/absence surveys for CBP will be conducted within one year prior to construction at the St. Vrain River at SH 119, the St. Vrain River at I-25, the Little Thompson River at I-25, the Little Thompson River at the BNSF alignment, the Big Thompson River at I-25, the Big Thompson River at the BNSF alignment, and the Cache la Poudre River at I-25 (Figure 3).

If CBP populations are discovered in the project area, potential direct impacts could include loss of individuals or disturbance to habitat during construction and habitat fragmentation. The Preferred Alternative could result in indirect effects from increases in runoff. The addition of a highway lane on either side of the existing road, new transit stations, carpool lots, and maintenance facilities would increase impervious surfaces, thereby increasing runoff and exposing the surrounding vegetation to higher levels of pollutants.

As stated earlier, under current conditions the Preferred Alternative may affect, but is not likely to adversely affect, CBP. Current conditions are not expected to improve over the next 20 years and establishment of CBP communities is not likely to occur between now and the construction of the Preferred Alternative (i.e., the next 20 years). However, the following conditions would trigger formal consultation between FHWA/CDOT and the Service as described in Section 7 of this document:

- New populations of CBP are discovered within or near the construction area as the Preferred Alternative is implemented, or
- The species is observed during preconstruction surveys.

5.2.1.4 Cumulative Effects

Cumulative effects may result from future state, local, or private actions that are reasonably certain to occur in the regional study area and that may destroy, degrade, or

fragment CBP habitat. In addition, human activities associated with infrastructure, industrial, and residential development and recreation may influence intra- and interspecies competition and favor predation. For example, changes in habitat resulting from development could facilitate the establishment of noxious weeds, which could, in turn, displace the more fragile CBP.

Future development and related infrastructure are likely the most serious threats to any threatened, endangered, or candidate species in or near the regional study area. New development in the regional study area may have cumulative adverse impacts to CBP. Increased development in the regional study area will result in habitat loss; increased traffic volumes; increased noise and air pollution; increased human activity; and a greater number of domestic pets, plants, and livestock. As the population within the regional study area grows, vehicle miles traveled are expected to increase from approximately 27,200,000 miles in 2001, to approximately 52,800,000 miles in 2035 under the Preferred Alternative.

Portions of the regional study area have infestations of nonnative and noxious weeds, including diffuse knapweed (*Centaurea sp.*) and Canada thistle (*Cirsium arvense*). Increased development in the regional study area will likely result in an increase in noxious weeds that could invade existing CBP habitat.

5.2.2 *Ute Ladies'-Tresses Orchid (ULTO)*

5.2.2.1. Species Background, Habitat Requirements, and Distribution

ULTO is a perennial orchid with erect glandular pubescent stems 8 to 20 inches tall rising from tuberous thickened roots, mainly basal narrow leaves, and a spike of clustered white to ivory flowers that are approximately ½ inch long. ULTO was federally listed as threatened in 1992 (57 Fed. Reg. 2048 (January 17, 1992)).

ULTO occurs at elevations below 6,800 feet in moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes (CNPS 1989). Widely scattered populations of ULTO are present in Colorado, Nebraska, Wyoming, Utah, Montana, Idaho, and Nevada. The primary threats to this species are loss or modification of habitat (57 Fed. Reg. 2051 (January 17, 1992)). Where ULTO is found, the vegetative cover is relatively open; dense, overgrown sites are not conducive to the establishment of

new populations of ULTO. Where ULTO is found, soils are typically alluvial deposits of sandy, gravelly material that are saturated to within 18 inches of the surface for at least part of the growing season. Along the Colorado Front Range, ULTO habitat occurs primarily on moist, subirrigated or seasonally flooded valley bottoms, gravel bars, old oxbows, or floodplains bordering springs, lakes, and rivers at elevations from 4,500 to 6,800 feet (CNPS 1989). The vegetation at sites where ULTO is found typically includes species that are considered facultative wetland or obligate wetland species by the Service. Common Front Range associated species include horsetail (*Equisetum* spp.), swamp milkweed (*Asclepias incarnata*), verbena (*Verbena hastata*), slenderleaf false foxglove (*Agalinis tenuifolia*), great blue lobelia (*Lobelia siphilitica*), blue-eyed grass (*Sisyrinchium* spp.), arrowgrass (*Triglochin* spp.), Indiangrass (*Sorghastrum nutans*), bluegrass, timothy (*Phleum pratense*), arctic rush, ragweed (*Ambrosia* spp.), poison ivy (*Toxicodendron rydbergii*), redtop, reedgrass (*Calamagrostis* spp.), and goldenrod (*Solidago* spp.). In riparian areas, ULTO may be present in grassy openings between cottonwood groves or sandbar willow patches.

5.2.2.2. Suitable Habitat

In Colorado, ULTO is known to occur in Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Morgan, and Weld counties. Known populations of ULTO are on the western edge of the regional study area on South Boulder Creek and in Fort Collins near Horsetooth Reservoir. No critical habitat has been designated for ULTO. No known populations of ULTO occur in or near the project area.

Habitat evaluations for ULTO were conducted at major stream drainages and ditches in the project area. Presence/absence surveys for ULTO were not conducted as part of this PBA because surveys are only valid for three years, and the proposed construction date is more than 10 years away. Habitat evaluations found that no suitable habitat for ULTO was present at or near the following locations (Table 3):

- BNSF alignment and Sugarmill Road,
- Unnamed ditch at SH 66 and North 115th Street,
- Oligarchy Ditch at SH 119,
- Ish Ditch at the BNSF alignment,

- Oligarchy Ditch at the BNSF alignment, and
- BNSF alignment near Divide Reservoir.

These locations lack suitable habitat and are not associated with the floodplain of an intermittent or perennial drainage. As a result, no further presence/absence surveys would be needed unless new suitable habitat or new populations of ULTO are identified nearby.

Suitable habitat for ULTO was identified within riparian habitat along the St. Vrain, Little Thompson, Big Thompson, and Cache la Poudre rivers where these drainages are crossed by I-25 or the proposed commuter rail alignment. These sites are within the 100-year floodplain of tributaries to the South Platte River and are described in greater detail in Table 3. Potentially suitable ULTO habitat was also identified in Boulder County at an unnamed ditch at SH 66 and North 115th Street, Ish Ditch at the BNSF alignment, and at the BNSF alignment near the Divide Reservoir. Due to lack of access to these three sites in September 2008, it was difficult to determine if suitable habitat was present, but because these sites are wetlands in Boulder County, a presence/absence survey will be conducted prior to construction.

5.2.2.3. Effects of the Preferred Alternative

No known populations of ULTO occur in or near the project area; however, suitable habitat is present at several river crossings along both the I-25 and BNSF routes. Based on the current conditions described below and additional avoidance and minimization commitments incorporated into the project, it was determined that the Preferred Alternative may affect, but is not likely to adversely affect, ULTO. Because of the quality of suitable habitat present, final presence/absence surveys for ULTO will be conducted following Service guidelines prior to construction at the St. Vrain River at SH 119, the St. Vrain River at I-25, the Little Thompson River at I-25, the Little Thompson River at BNSF alignment, the Big Thompson River at I-25, the Big Thompson River at BNSF alignment, and the Cache la Poudre River at I-25 (Figure 3). Habitat assessments and/or presence/absence surveys (as needed) will be conducted at the wetlands in Boulder County with potentially suitable ULTO habitat described above.

If ULTO populations are discovered in the project area, potential direct impacts could include loss of individuals or disturbance to habitat during construction. The Preferred Alternative could result in indirect effects from increases in runoff. The addition of a highway lane on either side of the existing road, new transit stations, carpool lots, and maintenance facilities would increase impervious surfaces, thereby increasing runoff and exposing the surrounding vegetation to higher levels of pollutants.

As stated earlier, under current conditions the Preferred Alternative may affect, but is not likely to adversely affect, ULTO. Current conditions are not expected to improve over the next 20 years and establishment of ULTO communities is not likely to occur between now and construction of the Preferred Alternative (i.e., the next 20 years). However, the following conditions would trigger formal consultation between FHWA/CDOT and the Service as described in Section 7 of this document:

- New populations of the ULTO are discovered within or near the construction area as the Preferred Alternative is implemented, or
- The species is observed during preconstruction surveys.

5.2.2.4 Cumulative Effects

Cumulative effects for ULTO would be similar to cumulative effects for CBP. Cumulative effects may result from future state, local, or private actions that are reasonably certain to occur in the regional study area and that may destroy, degrade, or fragment ULTO habitat. Human activities associated with infrastructure, industrial, and residential development and recreation may influence intra- and interspecies competition and favor predation. Changes in habitat resulting from development could facilitate the establishment of noxious weeds, which could, in turn, displace the more fragile ULTO.

As with CBP, future development and related infrastructure are likely the most serious threats to ULTO in or near the regional study area. New development in the regional study area may have cumulative adverse impacts to ULTO. Increased development in the regional study area will result in habitat loss, increased traffic volumes, increased noise and air pollution, increased human activity, and a greater number of domestic pets, plants, and livestock. As the population within the regional study area grows, vehicle miles traveled are expected to increase from approximately

27,200,000 miles in 2001 to approximately 52,800,000 miles in 2035 under the Preferred Alternative.

Portions of the regional study area have infestations of nonnative and noxious weeds, including diffuse knapweed and Canada thistle. Increased development in the regional study area will likely result in an increase in noxious weeds that could invade existing ULTO habitat.

5.2.3. *Black-footed Ferret*

5.2.3.1. Species Background, Habitat Requirements, and Distribution

The black-footed ferret is listed as endangered under the ESA. Black-footed ferrets are associated with black-tailed prairie dog (*Cynomys ludovicianus*) colonies, on which they depend for food and shelter. Over the past century, prairie dog distribution has been substantially reduced due to habitat loss, plague, and poisoning practices. Due to the loss of prairie dog habitat, the black-footed ferret has been nearly extirpated. The Service considers black-tailed prairie dog towns or complexes of greater than 80 acres potential black-footed ferret habitat (Service 1989).

5.2.3.2. Suitable Habitat

Based on previously gathered data, the Service assumes the black-footed ferret is absent from the project area. A block clearance area where black-footed ferret surveys are not required has been established for eastern Colorado (Service 2009). All of the regional study area, including the project area, is within this block clearance area.

5.2.3.3. Effects of the Preferred Alternative

Because the black-footed ferret does not occur within the regional study area, the Preferred Alternative would have no effect on this species.

5.2.4. *Preble's Meadow Jumping Mouse (Preble's)*

5.2.4.1. Species Background, Habitat Requirements, and Distribution

Preble's was listed as a threatened species in Colorado and Wyoming on May 13, 1998. As of July 8, 2011, after several status evaluations that considered genetics, meta-population analysis, and distribution within significant portions of its range, Preble's remains listed as a threatened species in both Colorado and Wyoming. Final revised critical habitat for Preble's was designated on December 15, 2010 (75 Fed. Reg. 78429),

but no critical habitat occurs in the project area (Service 2010b). Designated critical habitat occurs within the regional study area on South Boulder Creek, but is outside of the project area for the Preferred Alternative.

Typically, Preble's occurs below 7,600 feet in elevation along the Front Range of north-central Colorado and south-central Wyoming. Preble's generally occupies lowlands with medium to high moisture along permanent or intermittent streams and canals (Meaney et al. 1997). Preble's occurs in low undergrowth consisting of grasses and forbs, in open wet meadows, riparian corridors near forests, or where tall shrubs and low trees provide adequate cover (Meaney et al. 1997). Preble's typically inhabits areas characterized by well-developed plains riparian vegetation with relatively undisturbed grassland and a water source nearby. Preble's have been found to use uplands as far as 100 meters beyond the floodplain.

Current Service guidelines recommend that projects within 300 feet of 100-year floodplains associated with rivers, creeks, and their tributaries (and projects that may have potential secondary impacts to such areas) be assessed as to their potential direct and indirect impacts (e.g., sedimentation, increased runoff, and increased light pollution) to Preble's and Preble's habitat (Service 2004c). Under existing regulations, either a habitat assessment or a full presence/absence survey for Preble's is required for any habitat-disturbing activity within areas determined to be suitable Preble's habitat.

5.2.4.2. Occupied and Suitable Habitat

The typical definition of occupied Preble's habitat is an area 300 feet beyond the 100-year floodplain for a distance of 1 mile upstream and downstream of a known Preble's population. Within the regional study area, Preble's is known to occur in riparian habitat along South Boulder Creek, the Big Thompson River, the Little Thompson River, and the South Platte River downstream of the confluence with the Big Thompson River (Figure 4). Suitable habitat is defined for this PBA as stream and riparian habitats within 300 feet of 100-year floodplains that match the habitat description provided above. Although described separately in this document, when calculating impacts in this PBA, suitable Preble's habitat is treated the same as occupied habitat.

ERO conducted habitat assessments for Preble's following Service guidelines during site visits on April 18 and 22, 2005; August 31, 2005; and September 16, 2008. ERO also reviewed the available trapping data from the Service (2010c). Clearance surveys were not conducted as part of this PBA because the proposed construction date is more than 10 years away. The habitat assessments focused on all drainages within the regional study area where project activities would occur. These drainages include the Cache la Poudre River, Fossil Creek, Big Thompson River, Little Thompson River, St. Vrain River, Spring Creek, Little Dry Creek, Big Dry Creek, and the South Platte River. Each of these drainages is addressed individually below. Past trapping surveys and habitat quality near each crossing are summarized in Table 4.

Cache la Poudre River

Impacts to the Cache la Poudre River may occur where the river is crossed by the BNSF alignment and I-25. A commuter bus station in Greeley would be located in an urbanized area within about 700 feet of the edge of riparian habitat along the Cache la Poudre River.

Riparian habitat along the Cache la Poudre River at the BNSF alignment consists of cottonwood woodland with an understory of smooth brome. Although marginally suitable habitat is present, extensive trapping surveys along this reach of the Cache la Poudre River have failed to find Preble's (Table 4).

Extensive riparian habitat is present at the Cache la Poudre River at I-25. The dominant riparian vegetation consists of plains cottonwood with an understory of sandbar willow, peachleaf willow, crested wheatgrass, smooth brome, and reed canarygrass. The surrounding land use is agricultural. Although suitable habitat is present, extensive trapping surveys along this reach of the Cache la Poudre River have failed to find Preble's (Table 4).

Table 4. Summary of Preble’s trapping records for the regional study area.

Location	Past Trapping Surveys	Conclusion	Comments
Cache la Poudre River at BNSF alignment	Five negative trapping surveys from 1998 to 2002 within 1 mile upstream or downstream.	Marginally suitable habitat present, but not occupied by Preble’s at the time of the surveys.	Habitat and trapping records will be reassessed with the Service to determine the need for a survey prior to construction.*
Cache la Poudre River at I-25	Three negative trapping surveys from 1999 to 2004 within 1 mile of I-25. Many more negative trapping surveys within 10 miles.	Suitable habitat present, but not occupied by Preble’s at the time of the surveys.	Habitat and trapping records will be reassessed with the Service to determine the need for a survey prior to construction.*
Cache la Poudre River at Greeley Commuter Bus Station	One negative trapping survey in 2001 within 1 mile; negative trapping survey in 2000 within 2 miles.	Urban area, not currently occupied by Preble’s and unlikely to be occupied in the future.	No further surveys or mitigation required.
Spring Creek at BNSF	Three negative trapping surveys from 2000 to 2002 within 1 mile of BNSF.	Low quality, highly disturbed riparian vegetation; not currently occupied by, or suitable for, Preble’s.	Habitat and trapping records will be reassessed with the Service to determine the need for a survey prior to construction.*
Fossil Creek at BNSF	Three negative trapping surveys from 1998 to 2000 within 1 mile.	Surrounded by urban area, not occupied by Preble’s at the time of the surveys and unlikely to be occupied in the future.	No further surveys or mitigation required.
Fossil Creek at I-25	One negative trapping survey in 2002 within 1 mile.	Not suitable habitat (cattail).	No further surveys or mitigation required.
Big Thompson River at BNSF	Two negative trapping surveys in 1999 and 2001 within 1 mile. Six additional trapping surveys between BNSF and I-25 were all negative.	Suitable habitat present, but not occupied by Preble’s at the time of the surveys.	Habitat and trapping records will be reassessed with the Service to determine the need for a survey prior to construction.*
Big Thompson River at I-25	Three negative surveys just west of I-25 from 1995 to 2003; one positive survey east of I-25 in 2001, less than 1 mile downstream.	Low-quality habitat in project area at I-25; occupied Preble’s habitat present east of I-25.	A population of Preble’s is unlikely to occur in the project area, but Preble’s is assumed to use this area as a movement corridor.

FINAL BIOLOGICAL ASSESSMENT
NORTH I-25
ADAMS, BOULDER, BROOMFIELD, DENVER, LARIMER, AND WELD COUNTIES, COLORADO

Location	Past Trapping Surveys	Conclusion	Comments
Little Thompson River at BNSF	Two negative trapping surveys from 1997 to 2000 within 1 mile.	Suitable habitat present, but not occupied by Preble's at the time of the surveys.	Habitat and trapping records will be reassessed with the Service to determine the need for a survey prior to construction.*
Little Thompson River at I-25	No surveys within 1 mile. Two positive surveys more than 1 mile east of I-25.	Low-quality habitat in project area. Occupied Preble's habitat is present east of I-25.	It is unlikely that a population of Preble's is present at this site, but Preble's is assumed to use this site as a movement corridor.
St. Vrain River at I-25 and SH 119	Four negative surveys within 1 mile upstream or downstream. Eight additional surveys between U.S. 287 and I-25, and two more surveys east of I-25 were all negative during the period from 1999 to 2003.	Suitable habitat is present, but not occupied by Preble's at the time of the surveys.	Habitat and trapping records will be reassessed with the Service to determine the need for a survey prior to construction.*
Little Dry Creek at I-25	Never surveyed, evaluated but not trapped several times; not suitable habitat (cattails).	Not suitable habitat, Preble's unlikely to occur.	No further surveys or mitigation required.
Dry Creek at BNSF	Two negative trapping surveys in 1997 and 1998 within 1 mile.	Low-quality riparian vegetation, channelized, not occupied by, or suitable for Preble's at the time of the surveys.	Habitat and trapping records will be reassessed with the Service to determine the need for a survey prior to construction.*
Big Dry Creek at I-25	Within block clearance zone.	Not occupied by Preble's.	No surveys are required.
South Platte River at Ft. Lupton Commuter Bus Transit Station	Seven negative trapping surveys from 1998 to 2004 within 2 miles upstream and downstream.	Transit station sites are not suitable habitat.	No further surveys or mitigation required.
South Platte River at Platteville Commuter Bus Transit Station	One negative trapping survey in 2002 within 1 mile.	Potential transit station sites are not within suitable habitat.	No further surveys or mitigation required.
South Platte River at Evans Commuter Bus Transit Station	Two negative trapping surveys in 2000 and 2002 within 1 mile.	Potential transit station is near the Cache la Poudre River in a cultivated field and is not suitable habitat.	No further surveys or mitigation required.

* CDOT will comply with the survey requirements/guidelines and schedules existing at the time of preconstruction surveys. Current survey guidelines recommend surveys to be conducted for two years prior to construction.

The commuter bus transit station in Evans is near the Cache la Poudre River. The proposed transit station site is not suitable habitat, and past trapping surveys on the Cache la Poudre River in Greeley (including a survey within 1 mile of the proposed transit station) have not captured Preble's (Table 4).

Fossil Creek

Impacts to Fossil Creek are likely at the BNSF alignment and I-25 crossings. Three trapping surveys on Fossil Creek near the BNSF alignment have failed to capture Preble's (Table 4). Riparian habitat on Fossil Creek at I-25 consists of cattails and is not suitable Preble's habitat.

Big Thompson River

The Big Thompson River may be affected by the Preferred Alternative at the BNSF alignment and I-25 crossings. Suitable habitat such as cottonwoods and riparian shrubs is present on the Big Thompson River at the BNSF alignment, but several trapping surveys in this area have failed to capture Preble's (Table 4).

Riparian habitat along the Big Thompson River at I-25 consists of plains cottonwood and peachleaf willow with an understory of sandbar willow and reed canarygrass. Surrounding land use consists of a state wildlife area west of I-25 and agriculture east of I-25. Extensive trapping surveys along the Big Thompson River within the regional study area did not capture Preble's; with the exception of one trapping survey in 2001 less than 1 mile downstream from I-25 (Table 4). The project footprint and nearby riparian areas are heavily disturbed by past human activity including the presence of the highway, past channelization of the river, and ongoing agricultural activities. The section of the Big Thompson River at I-25 has steep banks bordering a narrow riparian corridor. The riparian habitat in the project area is unlikely to have a resident population of Preble's but may function as a movement corridor for Preble's moving between the known occupied habitat downstream to the east and suitable habitat upstream to the west.

Little Thompson River

The Little Thompson River is likely to be affected by the Preferred Alternative at the I-25 crossing, but not at the BNSF alignment. The riparian habitat along the Little Thompson River at U.S. 287 (about 1 mile west of the BNSF alignment) consists of

cottonwood woodland with no woody shrubs in the understory. Although suitable habitat is present, trapping surveys within 1 mile of the BNSF alignment have not captured Preble's (Table 4). In addition, the Little Thompson River should not be affected by the commuter rail as no bridge widening is expected. The existing track will be used at the BNSF crossing and no passing track is anticipated.

Riparian vegetation along the Little Thompson River at I-25 consists of sandbar willow, cattail, curly dock, smooth brome, and reed canarygrass. The riparian habitat along the Little Thompson River at I-25 consists of a narrow strip along the river bordered by agricultural fields. No trapping surveys have been conducted within 1 mile of the I-25 crossing, but Preble's has been captured approximately 3 miles downstream from I-25. The Little Thompson River at I-25 site appears to be low-quality habitat based on the site visits. Although the riparian habitat on the Little Thompson River at I-25 is unlikely to have a resident population of Preble's, it may be used by Preble's as a movement corridor.

St. Vrain River

The St. Vrain River may be affected by the Preferred Alternative at the I-25 crossing. The Preferred Alternative also includes a new rail corridor that would parallel the river on the north following SH 119 from Longmont east to I-25. Riparian vegetation along the St. Vrain River at I-25 consists of sandbar willow, cattail, smooth brome, reed canarygrass, and curly dock. East of I-25 the banks are lined with riprap. West of I-25 the vegetation of the riparian corridor is similar, with a mix of plains cottonwood, sandbar willow, peachleaf willow, smooth brome, and reed canarygrass. Although suitable habitat is present, many trapping surveys along the St. Vrain River from U.S. 287 to I-25, and further east, have consistently produced no Preble's (Table 4).

Little Dry Creek

Little Dry Creek may be affected by the Preferred Alternative at the I-25 crossing. Riparian vegetation along Little Dry Creek at I-25 consists primarily of cattail and is not suitable habitat for Preble's. This reach of Little Dry Creek has been evaluated and determined to not be suitable Preble's habitat in the past, but has never been trapped (Table 4).

South Platte River

The South Platte River will not be directly affected by the Preferred Alternative; however, several commuter bus transit stations may be constructed along U.S. 85 near the South Platte River at Fort Lupton, Platteville, and Evans. Numerous negative trapping surveys have been conducted on the South Platte River near Ft. Lupton, and the proposed transit stations are not in suitable Preble's habitat. All of the Platteville transit station sites are in previously developed areas or cultivated fields, and are not suitable Preble's habitat. The U.S. 85 Evans commuter bus station is approximately 1,000 feet north of the South Platte River and more than 700 feet from riparian vegetation and suitable Preble's habitat. All other potential station sites are not near the South Platte River or are in urban environments and are not suitable Preble's habitat.

Block-Cleared Areas

Portions of the regional study area, including Big Dry Creek, are within the Service-designated Preble's Denver metropolitan area block clearance zone (Figure 4). In designating the block clearance zone, the Service eliminated the need for individuals or agencies to coordinate with the Service prior to conducting activities in habitats that otherwise would be deemed to have potential to support Preble's (Carlson 2000). The establishment of the block clearance zone is based on the likely absence of Preble's within the area. The block clearance zone has been updated and is valid until June 2013 (Linner 2010).

Occupied or suitable habitat is present at the Cache la Poudre River at I-25, the Big Thompson River at I-25 and the BNSF alignment, the Little Thompson River at I-25 and the BNSF alignment, and the St. Vrain River at I-25 and SH 119. For the purposes of calculating impacts in this PBA, these sites are considered suitable Preble's habitat and treated as potentially occupied. Spring Creek and Dry Creek at the BNSF alignment currently provide unsuitable habitat for Preble's. All the sites listed above will be reassessed with the Service during final design and potentially surveyed prior to construction following Service guidelines in effect at the time of the survey (current guideline recommend surveys for two years prior to construction). If new habitat or populations of Preble's are discovered within or near the construction area as the

Preferred Alternative is implemented or the species is observed during preconstruction surveys, FHWA/CDOT will formally consult with the Service as described in Section 7 of this document.

5.2.4.3. Effects of the Preferred Alternative

The Preferred Alternative could result in direct and indirect effects to Preble's and its habitat. The highway widening components of the Preferred Alternative would disturb approximately 0.72 acre of occupied Preble's habitat at the Big Thompson and Little Thompson rivers, and 1.21 acres of suitable Preble's habitat at the Cache la Poudre and St. Vrain rivers (Table 5). Temporary disturbance to riparian habitat during bridge replacement at these river crossings could affect Preble's habitat on these drainages. A portion of the impacted areas would be revegetated and restored. Direct effects to Preble's could include incidental take of individuals and loss of vegetation that could provide habitat. Indirect effects could include increased habitat fragmentation and decreased use of the area as a movement corridor due to the increased width of I-25 bridge crossings of the Big Thompson and Little Thompson rivers. Any new street lights near bridges could indirectly increase susceptibility of Preble's to predation. Potential direct effects to Preble's habitat from the Preferred Alternative are summarized in Table 5. Effects shown in Table 5 are representative of the effects that are expected to occur based on currently available data.

The transit components of the Preferred Alternative would not affect currently occupied Preble's habitat; however, suitable habitat is present along several drainages crossed by the proposed commuter rail alignment. Suitable Preble's habitat would be affected at the St. Vrain River at SH 119 (0.06 acre) and Big Thompson River at the BNSF alignment (0.08 acre). Potential direct effects to Preble's habitat are similar to the highway components and are summarized in Table 5.

Actual impacts of both the highway and transit components may be different at the time of construction because new data on Preble's distribution may be available in the future. The general process for future consultation with the Service is provided in Section 7 of this document. Effects shown in Table 5 are representative of the effects that are expected to occur based on currently available data. Interrelated and

interdependent actions include operation of a commuter rail, and construction and operation of transit stations and maintenance facilities, which are included in the Preferred Alternative. Because of the potential direct and indirect effects described above, it was determined that the Preferred Alternative may affect, likely to adversely affect Preble’s.

Measures proposed to avoid, minimize, and offset potential impacts to Preble’s and its habitat, including habitat enhancement, are discussed in Section 6—Preconstruction Surveys and Conservation Measures.

Table 5. Permanent impacts to Preble’s habitat from construction of the Preferred Alternative.

Location	Total Impacts (in Acres)
Occupied Preble’s Habitat	
Big Thompson River at I-25	0.47
Little Thompson River at I-25	0.25
Total occupied habitat	0.72
Suitable Preble’s Habitat	
Cache la Poudre River at I-25	1.16
Big Thompson River at BNSF	0.08
St. Vrain River at I-25	0.05
St. Vrain River at SH 119	0.06
Total suitable habitat	1.35
Total habitat (occupied and suitable)	2.07

5.2.4.4 Cumulative Effects

Cumulative effects may result from future state, local, or private actions that are reasonably certain to occur in the regional study area and that may destroy, degrade, or fragment Preble’s habitat. In addition, human activities associated with infrastructure, industrial, and residential development and recreation may influence intra- and interspecies competition and favor predation. Domestic predators such as cats and dogs could have harmful effects on Preble’s.

Future development and related infrastructure are likely the most serious threats to any Preble’s populations in or near the regional study area. New development in the regional study area may have cumulative adverse impacts to Preble’s. Increased

development in the regional study area will result in habitat loss, increased traffic volumes, increased noise and air pollution, increased human activity, and a greater number of domestic pets, plants, and livestock.

Activities associated with urban development may degrade Preble's habitat and disrupt movement corridors. Increased human activity, including noise and air pollution from machinery, may discourage use of habitat. Human activity and associated development may constrain wildlife travel between adjacent blocks of habitat. Any increase in residential development likely will increase the number of domestic cats and dogs in areas adjacent to Preble's habitat, which may increase predation of Preble's.

Portions of the regional study area also have infestations of nonnative and noxious weeds, including diffuse knapweed and Canada thistle. Noxious weeds do not pose a significant threat to Preble's habitat but may reduce the amount of desirable forage and cover.

Preble's populations along drainages in the regional study area have probably declined in historical times. Ryon (1996) found that Preble's were no longer present at many sites where they had previously been trapped, including near Longmont within the regional study area. The Preferred Alternative could affect occupied Preble's habitat and movements at two locations—I-25 at the Big Thompson River and I-25 at the Little Thompson River. Cumulative effects at these two locations are described below.

- Big Thompson River at I-25 – Future land use mapping shows planned residential and commercial development south of the Big Thompson River at I-25; however, the land surrounding the river is largely within the Big Thompson Ponds State Wildlife Area west of I-25, and the agricultural land east of I-25 is likely to remain undeveloped according to the mapping. Future land uses are unlikely to make this reach of the Big Thompson River unsuitable habitat as a movement corridor for Preble's.
- Little Thompson River at I-25 – Some residential development is expected south of the Little Thompson River, but in general, the surrounding land use will remain agricultural. Riparian habitat near the Little Thompson River will likely remain suitable as a Preble's movement corridor.

In both locations, the cumulative impacts of the Preferred Alternative on Preble's habitat would be minimal.

5.2.5 Platte River Species

5.2.5.1. Species Background, Habitat Requirements, and Distribution

Whooping crane (*Grus americana*), least tern, piping plover, pallid sturgeon (*Scaphirhynchus albus*), and western prairie fringed orchid (*Platanthera praeclara*) are species that rely heavily on habitat provided by the Platte River system. The whooping crane, least tern, and piping plover may migrate through Colorado or may occasionally nest on wide sandy shores of reservoirs, typically in eastern Colorado. The regional study area consists primarily of semiarid grassland and residential/commercial development habitat unsuitable for these species. The pallid sturgeon is a fish found in the Missouri and Middle Mississippi rivers. The western prairie fringed orchid is a plant species found in tallgrass prairie ecosystem habitats west of the Mississippi River.

5.2.5.2. Suitable Habitat

No suitable habitat for the whooping crane, least tern, piping plover, pallid sturgeon, and western prairie fringed orchid is found in the regional study area.

5.2.5.3. Effects of the Preferred Alternative

Depletions to the Platte River system due to CDOT activities are addressed by the State of Colorado's participation in the South Platte Water Related Activities Program (SPWRAP) through the "Memorandum of Agreement for Implementation and Operation of the Colorado Portion of the Platte River Recovery Implementation Plan (PRRIP). The State has made and continues to make financial and other contributions to the PRRIP. In addition, SPWRAP has created a "Class X-1" membership specifically for and limited to the State of Colorado for diversions and depletions by state agencies that are comparatively small. According to the Memorandum of Agreement (MOA), contributions previously made are deemed payment of all SPWRAP assessments for the Class X-1 membership for the duration of the First Increment of the PRRIP, which expires in 2020. However, because the FHWA may provide funds for the Preferred Alternative, in order to satisfy their obligation under the ESA, Section 7 consultation is required.

With regard to possible effects from water depletions to the Platte River system, potential project components that could result in depletions include:

1. Detention facilities;
2. Dust abatement activities;
3. Wetland mitigation;
4. Structure backfill;
5. Embankment and ABC Compaction; and
6. Concrete needed for roadway, slope paving, embankments, inlets, guardrails, sidewalks, and curb and gutter.

Because the amount of water to be used cannot be anticipated at the programmatic level, a PRRIP template biological assessment will be submitted to the Service during project-specific Section 7 consultation with the Service. Project-specific biological assessments will estimate the water usage for that particular phase or project. Following consultation and the Service's issuance of a biological opinion, project-level depletions will be monitored annually by FHWA/CDOT and reported to the Service. The Platte River species will not be considered further in this document.

6. Preconstruction Surveys and Conservation Measures

6.1. Colorado Butterfly Plant

The Service has not established official survey or monitoring guidelines for the CBP. Preconstruction habitat assessments and/or surveys for the CBP will be conducted during the survey season just prior to construction in areas with suitable habitat that are not covered by the SGPI. In the unlikely event CBP is found within the construction footprint, specific conservation measures would be developed in coordination with the Service.

The portion of the Preferred Alternative area along I-25 is within the area covered by the SGPI, and no additional conservation measures would be required for CBP in these areas, provided that the SGPI is still in effect when construction begins. Currently, work is projected to begin after 2030.

Mitigation commitments of the FEIS that benefit CBP (and ULTO) include sediment- and erosion-control techniques (as indicated by CDOT erosion-control practices) that will

be established to prevent sediment loading and impacts to CBP/ULTO habitat. An integrated weed management plan or project-specific CDOT 217 specification will also be incorporated into the project design and implemented during construction to control the infestation and spread of noxious weeds. Additional conservation measures could include avoiding impacts by establishing a no construction zone or, in the event of unavoidable impacts, enhancing adjacent or off-site habitat.

6.2. Ute Ladies'-Tresses Orchid

Suitable ULTO habitat within the construction footprint will be surveyed during the three survey seasons prior to construction, or according to Service survey protocol at the time of construction. In Colorado, the Service requires surveys in areas of suitable habitat on the 100-year floodplain of the South Platte River and its perennial tributaries, or in any area with suitable habitat in Boulder and Jefferson counties. ULTO does not bloom until late July to early September (depending on the year) and timing of surveys must be synchronized with blooming (Service 1992).

If ULTO is found within the construction footprint, specific conservation measures would be developed in coordination with the Service. Conservation measures include the mitigation commitments of the FEIS for sediment and erosion control and noxious weed management described above. Additional conservation measures could include avoiding impacts by establishing a no construction zone or, in the event of unavoidable impacts, enhancing adjacent or off-site habitat.

6.3. Preble's Meadow Jumping Mouse

Preconstruction habitat assessments/trapping surveys will be conducted following the *Preble's Meadow Jumping Mouse Survey Guidelines*, revised April 2004 (Service 2004c). These guidelines recommend that projects within 300 feet of 100-year floodplains associated with rivers, creeks, and their tributaries be evaluated for suitable Preble's habitat by a qualified biologist. Areas containing suitable habitat generally require trapping surveys to determine the presence or absence of Preble's. The Service recommends two years of trapping. As a general standard, 750 trapnights (one trap set for one night = one trapnight) are appropriate for surveys conducted between June 1 and

August 31. Trapping between September 1 and September 15 requires a minimum of six nights and 1,000 trapnights.

A number of conservation measures would be implemented during final design to avoid and minimize impacts to Preble's and to enhance or create habitat.

- Construction within occupied Preble's habitat at the Little Thompson and Big Thompson rivers and any areas found to be occupied by Preble's by future surveys will be limited to Preble's inactive season (November through April).
- Visible barriers will be used to limit the area of construction within occupied habitat.
- If culverts in occupied or suitable Preble's habitat are replaced or upgraded, the new culverts would incorporate ledges to facilitate small mammal passage.
- Lighting within and near Preble's habitat will incorporate current technology and standards (e.g., Dark Skies) at the time of design to reduce lighting impacts to Preble's.
- Where impacts to occupied habitat are unavoidable, compensatory mitigation would be provided through enhancement or replacement with suitable Preble's habitat. Permanent impacts would be mitigated at a 3:1 mitigation to impact ratio; temporary impacts would be mitigated at a 1:1 ratio. Mitigation measures for Preble's could be combined with wetland mitigation. Wetland mitigation measures also may replace any impacts to suitable unoccupied Preble's habitat.

CDOT would employ conservation measures to minimize impacts during construction. These measures would include:

- Stockpiling construction materials in bare areas rather than on top of existing vegetation in known occupied and suitable habitats.
- Informing construction workers the reasons for and importance of limiting impacts to vegetated habitat outside the work area in known occupied habitat.
- Supervising work on a daily basis to ensure that conditions established by the Service are met.
- Implementing concurrent revegetation during construction to the maximum extent practicable.
- Providing a report to the Service that includes photographic documentation of site conditions prior to and at the completion of construction.
- Reporting any inadvertent mortalities found during construction as specified in current trapping guidelines. CDOT will report all relevant

information within 24 hours and subsequently submit a completed Injury/Mortality Documentation Report to the Service, Ecological Services Colorado Field Office or the Service's Division of Law Enforcement in Lakewood, Colorado (telephone 303-274-3560).

- In the unlikely event that a Preble's mouse (dead, injured, or otherwise) is located during construction, the Colorado Field Office of the Service will be contacted immediately to identify additional measures, as appropriate, to minimize impacts to Preble's.

In many cases, existing culverts would be replaced by more and/or larger culverts or by bridges, which would likely facilitate movement of Preble's between habitat areas. Specifics of the conservation measures will be developed in coordination with the Service during final design and prior to construction. Documentation of the final conservation measures would include plans and specifications for creation of, and enhancements to, Preble's habitat that could result in an increase in Preble's habitat.

7. Process for Future Section 7 Consultation

7.1. Project-Specific Consultation

Project-specific consultation will be a two-step process. The first step will be to consult with the Service during final design for each specific project of the Preferred Alternative to determine if new species are listed or habitat conditions and/or species distribution of currently listed species has changed. Based on this consultation, project designers will incorporate avoidance and minimization measures into the project design to the maximum extent practicable. Because of the potential time lapse between final design and project construction, the second step will occur prior to initiation of construction activities. Approximately two years prior to any planned construction activity, FHWA/CDOT will conduct specific consultation with the Service. Project-specific consultation will:

- Provide an update of baseline conditions.
- Consult on species' ESA listing status or habitat modifications for separate actions.
- Determine the need and appropriate protocols for any specific species surveys or habitat assessments.

- Outline new listed species commitments (may require an amendment to this PBA; FHWA/CDOT will consult with the Service at the time a new listed species may be affected by this project).
- Consult with the Service if CBP, ULTO, or Preble’s are found in new locations not identified in this document. Formal consultation may need to be revised because it is likely the effects determinations will change.
- Document construction impacts to listed species and apply conservation measures for the construction phase.

Site-specific consultation will include submitting a letter to the Service describing the items listed above for their review and concurrence. Actual impacts to listed species and their habitat will be tracked for each specific construction activity and all activities cumulatively, throughout the implementation of the Preferred Alternative. Table 6 provides a sample impact-tracking table for Preble’s. If total cumulative impacts on listed species are equal to or less than allowed under the terms and conditions of the PBO, then the Service will respond with a letter within 30 days indicating whether they agree with the updated baseline and applied conservation measures. If total cumulative impacts on listed species exceed the level of impacts allowed under the terms and conditions of the PBO, then the Service may require a project-specific BA for the phase or construction project or reopen consultation on the Preferred Alternative.

Table 6. Impacts tracking for Preble’s habitat from construction of the Preferred Alternative.

Location	Design Date	Incidental Take Statement Duration	Amount of Allowable Take (in acres)	Actual Take (in acres)	Variance from Allowable Take	Mitigation Commitment	Mitigation – Percent Complete
Cache la Poudre River at I-25			1.16				
Big Thompson River at I-25			0.55				
Little Thompson River at I-25			0.25				
St. Vrain River at I-25			0.05				
St. Vrain River at SH 119			0.06				
Total Cumulative Impacts			2.07				

7.2. Project-Specific Biological Assessment

Project-specific consultation will include submittal of a Biological Assessment (BA) by CDOT for each specific project constructed on North I-25 that exceeds the impacts covered in the PBO. The project-specific BA may address multiple sites and will conform to construction schedules, funding mechanisms, and any future unforeseen circumstances. The project-specific BA will include:

- Detailed project description and any changes since the FEIS or PBO (yet to be issued).
- Description of known locations of listed species in the project area.
- Specific timing of project construction.
- Habitat affected, project effects, and how they will be addressed. Project-specific impacts will be compared to the incidental take permitted in the PBO.
- Project tracking table to track the level of impacts, number of individuals of a species taken, and/or acres of habitat lost.
- Description of a monitoring program that tracks project-specific and cumulative project effects, level of incidental take, exceedance of incidental take allowed in the PBO, and effectiveness of avoidance/minimization measures and conservation actions.

7.3 Monitoring and Success Criteria

FHWA/CDOT recognizes the importance of a monitoring program for both habitat restoration and evaluation of the response of the target species. The monitoring program will track project-related actions (including the implementation of associated conservation actions) and record adverse effects to evaluate the success of restoration, level of incidental take, and effectiveness of avoidance/minimization measures and conservation measures. Effectiveness monitoring determines if the anticipated impacts stated in this PBA and permitted in the PBO are occurring, and if the objectives of this PBA are met. Effectiveness monitoring will include a determination of the disturbed area (tracked in the project reporting described below) and an accounting of revegetation activities. Revegetation monitoring includes management of the revegetation contract, selecting appropriate plant materials, ensuring proper planting techniques, and implementing appropriate best management practices (BMPs). FHWA/CDOT will work with the Service to develop project-specific success standards. Revegetated areas are then surveyed following planting until these success standards are met. Success

standards will likely be similar to standards stated in other PBOs (e.g., 70 percent foliar cover). These monitoring actions will be reported to the Service at the completion of each construction activity. CDOT will deliver a report to the Service that documents the status of all activities covered in the PBA/PBO and all related project-specific BAs to date, any actions taken, additional impacts (if any), and updated project tracking.

7.4 Project Reporting

The level of impacts, number of individuals of a species taken, acres of habitat lost, and progress toward mitigation will be tracked and reported (Table 6). The tracking will include all species and habitats in the PBO and the nature of allowable activities that conform to the incidental take statement. This tracking will indicate the need to reinitiate consultation due to unforeseen levels of impact, take, or habitat loss, and allow for tracking of the baseline. The information obtained from tracking will be summarized in a report submitted to the Service. The report will also include on-site conservation actions such as acres of habitat disturbed, acres revegetated, and acres restored; and coordination actions and outcomes.

8. Conclusions

The Preferred Alternative may affect Preble's or its occupied habitat (Table 7). Current information indicates that approximately 0.72 acre of occupied habitat would be directly impacted by construction activities, potentially resulting in disruption of Preble's movement corridors at the Little Thompson and Big Thompson rivers at I-25. Construction also would disturb about 1.35 acres of suitable Preble's habitat. Conservation measures integrated into final design to avoid habitat would be considered for a project-specific effects determination. Additional conservation measures developed in coordination with the Service would ensure that the Preferred Alternative would not jeopardize the continued presence of Preble's populations in riparian habitat on the Big Thompson and Little Thompson rivers.

Based on the best available information, the Preferred Alternative would not likely adversely affect ULTO or CBP because these species are not known to occur in the project area. If these species are found during subsequent surveys, conservation

measures would be developed in consultation with the Service as described in Section 7 of this document.

Table 7. Preliminary effects determination for federally listed threatened and endangered species.

Species	Preliminary Conclusion
Colorado butterfly plant	May affect, not likely to adversely affect
Ute ladies’-tresses orchid	May affect, not likely to adversely affect
Black-footed ferret	No effect
Preble’s meadow jumping mouse	May affect, likely to adversely affect
Platte River species	No effect

9. List of Preparers and Contacts Made

Preparers:

Steve Butler, ERO Resources Corporation, Natural resources Specialist
Ron Beane, ERO Resources Corporation, Senior Wildlife Biologist

Project Description and Plans Provided by:

FHU

Resource Specialists Consulted:

Alison Deans Michael, United States Fish and Wildlife Service Liaison
Jeff Peterson, Colorado Department of Transportation, Statewide Biologist

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Figures

LEGEND

-  I-25 General Improvements
-  Express Bus
-  Commuter Bus
-  Commuter Rail
-  Highways
-  Arterial Roads
-  Express Bus Transit Station
-  Commuter Bus Transit Station
-  Commuter Rail Transit Station
-  Commuter Rail Transit Center
-  Commuter Bus Operational and Maintenance Facility
-  Commuter Rail Operational and Maintenance Facility
-  Regional Study Area
-  City Boundaries
-  Cities & Towns in Project Area

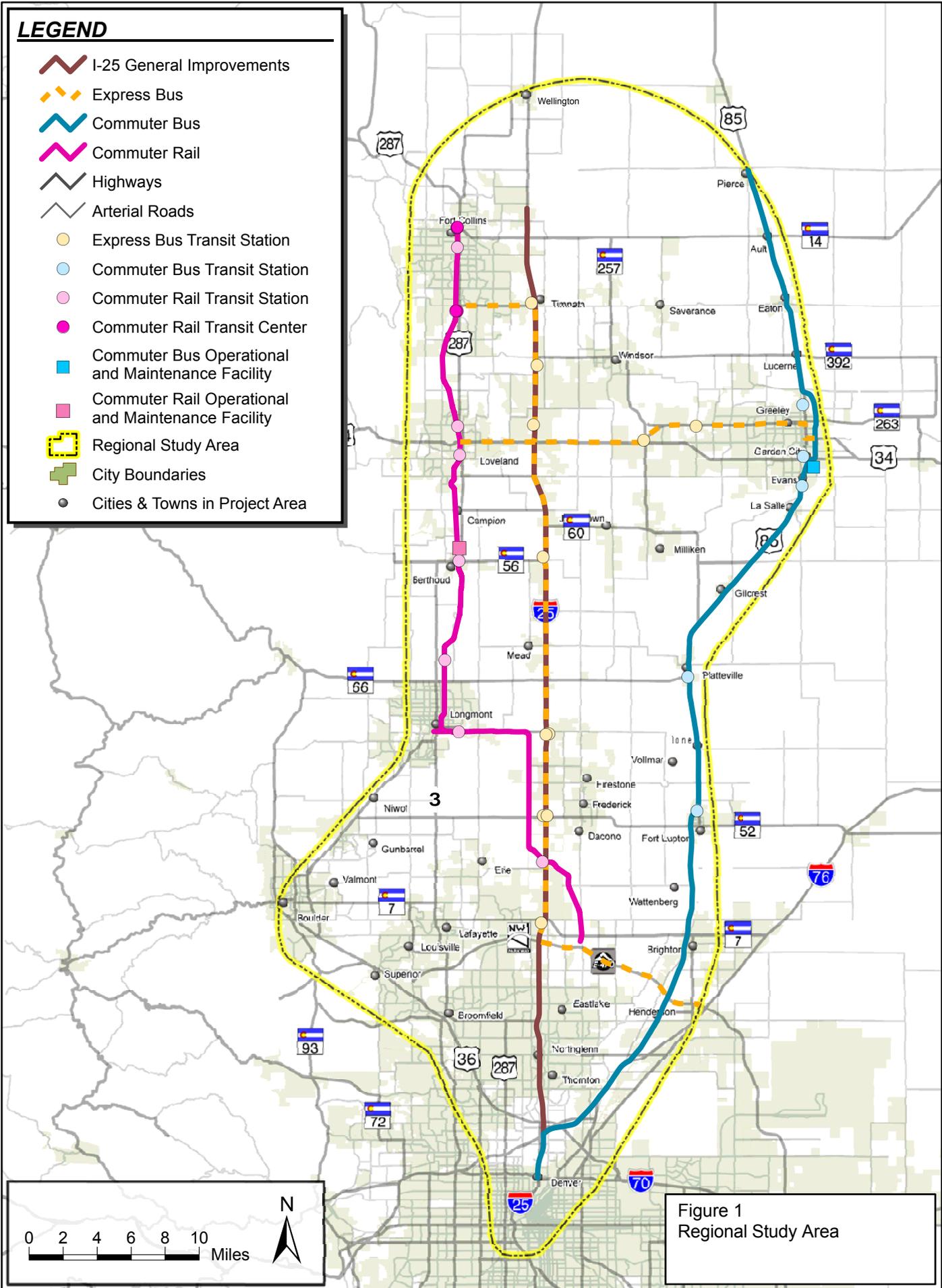
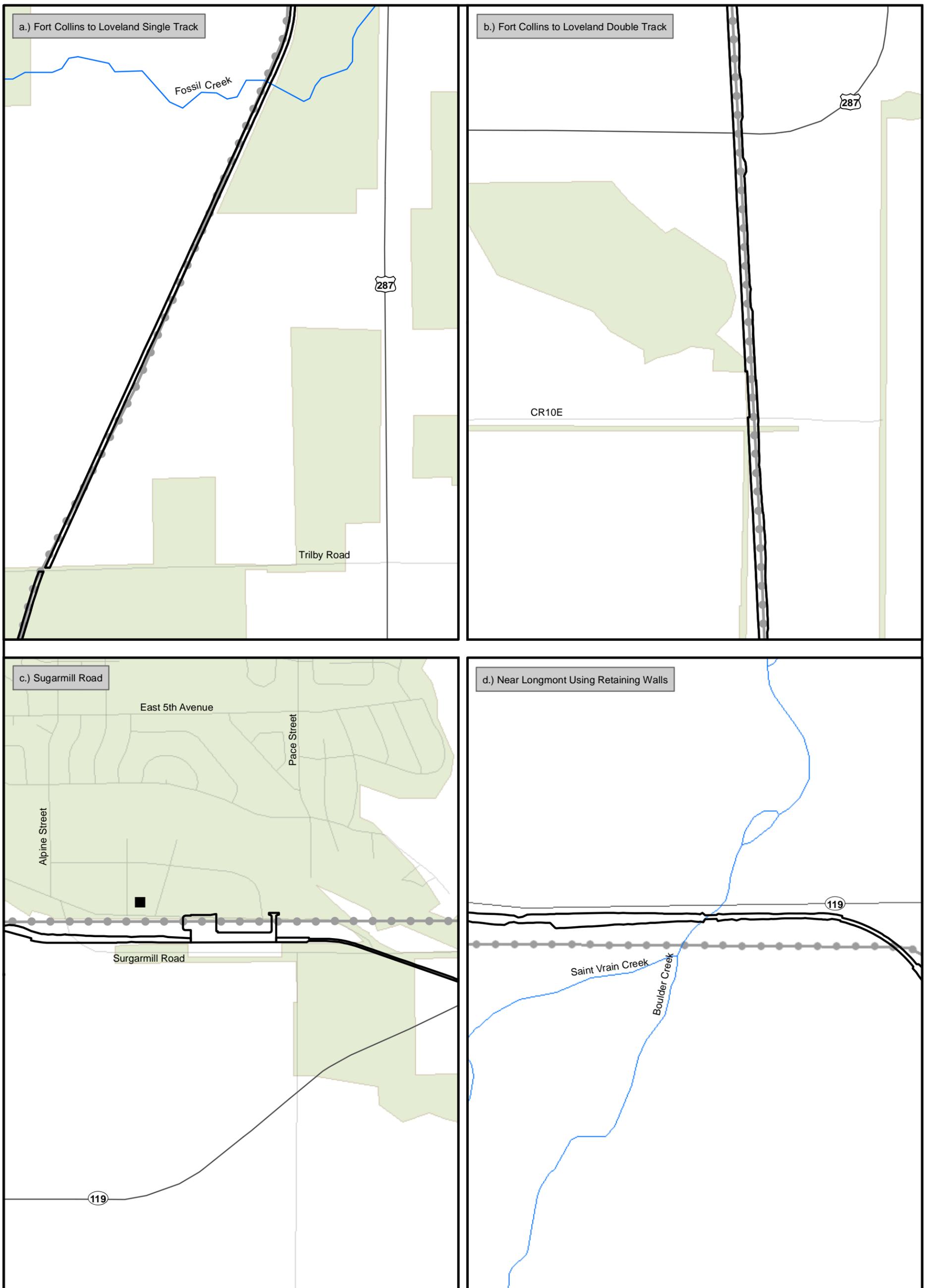


Figure 1
Regional Study Area



ERO Resources Corp.
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 Fax: (303) 830-1199

- Study Corridors
- Highways
- Arterial Roads
- Commuter Rail - Proposed Alignment
- Transit Stations - Approximate Locations
- City Boundaries

- a.) Fort Collins to Loveland Single Track
- b.) Fort Collins to Loveland Double Track
- c.) Sugarmill Road
- d.) Near Longmont Using Retaining Walls

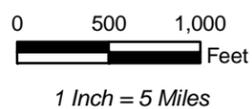
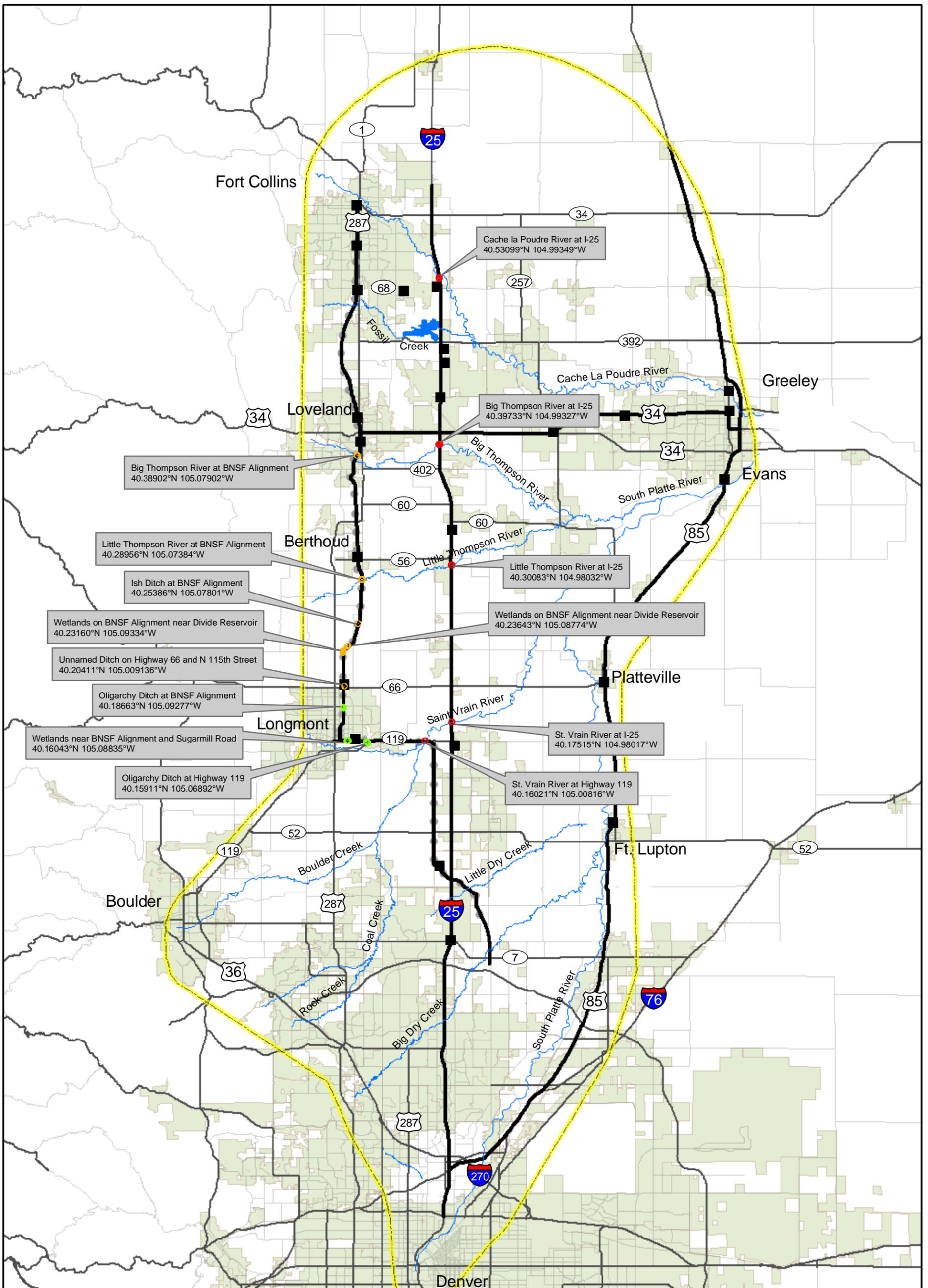


Figure 2
 North I-25 FEIS Typical Sections

Prepared for: I-25 North
 File: 2455 - Figure 2 Sections.mxd (GS)
 Date: November 2010



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- Study Corridors
- Highways
- Arterial Roads
- Commuter Rail - Proposed Alignment
- Transit Stations - Approximate Locations
- Regional Study Area
- City Boundaries

- Not suitable habitat
- Preconstruction habitat assessment required
- Preconstruction survey required

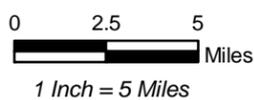
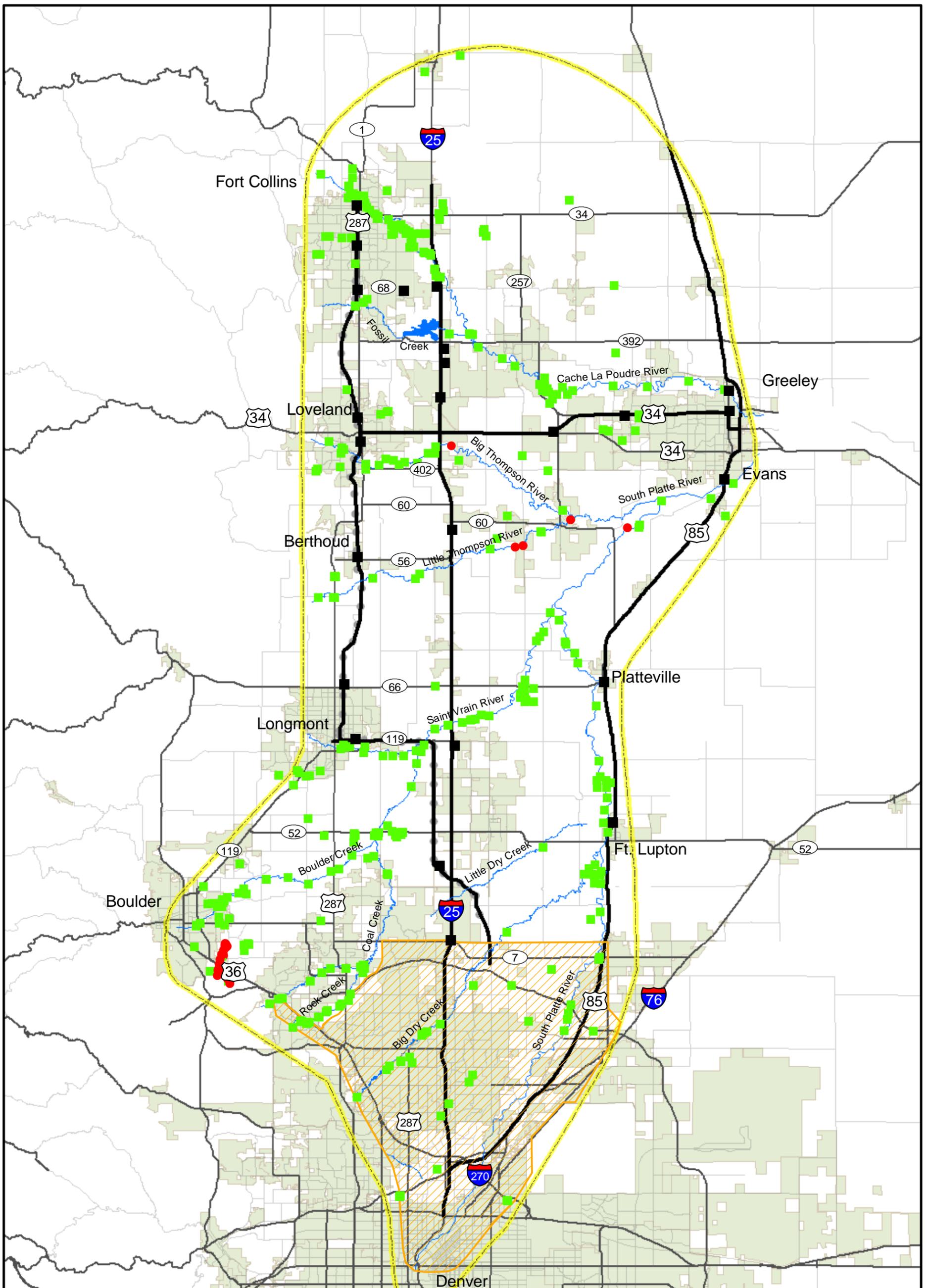


Figure 3
 North I-25 FEIS Ute Ladies'-
 Tresses and Colorado Butterfly
 Plant Habitat Assessment

Prepared for: I-25 North
 File: 2455 - Figure 3 Ute.mxd (GS)
 Date: November 2010



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- Study Corridors
- Highways
- Arterial Roads
- Commuter Rail - Proposed Alignment
- Transit Stations - Approximate Locations
- Regional Study Area
- City Boundaries

- Preble's Meadow Jumping Mouse Trapped-Found
- Preble's Meadow Jumping Mouse Trapped-Not Found
- Preble's Meadow Jumping Mouse Block Clearance

Source: USFWS

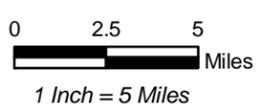


Figure 4
 North I-25 FEIS Preble's
 Meadow Jumping Mouse Data

Prepared for: I-25 North
 File: 2455 - Figure 2 PMJM.mxd (GS)
 Date: November 2010