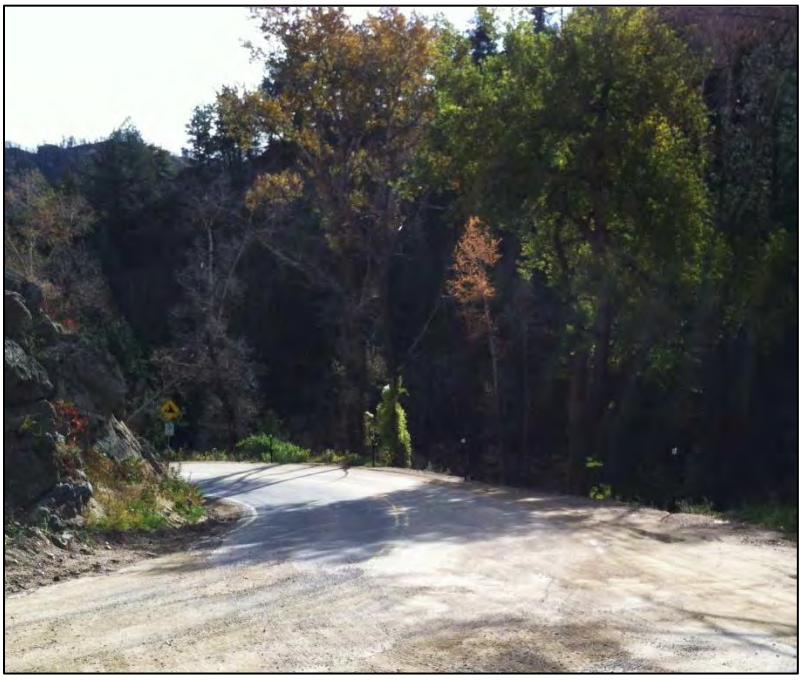
Appendix B: Biological Resources Report

Biological Resources Report

Salina Junction Flood Recovery Project
Boulder County, Colorado



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1.0 Introduction

The Salina Junction Flood Recovery Project is part of the emergency repair work being performed by Boulder County in response to flood events that occurred in September 2013. Boulder County is repairing damage to the intersection of Gold Run Road and Fourmile Canyon Drive at Salina Junction (see **Figure 1**). This purpose of the project is to permanently improve the roadway and drainage in the Salina Junction intersection area. The project will provide a new structure that can pass a larger flood event and reduce the maintenance needs for this crossing.

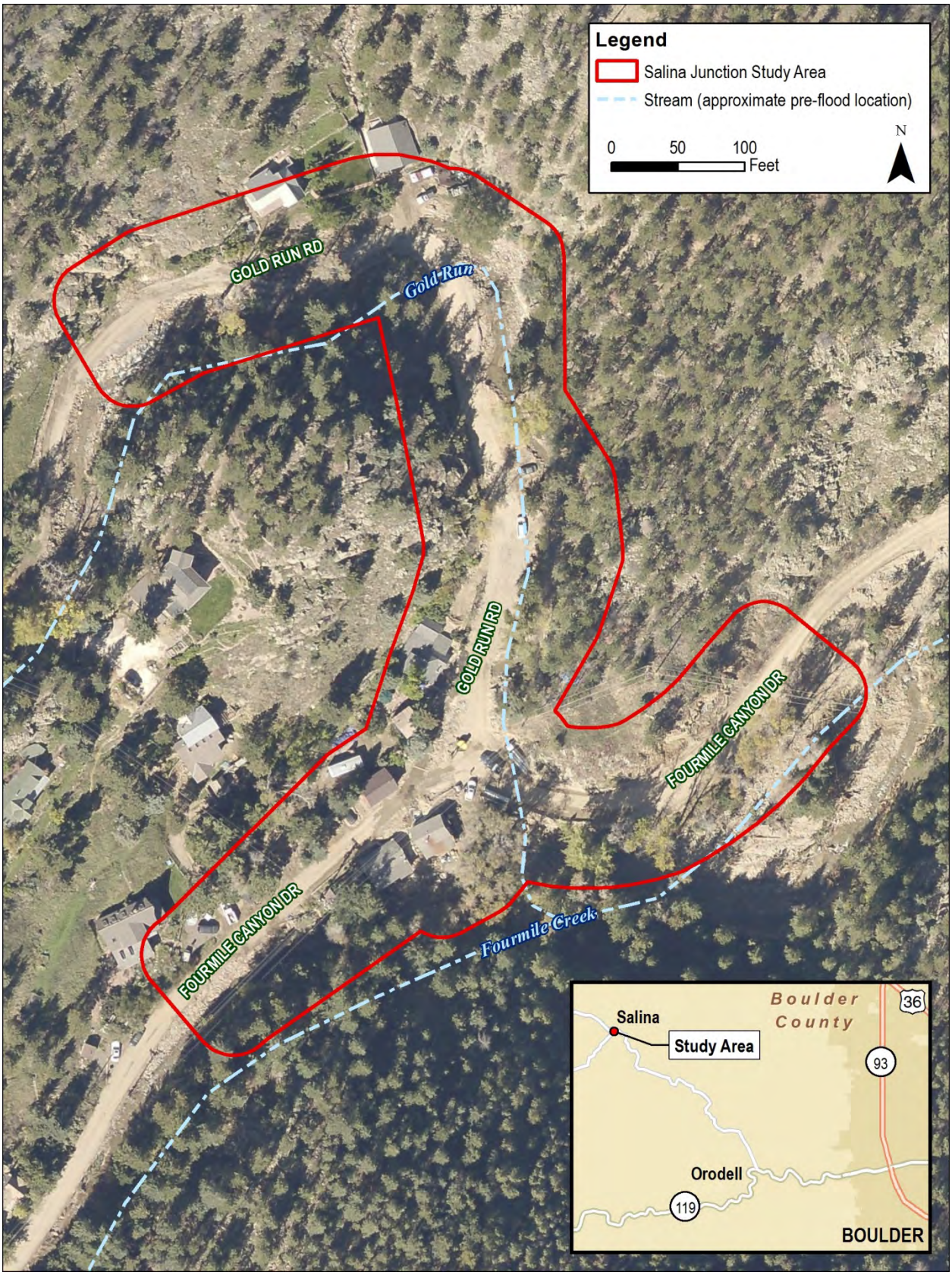
The project is funded through Federal Emergency Management Agency (FEMA) funds. Therefore, provisions of the National Environmental Policy Act (NEPA) must be followed. For this project a NEPA compliance document will be completed to document environmental conditions. This biological resources report has been completed to support the NEPA compliance document. The purpose of this document is to document existing conditions regarding biological resources including threatened and endangered species, water of the US, including wetlands, wildlife and vegetation, and migratory birds. This document has been prepared in accordance with federal regulations or polices, including the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act, Clean Water Act, and Executive Order (EO) 11990 for the protection of wetlands.

2.0 Project Description

The winter road construction that took place immediately after the floods was a temporary fix to get the roads open and was not meant to be a permanent solution. This temporary construction does not meet the purpose and need of this project. The Proposed Action would restore and improve the roadway along Gold Run and Fourmile Canyon Drive and replace the existing 42-inch culvert under the Salina Junction intersection with a concrete box culvert (CBC) which will improve the safety for vehicles and home owners in the area. The total extent of ground disturbance is approximately 38,600 square feet (SF) (0.89 acres). The area within the ROW and Permanent Easements is approximately 45,200 SF (1.04 acres) and the temporary disturbance area is approximately 13,375 SF (0.31 acres). The proposed permanent repairs would include:

- **Roadway improvements to Gold Run**: Gold Run Road would consist of an approximately 18 to 24-foot total width, with two 9 to 9.5-foot lanes. This will include approximately 575 feet of new asphalt pavement and 24 feet of asphalt tie in. A bridge rail will be installed on the east side of the road for a length of 81 feet. The depth of ground disturbance would be 1 to 2-feet in depth.
- **Roadway improvements to Fourmile Canyon Drive:** Fourmile Canyon Drive would consist of a 18 to 27-foot total width, with two 10 to 11-foot lanes and two 0 to 4-foot shoulders. This will include approximately 232 feet of new asphalt pavement and 38 feet of asphalt tie in. The depth of ground disturbance would be 1 to 2-feet in depth. A boulder barrier will be installed on the south side of Fourmile Canyon Drive above the proposed energy dissipator. The boulder barrier will consist of 12 boulders. Each boulder will be approximately 4 feet in diameter and placed 4 feet apart.

Figure 1: Study Area Location



- **Constructing a drainage gutter to collect runoff flows**: The gutter will be installed parallel to Gold Run Road on the west side and is designed to convey seepage from the canyon rock and runoff flows from the road. The gutter will be approximately 175 feet in length. The runoff will then be conveyed to an inlet and will flow under Gold Run Road for a length of 27 feet by an 18-inch reinforced concrete pipe (RCP) to outfall into Gold Run. A second gutter will be installed parallel to Fourmile Canyon Drive on the north side and is designed to convey runoff flows from the road. The gutter will be approximately 92 feet in length. The runoff will then be conveyed to an existing inlet and will flow under Fourmile Canyon Drive to outfall to Fourmile Creek.
- **Altering the channel and stabilizing the channel bank of Gold Run**: The Gold Run channel banks between Gold Run and Gold Run Road will be rebuilt for approximately 270 feet and will be protected by 24-inch soil riprap. The bottom of the channel will vary between 5 to 8-foot in width and the channel will connect to the new concrete embankment and 8-foot x 8-foot CBC.
- **Replacing the existing 42-inch culvert under Fourmile Canyon Drive**: Install an 8-foot x 8-foot CBC under Fourmile Canyon Drive. The CBC will be approximately 110 feet in length and be installed at a 10-foot depth. Two wingwalls (walls 1 and 2) and a concrete embankment will be constructed upstream of the CBC and two wingwalls (walls 3 and 4) will be built downstream of the CBC. Wall 1 is located on the east side of Gold Run Road, west side of Gold Run channel and is 26 feet in length and a maximum of 10.5 feet tall. Wall 2 is located on the east side of Gold Run Road, east side of Gold Run channel and is 32 feet in length and a maximum of 12.5 feet tall. Wall 3 is located on the south side of Fourmile Canyon Drive, east side of Gold Run channel and is 26.5 feet in length and a maximum of 15.75 feet tall. Wall 4 is located on the south side of Fourmile Canyon Drive, west side of Gold Run channel and is 45.5 feet long and a maximum of 15.75 feet tall.
- **Constructing an energy dissipator before Gold Run outfalls into Fourmile Creek**: The energy dissipator will be protected by approximately 226 cubic yards of 12-inch standard riprap and approximately 64 cubic yards of 12-inch soil riprap.

Figure 2 shows the proposed project design. See Site Plans for additional details regarding location and type of improvements in Appendix E. The proposed roadway improvements would generally follow the existing alignment of the road and will be completed within the County's existing 60-foot statutory right-of-way (ROW), except for permanent easements (PEs) for drainage and maintenance and temporary easements (TEs) for construction impacts beyond the ROW. There are four permanent and three temporary easements required for the proposed project. No new ROW would be required for the construction of the project. The permanent and temporary easement calculations are presented in **Table 1**.

The future-contractor will use one access route and establish the construction staging within the disturbed project area. This will minimize impacts to existing vegetation. Construction is scheduled to start the Summer of 2015 and be completed in the Fall of 2015. Disturbed areas which may be impacted will be reseeded as needed. Two trees are reportedly anticipated for removal in order to construct the concrete embankment for the 8 x 8 concrete box culvert (see **Figure 2**).

Figure 2: Proposed Project Design

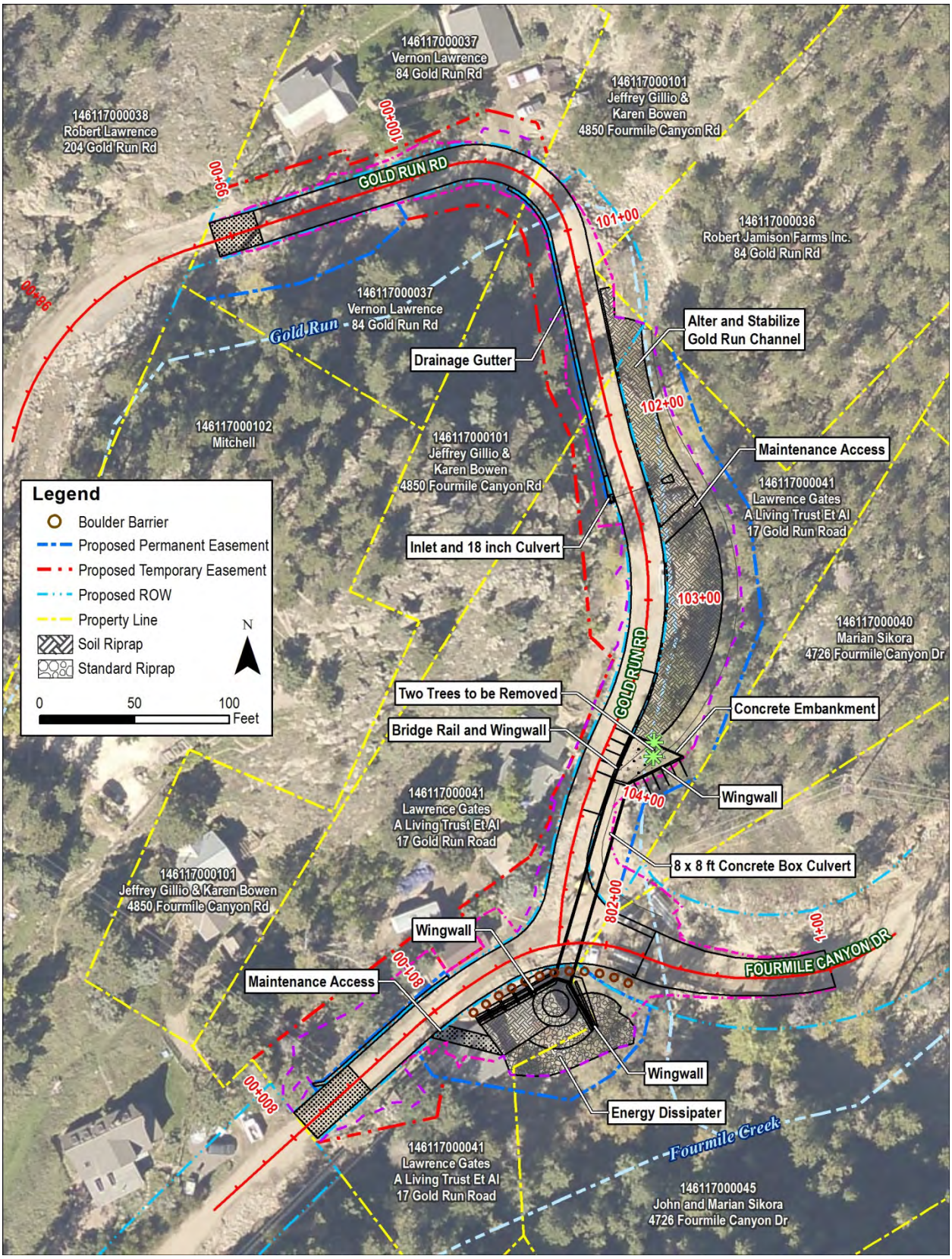


Table 1: Permanent and Temporary Easements

Location	Easement Type	Purpose	Easement Size: Square Feet (SF) / Acres
146117000037 84 Gold Run Road	PE TE	Drainage gutter Tie-in slopes	2,480 SF / 0.06 Acres 3,100 SF / 0.07 Acres
14611700101 4850 Fourmile Canyon Road	PE TE	Drainage gutter Tie-in slopes	179 SF / 0.004 Acres 1,593 SF / 0.04 Acres
146117000041 17 Gold Run Road	PE TE	Drainage gutter and inlet; Gold Run channel alteration and stabilization; 8 x 8 CBC; Four wingwalls; Energy dissipator; Boulder barrier, and Access for maintenance of drainage features Tie-in slopes	15,050 SF / 0.35 Acres 8,690 SF / 0.20 Acres
146117000045 4726 Fourmile Canyon Drive	PE	Energy dissipator; Wingwall; and Boulder barrier	2,299 SF / 0.05 Acres
		Total PE:	20,008 SF / 0.46 Acres
		Total TE:	13,383 SF / 0.31 Acres
		Total Easements:	33,391 SF / 0.77 Acres

There will be two major construction phases for the project. Phase I will consist of shifting traffic to the north side of Fourmile Canyon Drive and east side of Gold Run Road while construction occurs on the south side of Fourmile Canyon Drive and the west side of Gold Run Road. This phase will include construction of the drainage gutter and inlet, a portion of the CBC, the energy dissipator, and the two downstream wingwalls. During Phase II of the project, traffic will shift to the completed sides of Fourmile Canyon Drive and Gold Run Road while construction is completed on the other sides. This phase will include the remainder of the CBC, the two upstream wingwalls, and altering and stabilizing the channel of Gold Run. Temporary impacts include construction activities that are necessary to install the CBC, energy dissipator, and altering and stabilizing the channel of Gold Run.

2.1 Study Area Description

Salina Junction Flood Recovery Project study area is located in the Town of Salina, Boulder County, Colorado (see **Figure 1**). The geographic location of the project is centered at decimal degree coordinates latitude 40.050809° and longitude -105.372492° (World Geodetic Systems of 1984 [WGS 1984]), in Section 17, Township 1 North, Range 71 West of the 6th Principle Meridian on the Boulder 7.5 minute U.S. Geological Survey (USGS) topographical map. The elevations within the study area range from 6,580 ft to 6,700 ft above mean sea level (msl).

The Town of Salina is a former mining town approximately 7 miles west of Boulder, Colorado. The intersection of Fourmile Canyon Drive and Gold Run Road, which accesses the Town of Salina, is also known as Salina Junction. For the purposes of this biological resources report, the study area encompasses approximately 3.7 acres and includes roadway and drainage improvements,

temporary construction easements, permanent easements, as well as a buffer area to be conservative. It extends approximately 675 feet along Gold Run Road north of the intersection, 275 feet along Fourmile Canyon Drive west of the intersection and 320 feet along Fourmile Canyon Drive east of the intersection. The width of the study area ranges from 100 to 170 feet.

3.0 Methods

The study area has been evaluated for potential environmental impacts using aerial imagery, Geographic Information Systems (GIS), desktop review, and field surveys. Qualified staff from Baker conducted the field surveys on February 27, 2014 and on October 1, 2014 to assess and record the study area for biological resources.

The following information and general procedures were used to record relevant information:

- Land use within the study area and general project vicinity.
- General habitat conditions in upland and riparian areas.
- Boulder County Noxious Weeds (Boulder County 2014).
- General wildlife within the general project vicinity.
- Colorado Parks and Wildlife (CPW) State listed species as identified on the Colorado Natural Heritage Program (CNHP) U.S. Geological Survey (USGS) 7.5 minute Boulder quadrangle map (CNHP 2013).
- Federally listed threatened and endangered species as listed on the Boulder County U.S. Fish and Wildlife Service (USFWS) threatened and endangered species list (USFWS 2014a) and on the Information Planning and Conservation System (IPaC) (USFWS 2014b).
- Migratory bird nests within and adjacent to the study area.
- Procedures used to delineate waters of the U.S., including wetlands, follow guidelines in the 1987 Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987) and the 2010 USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010).

4.0 Field Survey Results

4.1 Land Use

Current use of land within the project area primarily involves transportation into and out of Salina. Land outside of the existing ROW is largely developed as an unincorporated mountain community with no industrial or commercial developments. Salina is located approximately 7-miles west of the City of Boulder and has a population of less than 100 residents. The proposed project is not expected to change existing land uses. Additionally, the project is consistent with local planning efforts. As discussed in **Section 2.0**, the proposed roadway improvements would generally follow the existing alignment of the road and will be completed within the County's existing 60-foot statutory ROW, except for PEs for drainage and maintenance and TEs for construction impacts. No new ROW would be required for the construction of the project.

4.2 Vegetation and Wildlife

4.2.1 Vegetation

The vegetation present is typical for a mountain terrain habitat. Elevations within the project area range from 6,580 ft to 6,700 ft. Vegetation within and surrounding the project area consists of mature trees with herbaceous understory. Dominant trees within the project area include Ponderosa pine (*Pinus ponderosa*) and Douglas fir (*Pseudotsuga menziesii*) with some aspen (*Populus tremuloides*), narrowleaf cottonwood (*Populus angustifolia*), Siberian elm (*Ulmus pumila*). Removal of existing trees and vegetation during construction will be limited. Access routes, staging areas, etc. will be located within previously disturbed areas to the extent possible. Disturbed areas will be restored using native plant materials.

Approximately 0.38 acres of vegetation will be disturbed by the project, which includes 0.32 acres of upland habitat and 0.06 acres of likely riparian habitat before the flood. Approximately 0.3 acres of vegetation will be re-seeded, this includes seeding 0.11 acres of soil riprap along Gold Run and 0.03 acres for the energy dissipator.

4.2.2 Riparian Habitat and SB40

The Gold Run channel banks between Gold Run and Gold Run Road will be rebuilt for approximately 270 feet and an 8-foot x 8-foot CBC will replace the existing 42-inch culvert under Fourmile Canyon Drive. The CBC will be approximately 110 feet in length. Currently, two trees are anticipated to be removed during the construction of the concrete embankment for the 8 x 8 concrete box culvert. Approximately 0.06 acres of likely riparian habitat before the flood will be disturbed by the project and 0.11 acres of soil riprap along Gold Run and 0.03 acres of soil riprap within the energy dissipator will be re-seeded.

Senate Bill 40 (SB40) requires any agency of the state to obtain wildlife certification from CPW when the agency plans construction in a jurisdictional stream, its banks or tributaries. Gold Run meets the criteria for a jurisdictional stream under SB40. Coordination with CPW is recommended to determine if an application for SB40 Wildlife Certification needs to be submitted to CPW. This project may meet SB40 qualifications under the following criteria:

- If federally listed threatened, endangered, proposed, or candidate species or their habitat may be affected by a project;
- Any permanent stream re-alignment associated with a project; and
- Projects involving replacement of existing structures over streams if the impacts extend 100 feet or more upstream and downstream of the project as measured along the valley length.

4.2.3 Wildlife

Common wildlife within the project area includes chipmunks (*Tamias sp.*), rabbits (*Sylvilagus sp.*), mule deer (*Odocoileus hemionus*), elk (*Cervus Canadensis*), and wild turkeys (*Meleagris Gallopavo*). There have also been sightings of mountain lions (*Puma concolor*), moose (*Alces alces*), and black bears (*Ursus americanus*). The study area lies within the Colorado Parks and Wildlife (CPW)

designated overall and winter range for elk; overall range and summer concentration area for black bear; overall range for Abert's squirrel (*Sciurus aberti*); overall range for mountain lions; overall, winter, and summer range for mule deer; and overall and winter range for wild turkeys.

The proposed project is along existing roadways and will not create a new barrier to normal travel patterns. This project is unlikely to permanently impact or cause displacement to wildlife species in the area. Wildlife may avoid the area during construction, but this will be temporary and wildlife can return to the area once construction is complete.

4.3 Noxious Weeds

The US Department of Agriculture (USDA) and the Colorado Department of Agriculture are responsible for officially designating noxious weeds. Noxious weeds are invasive species that by federal and state law must be controlled. Noxious weeds can produce significant changes to vegetation, composition, structure, or ecosystem function. The Colorado Noxious Weed Act §§ 35-5.5-101 through 119, C.R.S. (2003) as amended, states that an organized and coordinated effort must be made to stop the spread of noxious weeds.

To help combat noxious weeds, the State of Colorado developed a noxious weed list that designates and classifies noxious weeds into categories for immediate eradication, containment, and suppression:

- List A species were designated by the Commissioner for eradication.
- List B species are species the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, developed and implemented state noxious weed management plans designed to stop the continued spread of these species.
- List C species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands.

Boulder County has also formulated and implemented a countywide noxious weed control program designed to prevent and control noxious weeds. The Boulder County Noxious Weeds Management Plan states that it is everyone's duty to manage noxious weeds if they are likely to be damaging to the land of neighboring landowners. Boulder County currently has 22 species of plants that are listed in the Boulder County Noxious Weed Management Plan (Boulder County 2014).

State of Colorado noxious weeds observed during the field survey include Canada thistle (*Cirsium arvense*), Scotch thistle (*Onopordum acanthium, O. tauricum*), common mullein (*Verbascum Thapsus*), downy brome (*Bromus tectorum*), and field bindweed (*Convolvulus arvensis*). Canada thistle and Scotch thistle are also on the Boulder County noxious weed list.

In compliance with the Colorado Noxious Weed Act and local guidance, Best Management Practices (BMPs) and approved preventive measures would be used to prevent the spread of noxious weeds

and minimize the potential effects from control treatments during construction of the project. These measures and practices include, but are not limited to, minimizing soil disturbance to the maximum extent possible, cleaning construction equipment, and re-seeding all disturbed soil with a certified weed-free seed mix.

4.4 Threatened and Endangered Species

4.4.1 Federally Listed Species

The Endangered Species Act (ESA) declares the intention of Congress to protect federally-listed threatened and endangered species and designated critical habitat of such species. USFWS is the primary regulatory agency responsible for ESA compliance. Using the USFWS Information, Planning, and Conservation System (IPaC), six species were identified as having a potential to occur in this area. **Table 2** contains a list of these species along with their status, preferred habitat, and whether suitable habitat for the species is found within the study area.

Table 2: Threatened and Endangered Species

Common Name	Scientific Name	Status	Habitat	Potential to Occur in Study Area
Canada lynx	*Lynx Canadensis*	T	Moist boreal forests that have cold, snowy winters and a high-density snowshoe hare prey base.	Unlikely; suitable habitat not present.
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	T	Well-developed riparian habitat with adjacent, relatively undisturbed grassland communities, and a nearby water source. Riparian habitat includes a dense combination of grasses, forbs and shrubs and/or trees.	Unlikely; suitable habitat not present. However, there is a potential for suitable habitat to be re-established.
Colorado butterfly plant	*Gaura neomexicana var. coloradensis*	T	Occurs on subirrigated, alluvial soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5,000–6,400 feet. Low depressions or along bends in wide, active, meandering stream channels a short distance upslope of the actual channel. Habitat is open, without dense or overgrown vegetation.	Unlikely; suitable habitat not present. Elevations range from 6,580 to 6,700 feet within the study area.
Ute ladies'-tresses	*Spiranthes diluvialis*	T	Primarily found in moist meadows associated with perennial stream terraces, floodplains, and oxbows at elevations between 4,300-6,850 feet.	Unlikely; suitable habitat not present.
Greenback cutthroat trout	*Oncorhynchus clarki stomias*	T	Cold water streams and cold water lakes with adequate stream spawning habitat present during spring.	Unlikely; suitable habitat not present.
Mexican spotted owl	*Strix occidentalis lucida*	T	Old-growth or mature forests that possess complex structural components. Canyons with riparian or conifer communities. Rock walls with caves, ledges, and other areas provide protected nest and roost sites	Unlikely; suitable habitat not present.

Source: USFWS 2014b. http://ecos.fws.gov/ipac/wizard/chooseLocation!prepare.action

Status Key:

T - Federally Listed Threatened

E - Federally Listed Endangered

No critical habitat is present within or near the study area. No suitable habitat is present for federally-listed species in the study area for Preble's meadow jumping mouse, Colorado butterfly plant, and Ute ladies'-tresses. The project is within the overall range for Preble's meadow jumping mouse designated by CPW; however it is outside the known occupied range for this species. The closest occupied range is approximately 2.7 miles downstream along Fourmile Creek. Gold Run within the study area does not currently provide suitable habitat for Preble's meadow jumping mouse due to the September 2013 floods which scoured the floodplain, removing the majority of riparian vegetation. However, as the area recovers and with the succession of shrubs and riparian vegetation, there is a potential for suitable habitat to be re-established. This is unlikely to occur prior to the construction of the proposed action.

The study area lies outside of the CPW designated Canada lynx potential habitat, however designated potential habitat can be found approximately 150 feet south of Fourmile Creek. The study area does not contain suitable habitat for the Canada lynx. The study area mainly consists of the roadway and residential homes.

This project lies within the South Platte River Basin. Water-related activities/use in the South Platte River Basin may affect listed species in Nebraska and therefore these activities/uses are subject to the provisions of the ESA. In 1997, the Governors of Nebraska, Colorado and Wyoming signed a Cooperative Agreement with the U.S. Department of Interior that details a plan for basinwide recovery efforts. The Platte River Recovery Implementation Program (PRRIP) is the result of these planning efforts. The goals of the PRRIP are to increase stream flows in the central Platte River during relevant time periods; enhance, restore and protect habitat lands for the target bird species; and accommodate certain new water-related activities (PRRIP 2014). **Table 3** lists the five species that would be considered under the ESA for water-related activities/use.

Table 3: Threatened and Endangered Species to be considered for water-related activities/use in the N. Platte, S. Platte and Laramie River Basins which may affect listed species in Nebraska.

Common Name	Scientific Name	Status	Habitat	Water-Related Activity/Use
Pallid sturgeon	*Scaphirhynchus albus*	E	Large, turbid, free-flowing rivers with a strong current and gravel or sandy substrate.	No effect; onsite sources of water will not be used for any construction activity.
Least tern	*Sterma antillarum*	E	Sandy/pebble beaches with sparse to no vegetation on lakes, reservoirs, and rivers.	
Piping Plover	*Charadrius melodus*	T	Sandy lakeshore beaches and river sandbars. They prefer sparsely vegetated open sand, gravel, or cobble for a nest site.	
Whooping crane	*Grus Americana*	E	Utilizes a variety of wetland and other habitats, including coastal marshes and estuaries, inland marshes, lakes, ponds, wet meadows and rivers, and agricultural fields	
Western prairie fringed orchid	*Platanthera praeclara*	T	Is a perennial orchid of the North American tall grass prairie and is found most often on unplowed, calcareous prairies and sedge meadows	

Source: USFWS 2014b. http://ecos.fws.gov/ipac/wizard/chooseLocation!prepare.action

Status Key:
T - Federally Listed Threatened
E - Federally Listed Endangered

Onsite sources of water will not be used for any construction activity, including storing or using onsite water for dust abatement, soil compaction, concrete mixing, or other activities.

4.4.2 State listed Species

As directed by Colorado State Statute 33 (CRS Ann. §§ 33-2 to 102-106), the Colorado Wildlife Commission issues regulations and develops management programs implemented by CPW for wildlife species not federally listed as threatened or endangered. This includes maintaining a list of state threatened and endangered species, as well as a list of species of concern. Species of concern are not protected under Colorado State Statute 33. Currently, there are three species that are state listed threatened and endangered species and two listed species of concern that have the potential to occur within the Boulder 7.5 minute USGS topographical map (CNHP 2013). **Table 4** lists these species and their potential to occur within the study area.

Table 4: Sate Threatened and Endangered Species and Species of Concern

Common Name	Scientific Name	Status	Habitat	Potential to Occur in Study Area
Black-tailed prairie dog	*Cynomys ludovicianus*	SC	Live on grassy plains or prairies in communities called "towns" which can vary greatly in size.	Unlikely; suitable habitat not present.
Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	SC	Townsend's big-eared bat can be found in mines, caves and structures in woodlands and forests with suitable temperatures to elevations above 9,500 feet.	Unlikely; suitable habitat not present.
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	FT/ST	Well-developed riparian habitat with adjacent, relatively undisturbed grassland communities, and a nearby water source. Riparian habitat includes a dense combination of grasses, forbs and shrubs and/or trees.	Unlikely; suitable habitat not present. However, there is a potential for suitable habitat to be re-established.
Wolverine	*Gulo gulo*	SE	Found in tundra, taiga, boreal and alpine biomes. Areas where daily low temperatures can fall below freezing most of the year, growing seasons are short and snow persists into the summer months.	Unlikely; suitable habitat not present.
Northern red-belly dace	*Phoxinus eos*	SE	Generally found in lakes and small streams in the northeastern United States and eastern Canada. Found in extreme head waters of clear streams and spring-fed seepage pools with effective cover like undercut banks and heavy brushy vegetation.	Unlikely; suitable habitat not present.

Source: CNHP 2013; CPW 2014.

Status Key:
FT - Federally Listed Threatened
ST - State Listed Threatened
SE - State Listed Endangered
SC - Species of Concern

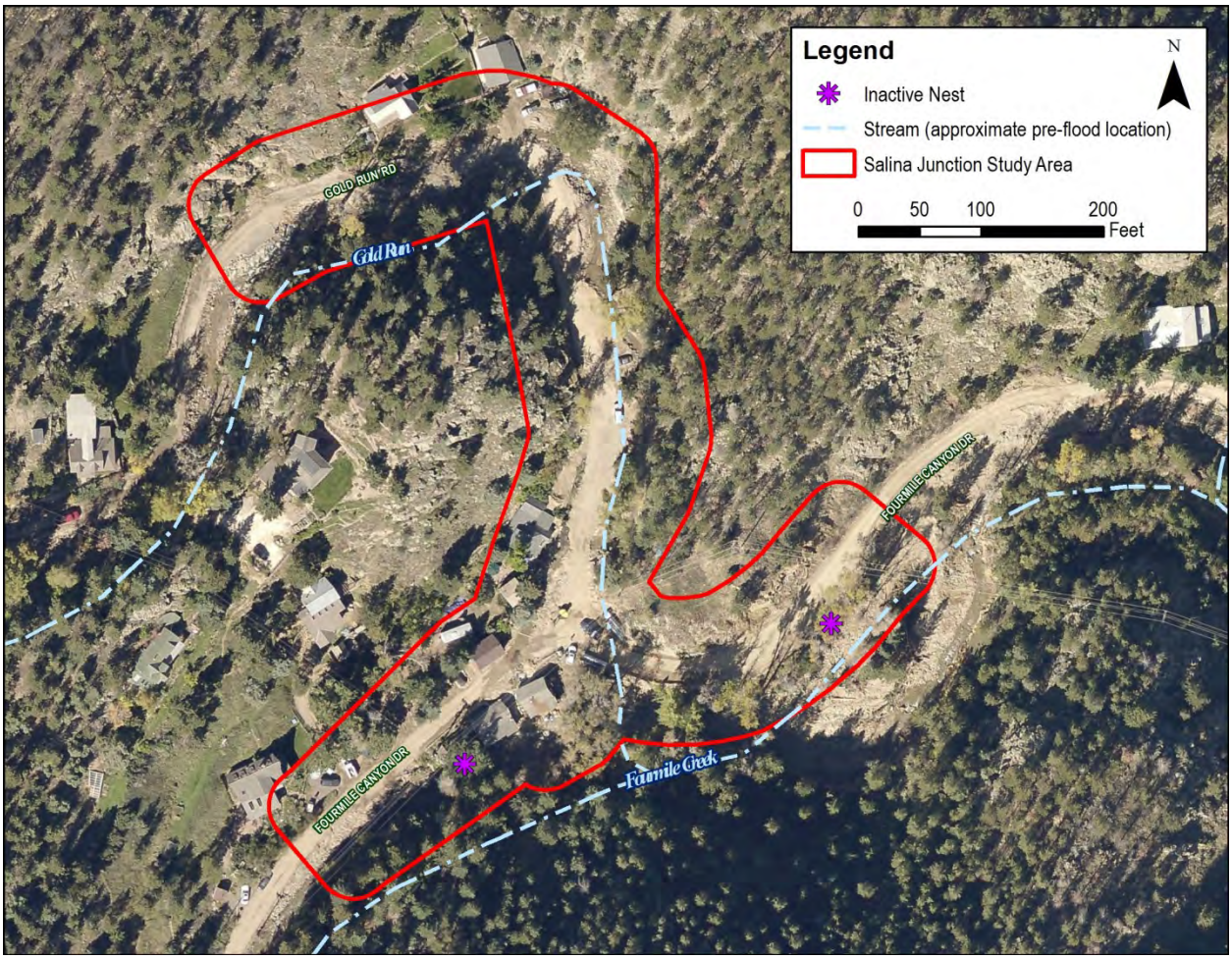
The study area does not currently provide suitable habitat for any of the state listed threatened and endangered species or state species of concern. The Preble's meadow jumping mouse is a state

listed threatened species, as well as a federally listed threatened species. See **Section 4.4.1** for additional information regarding the Preble's meadow jumping mouse.

4.5 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 provides for the protection of birds classified as migratory birds by the USFWS. In Colorado, most birds, except for the European Starling (*Sturnus vulgaris*), House Sparrow (*Passer domesticus*), Rock Dove (*Columbia livia*) (Pigeon), and common grouse/pheasant species (Order *Galliformes*), are protected under the MBTA. The Migratory Bird Permit memorandum issued in April 2003 stipulates there is no prohibition against destruction of inactive nests. Additionally, any disturbance to these nesting areas must follow the stipulations outlined in the MBTA. Specific protection for Bald and Golden Eagles is authorized under the Eagle Protection Act (16 USC 668) which provides additional protection to these species from intentional or unintentional harmful conduct. The study area contains suitable habitat that may provide opportunities for forage, roosts, and nesting to migrating birds, such as raptors and passerines. An on-site nest survey was completed and two inactive nests were observed within the study area (see **Figure 3**).

Figure 3: Nests within Study Area



There are many large ponderosa pine and Douglas fir trees, as well as narrowleaf cottonwoods, aspens, and Siberian elm trees within and near the study area which can provide nesting habitat for birds. Currently no impacts are expected to occur to migratory birds. The closest known bald eagle nest is approximately 10 miles southeast of the study area.

If construction-related activities occur between February 15 and August 31 then a pre-construction survey for nesting birds must be completed by a qualified biologist. If an active nest (eggs or fledglings) are found within 50 feet, work will need to cease until all the young fully fledge (fly away on their own).

If construction occurs between February 15 and August 31, a pre-construction survey for nesting raptors should be completed within a half-mile buffer of the project limits. If any nesting raptors occur within the buffer area, then CPW "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors" guidelines should be followed. The CPW may reduce the buffer requirements based on conditions of the study area and type of work being done, but must be consulted for approval prior to construction within the recommended buffer zone of an active nest.

4.6 Waters of the U.S., including Wetlands

The US Army Corps of Engineers has primary responsibility for regulating wetlands and jurisdictional waters under the Clean Water Act. No wetlands were indicated on the National Wetlands Inventory (NWI) Wetlands Mapper (NWI 2014). Additionally, a wetland survey was completed on October 1, 2014 and no wetlands were observed within or adjacent to the project area.

Two waters of the U.S., Gold Run and Fourmile Creek, occurs within the study area. At the time of the October 1, 2014 survey, Gold Run was approximately 2 – 4 ft wide and 4 – 6 inches deep and Fourmile Creek was approximately 6 – 15 ft wide and 4 – 8 inches deep. The channel banks are comprised of rocks, riprap, and soil with little to no herbaceous vegetation. There were several large mature trees near Gold Run and Fourmile Creek including Ponderosa pine, Douglas fir, narrowleaf cottonwood, and Siberian elm. Two trees are anticipated to be removed during the construction of the concrete embankment for the 8 x8 concrete box culvert.

The project will include altering the channel of Gold Run, stabilizing the channel bank of Gold Run with 24-inch soil riprap between Gold Run and Gold Run Road, replacing the existing 42-inch culvert under Fourmile Canyon Drive with an 8-foot x 8-foot CBC, and constructing an energy dissipator protected by 12-inch standard riprap and 12-inch soil riprap before Gold Run outfalls into Fourmile Creek.

During construction, there may be a temporary increase in sediment; however BMPs and a SWMP will be put into place prior to construction to minimize any sediment entering wetlands or waterways.

5.0 Conclusions and Mitigation Recommendations

The study area for the Salina Junction Flood Recovery Project was assessed for the presence of biological resources including threatened and endangered species, water of the US, including wetlands, wildlife and vegetation, and migratory birds.

5.1 Riparian Habitat and SB40

Coordination with CPW is recommended to determine if an application for SB40 Wildlife Certification needs to be submitted to CPW. The Gold Run channel banks between Gold Run and Gold Run Road will be rebuilt for approximately 270 feet and an 8-foot x 8-foot CBC will replace the existing 42-inch culvert under Fourmile Canyon Drive. The CBC will be approximately 110 feet in length. Approximately 0.06 acres of likely riparian habitat before the flood will be disturbed by the project. Approximately 0.3 acres of vegetation will be re-seeded, this includes seeding 0.11 acres of soil riprap along Gold Run and 0.03 acres for the energy dissipator. Currently, two trees are anticipated to be removed during the construction of the concrete embankment for the 8 x 8 concrete box culvert.

This project may meet SB40 qualifications under the following criteria:

- If federally listed threatened, endangered, proposed, or candidate species or their habitat may be affected by a project;
- Any permanent stream re-alignment associated with a project; and
- Projects involving replacement of existing structures over streams if the impacts extend 100 feet or more upstream and downstream of the project as measured along the valley length.

5.2 Threatened and Endangered Species

The study area was evaluated for the presence of suitable habitat for any federally listed threatened and endangered species or for any listed species to be impacted by the project. The project is within the overall range for Preble's meadow jumping mouse designated by CPW; however it is outside the known occupied range for this species. The closest occupied range is approximately 2.7 miles downstream along Fourmile Creek. Gold Run within the study area does not currently provide suitable habitat for Preble's meadow jumping mouse due to the September 2013 floods which scoured the floodplain, removing the majority of riparian vegetation. However, as the area recovers and with the succession of shrubs and riparian vegetation, there is a potential for suitable habitat to be re-established. The project *may affect, but is not likely to adversely affect* Preble's meadow jumping mouse. Based on the habitat present for the other five listed species that have a potential to occur within Boulder County, the project will have *no effect* on the other five species. In regards to the five species that would be considered under the ESA for water-related activities/use, onsite sources of water will not be used for any construction activity. Therefore, the project will have *no effect* on the five species. Upon concurrence with these findings, FEMA will initiate consultation with the USFWS in accordance with the ESA using the information provided in this biological resources report.

Table 5 presents the conservation measures that will be implemented by Boulder County for the duration of the project to prevent and offset any affects the proposed action may have on Preble's meadow jumping mouse and other biological resources.

5.3 Migratory Birds

In Colorado most nesting and rearing activities take place between April 1 and August 31, but some birds may nest as early as February 15. The Contractor will comply with the Migratory Bird Treaty Act at all times and should schedule work to avoid any take of migratory birds. The following will be added to the projects general notes:

- Tree trimming and/or removal activities shall be completed before birds begin to nest or after the young have fledged. In Colorado, most nesting and rearing activities occur between April 1 and August 31, however, since some birds nest as early as February 15, a nesting bird survey shall be conducted by a qualified biologist before any tree trimming or removal activities begin. The contractor shall follow the provisions of the Migratory Bird Treaty Act (MBTA) throughout the duration of construction.
- If construction-related activities occur between February 15 and August 31 then a pre-construction survey for nesting birds must be completed by a qualified biologist. No construction activities will occur within 50 feet of an active nest until the nest becomes inactive or the young have fledged.
- A pre-construction survey for nesting raptors must be completed within a half-mile buffer of the project limits. If any nesting raptors occur within the buffer area, then Colorado Parks and Wildlife (CPW) "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors" guidelines should be followed. CPW may reduce the buffer requirements based on conditions of the study area and type of work being done, but must be consulted for approval prior to construction within the recommended buffer zone of an active nest.

5.4 Waters of the U.S., including Wetlands

No wetlands were identified during the field survey; therefore no impacts to wetlands will occur. Two waters of the U.S. are located within the study area, Gold Run and Fourmile Creek. Permitting is expected to be completed under a Nationwide Permit 3 (NWP 3) and a Pre-Construction Notification (PCN) will be submitted to the USACE requesting authorization under provisions of Section 404 of the Clean Water Act. No mitigation is required under this NWP; however, the conservation measure presented in **Table 5** will offset any impacts to Preble's meadow jumping mouse when implemented.

Work within Gold Run for this project will include:

- **Altering the channel and stabilizing the channel bank of Gold Run**: The Gold Run channel banks between Gold Run and Gold Run Road will be rebuilt for approximately 270 feet and will be protected by 24-inch soil riprap. The bottom of the channel will vary between 5 to 8-foot in width and the channel will connect to the new concrete embankment and 8-foot x 8-foot CBC.

- **Constructing a drainage gutter to collect runoff flows**: The gutter will be installed parallel to Gold Run Road on the west side and is designed to convey seepage from the canyon rock and runoff flows from the road. The gutter will be approximately 175 feet in length. The runoff will then be conveyed to an inlet and will flow under Gold Run Road for a length of 27 feet by an 18-inch reinforced concrete pipe (RCP) to outfall into Gold Run. A second gutter will be installed parallel to Fourmile Canyon Drive on the north side and is designed to convey runoff flows from the road. The gutter will be approximately 92 feet in length. The runoff will then be conveyed to an existing inlet and will flow under Fourmile Canyon Drive to outfall to Fourmile Creek.
- **Replacing the existing 42-inch culvert under Fourmile Canyon Drive**: Install an 8-foot x 8-foot CBC under Fourmile Canyon Drive. The CBC will be approximately 110 feet in length and be installed at a 10-foot depth. Two wingwalls (walls 1 and 2) and a concrete embankment will be constructed upstream of the CBC and two wingwalls (walls 3 and 4) will be built downstream of the CBC. Wall 1 is located on the east side of Gold Run Road, west side of Gold Run channel and is 26 feet in length and a maximum of 10.5 feet tall. Wall 2 is located on the east side of Gold Run Road, east side of Gold Run channel and is 32 feet in length and a maximum of 12.5 feet tall. Wall 3 is located on the south side of Fourmile Canyon Drive, east side of Gold Run channel and is 26.5 feet in length and a maximum of 15.75 feet tall. Wall 4 is located on the south side of Fourmile Canyon Drive, west side of Gold Run channel and is 45.5 feet long and a maximum of 15.75 feet tall.
- **Constructing an energy dissipator before Gold Run outfalls into Fourmile Creek**: The energy dissipator will be protected by approximately 226 cubic yards of 12-inch standard riprap and approximately 64 cubic yards of 12-inch soil riprap.

Table 5: Conservation Measures to Minimize Impacts to the Preble's Meadow Jumping Mouse, the Ute Ladies Tresses Orchid, and the Colorado butterfly plant from Flood Response Activities along Streams and Transportation Corridors

Conservation Measures	Actions Implemented
Pre-Construction Design:	
1. Design the project to avoid and minimize the permanent and temporary impacts to riparian and adjacent upland habitats.	The environmental team identified and documented lack of suitable habitat for Preble's meadow jumping mouse (PMJM), Ute ladies'-tresses orchid (ULTO), and the Colorado Butterfly Plant (CBP) in the project area. The proposed project will minimize impacts to upland and riparian habitats.
• Before construction, identify and prioritize riparian and adjacent upland habitats within the project area. Design the project so that it avoids these habitats whenever possible.	The project was designed to recover the original facility within the original facility footprint, where practicable. In general, the roadway footprint is very similar to the pre-flood condition and the "winterized" road that was constructed during emergency recovery efforts after the flood event.
• Minimize the amount of concrete, riprap, bridge footings, and other "hard," impermeable engineering features within the stream channel and riparian or adjacent upland habitats.	The Gold Run channel banks will be rebuilt and stabilized. The riparian habitat will be improved by installing riprap that will be covered with soil and revegetated with a native seed mix.
• Use bioengineering techniques to stabilize stream banks.	Riprap placed along riparian areas will be buried and covered with a native seed mix.
• Minimize the number and footprint of access routes, staging areas, and work areas. Locate access routes, staging areas, and work areas within previously disturbed or modified non-habitat areas.	There will be one route to access the construction site. The staging area will be located within areas which have been severely disturbed by the flooding.
• Maintain habitat connectivity under bridges or through culverts by installing ledges or dry culverts adjacent to the culverts with water flow.	The proposed concrete box culvert restores the facility to pre-flood connectivity.
• Avoid fragmenting linear riparian corridors.	The proposed concrete box culvert will return the facility to pre-disaster connectivity and will avoid any additional fragmentation of the riparian corridor in the area.
2. Install limits of work fencing (e.g., orange barrier netting or silt fencing), signage, or other visible markers to delineate access routes and the project area from habitats. Use this fencing to enforce no-entry zones.	Signage and silt fencing will be used to delineate work limits, and will be maintained through the length of the project.

Conservation Measures	Actions Implemented
3. Hold a preconstruction briefing for onsite personnel to explain the limits of work and other conservation measures.	Conservation measures will be provided at kick-off meeting.
4. Follow regional stormwater guidelines and design best management practices (BMPs) to control contamination, erosion, and sedimentation, such as silt fences, silt basins, gravel bags, and other controls needed to stabilize soils in denuded or graded areas, during and after construction.	The contractor will be required to develop, submit, and maintain a SWMP which includes designation of the contractor's erosion control supervisor. The approved SWMP will include rock socks, etc.
5. Locate utilities along existing road corridors, and if possible, within the roadway or road shoulder.	Not applicable. Utility relocation is not a part of the proposed action.
• Bury overhead utilities whenever possible.	Not applicable. Utility relocation is not a part of the proposed action.
• Directionally bore utilities and pipes underneath habitats.	Not applicable. Utility relocation is not a part of the proposed action.
6. Develop and implement a habitat restoration plan that addresses site preparation, planting techniques, control of non-native weeds, native seed mixtures, and post-construction monitoring.	Construction documents specify native seeding and mulching to be performed at all disturbed permeable areas. Plans also specify applicable areas are to be reviewed and reseeded as necessary prior to final acceptance. Per standard specifications, final acceptance also includes reclamation of washout areas, removal of temporary BMP's, a project walk-thru with the Contractor's erosion control supervisor, and any modifications to the SWMP.
Project Implementation:	
7. Contact the Service immediately by telephone at (303) 236–4773 if a Preble's is found alive, dead, injured, or hibernating within the project area. Please also contact the Service if any other listed species are found within the project area.	The service will be contacted if any listed species are encountered during construction.
8. To the maximum extent practicable, limit disturbing (e.g., crushing, trampling) or removing (e.g., cutting, clearing) all vegetation, such as willows, trees, shrubs, and grasses within riparian and adjacent upland habitats.	Vegetation will not be removed or disturbed during this project, except for areas within the planned limits of disturbance. These areas will be reseeded in accordance with the SWMP.
• Restrict the temporary or permanent removal of vegetation to the footprint of the project area.	Vegetation will not be removed or disturbed during this project, except for areas within the planned limits of disturbance. These areas will be reseeded in accordance with the SWMP.

Conservation Measures	Actions Implemented
• Minimize the use of heavy machinery and use smaller equipment when possible.	Construction equipment will be operating on ground that was already damaged and eroded by the flooding. At the end of the project, ground within the construction footprint will be prepared, covered with topsoil, and reseeded.
• Soil compaction: Temporarily line access routes with geotextiles or other materials, especially in wet, unstable soils to protect roots and the seed bank.	The contractor will be responsible for scarify and preparing the access route and staging area ground surfaces in advance of reseeding.
9. Track the acres or square feet of riparian and upland habitats temporarily or permanently affected by the response activities.	Please see below
• Temporary Impacts: Native vegetation and habitats will reestablish following rehabilitation (e.g., access route that is rehabilitated with native, weed-free seeds and plants).	Approximately 0.38 acres of vegetation will be disturbed by the project, which includes 0.32 acres of upland habitat and 0.06 acres of likely riparian habitat before the flood. Approximately 0.3 acres of vegetation will be re-seeded, this includes seeding 0.11 acres of soil riprap along Gold Run and 0.03 acres for the energy dissipator.
• Permanent Impacts: Riparian or upland habitats will not return as a result of project activities (e.g., road surface, concrete footings).	The roadway will be restored to pre-disaster condition. No permanent impacts to riparian or upland habitats are expected as a result of the proposed action.
10. Track the volumes of any water from onsite sources stored or used for dust abatement, soil compaction, concrete mixing, or other activities.	Onsite sources of water will not be used for any construction activity.
11. Locate, store, stage, operate, and refuel equipment outside of riparian or adjacent upland habitats.	Equipment will be operated and maintained within planned limits of disturbance. The staging area will be located within areas which have been severely disturbed by the flooding.
• Operate equipment from previously disturbed or modified roadbeds or road shoulders above the riparian habitats.	Equipment will be operated and maintained within planned limits of disturbance.
• Limit the number of entrance and exit points leading into the project area.	There will be one route to access the construction site. The staging area will be located within areas which have been severely disturbed by the flooding.
• Stockpile topsoil and debris outside the riparian corridor and protect from stream flows or runoff.	The staging area for materials will be located within the limits of construction on upland habitat.

Conservation Measures	Actions Implemented
12. During the Preble's active season (May 1 through November 1), work only during daylight hours to avoid disrupting Preble's nocturnal activities.	The construction schedule is expected to run from Summer 2015 to Fall 2015. Work is expected to be performed during daytime hours only.
13. Promptly remove waste to minimize site disturbance and avoid attracting predators.	Waste will be promptly removed in accordance with CDOT Standard Specifications.
14. Cover exposed holes or piles of loose dirt with boards, tarps, or other materials to prevent entrapment.	Contractor will practice BMPs to prevent entrapment.
15. Use best management practices (BMPs) to limit construction-related disturbance, such as soil compaction, erosion, and sedimentation, and to prevent the spread of invasive weeds.	The contractor will be required to develop, submit, and maintain a SWMP which includes designation of the BMPs. The approved SWMP will include rock socks, etc.
• Soil compaction: Establish one access route for workers, vehicles, and machinery, preferably along a previously disturbed surface or route.	There will be one route to access the construction site. The staging area will be located within areas which have been severely disturbed by the flooding.
• Weed control: Wash and inspect vehicles and equipment before entering or leaving the project area so that they are free of noxious weed seeds and plant parts.	The contractor will be asked to inspect and clean vehicles and equipment before entering the site for the purpose of Weed Control. The planned limits of construction disturbance are on areas that were damaged and eroded by the flooding. Almost all vegetation and topsoil was washed away. Therefore, equipment and vehicles leaving the site should be free of noxious weed seeds and plant parts.
• Weed control: Use only weed free certified materials, including gravel, sand, top soil, seed, and mulch.	The contractor will use the native seed mix provided by Boulder County.
16. Complete construction before beginning restoration or enhancement activities.	The construction will be completed before any restoration/seeding efforts.
Post-Construciton:	
17. Upon project completion, re-vegetate all disturbed areas with native shrubs, trees, and grasses.	All disturbed permeable areas are specified to be reseeded with the native seed mix included with the SWMP that is included in the construction documents.
• Rip compacted access routes prior to replanting with native vegetation.	The contractor will be responsible for preparing the access route and staging area ground surfaces in advance of reseeding.
• Fill and reseed with weed free material and native seed mixtures.	Boulder County intends to restore the site with weed-free mulch and seed materials.

Conservation Measures	Actions Implemented
• Consult the Service Before finalizing a seed and plant list.	The USFWS will be consulted with prior to finalizing the native seed mix and plant list utilized in the project.
18. Bury riprap, then plant with native riparian vegetation	Riprap being installed to protect the creek will be covered with soil and revegetated with a native seed mix to improve the riparian habitat.
19. Rehabilitate adjacent habitats impacted by floodwaters to restore connectivity and prevent future impacts from erosion or sedimentation	The areas disturbed by construction will be prepared and permanently reseeded in accordance with the SWMP. The revegetated areas should connect to any existing vegetated habitats at the perimeter of the construction area. Revegetation operations will be performed with the goal of preventing future erosion or sedimentation.
20. Monitor the revegetated areas for success. The Service can help establish success criteria during the consultation process.	Boulder County will be responsible for maintaining revegetated areas.

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