Draft Programmatic Environmental Assessment

Improvement of Utility Systems in the State of Colorado

State of Colorado

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FEMA

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Acronyms and Abbreviations

APE	Area of Potential Effects
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
CAA	Clean Air Act
CATEX	categorical exclusion
CDPHE	Colorado Department of Public Health and Environment
CDOT	Colorado Department of Transportation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPW	Colorado Parks and Wildlife
CWA	Clean Water Act
DHS	U.S. Department of Homeland Security
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
HMA	Hazard Mitigation Assistance
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PEA	Programmatic Environmental Assessment
PM	Particulate matter
PR&G	Principles, Requirements, and Guidelines
ROW	Right-of-way
SEA	Supplemental environmental assessment
SHPO	State Historic Preservation Officer
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Officer
TMDL	Total Maximum Daily Loads
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service

SECTION 1. Introduction

The mission of the Federal Emergency Management Agency (FEMA) is to help people before, during, and after disasters. FEMA programs strive "to reduce the loss of life and property and protect the nation from all hazards, by leading and supporting the nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation" (FEMA 2024a). An important component of FEMA's mission is disaster resilience, which includes funding for activities that help communities reduce the future impacts of natural disasters on life and property.

Utility projects that restore function and mitigate impacts from severe weather, flooding, drought, wildfire, and other natural hazards may be funded under FEMA's Hazard Mitigation Assistance (HMA) programs, as authorized by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, 42 U.S.C. §§ 5121–5207. A utility is defined here as an infrastructure system supplying a community with electricity, natural gas, water (potable and waste), or sewer (sanitary and storm) services. HMA offers multiple funding programs, including the Hazard Mitigation Grant Program, the Flood Mitigation Assistance Program, Pre-Disaster Mitigation Program, and the Building Resilient Infrastructure and Communities Program. The requirements for hazard mitigation activities are described in the *HMA Program and Policy Guide* (FEMA 2024b).

The purpose of this programmatic environmental assessment (PEA) is to identify, at a programmatic level, the potential adverse and beneficial effects associated with certain utility projects in the State of Colorado. This PEA captures and builds upon FEMA's knowledge and experience—via prior environmental planning and historic preservation reviews—to evaluate the potential effects of FEMA funding for eligible utility improvement hazard mitigation projects. Some projects or classes of activities may continue to require full project-specific National Environmental Policy Act (NEPA) compliance reviews. Users of this PEA should note that FEMA grant programs are subject to change and this PEA would potentially cover changes in eligibility and programs.

FEMA prepared this PEA in accordance with the NEPA and FEMA guidance for implementing NEPA (U.S. Department of Homeland Security [DHS] Instruction 023-01-001 and FEMA Instruction 108-01-1).[1] FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of the PEA is to analyze the potential environmental impacts of the proposed activities and alternatives, including a No Action Alternative.

[1] FEMA is aware of the November 12, 2024, decision in *Marin Audubon Society v. Federal Aviation Administration*, No. 23-1067 (D.C. Cir. Nov. 12, 2024). To the extent that a court may conclude that the CEQ regulations implementing NEPA are not judicially enforceable or binding on this agency action, FEMA has nonetheless elected to follow those regulations at 40 C.F.R. Parts 1500–1508, in addition to DHS and FEMA's procedures implementing NEPA found in DHS Directive 023-01-01, DHS Instruction 023-01-001-01, FEMA Directive 108-1, and FEMA Instruction 108-1-1 to meet the agency's obligations under NEPA, 42 U.S.C. §§ 4321 et seq.

1.1. Background

Geography, climate, and demographic trends have necessitated development of a complex infrastructure of utility systems across Colorado. Aging infrastructure, the need for increased resilience, and damage due to natural disasters all have the potential to limit the ability of these utility systems to function safely. Failure of these systems can cause injury and loss of life; loss of access for residents, government entities, and businesses to services and critical infrastructure; and the occurrence of significant environmental impacts. Local governments may be unable to provide critical services, including fire suppression, emergency communication, power generation, potable water, and wastewater treatment. In an effort to restore these services and/or mitigate these impacts, FEMA may fund utility system installation, restoration, replacement, upgrade, expansion, redesign, or relocation.

1.2. Study Area for this Programmatic Environmental Assessment

The area of analysis for this PEA encompasses the State of Colorado, as well as any tribal lands within the boundaries of the state (**Figure 1-1** and **Figure 1-2**). To limit the extent of the study area, this PEA only covers utility improvement projects with the primary purpose of addressing future losses from natural hazards through the construction of resilient facilities. These projects are usually linear and typically occur within an existing right-of-way (ROW) or utility easement, near and connected to existing utility systems, and within previously disturbed areas. However, some projects may include construction within new and undisturbed ROWs or utility easements. The area of analysis for this PEA excludes designated rivers protected under the Wild and Scenic Rivers Act; projects near such rivers would require the preparation of a stand-alone NEPA evaluation. FEMA assistance is generally limited to nonfederal and tribal lands in areas eligible for funding under FEMA's HMA programs.

Source: World Atlas 2023

Figure 1-1. Colorado State Map

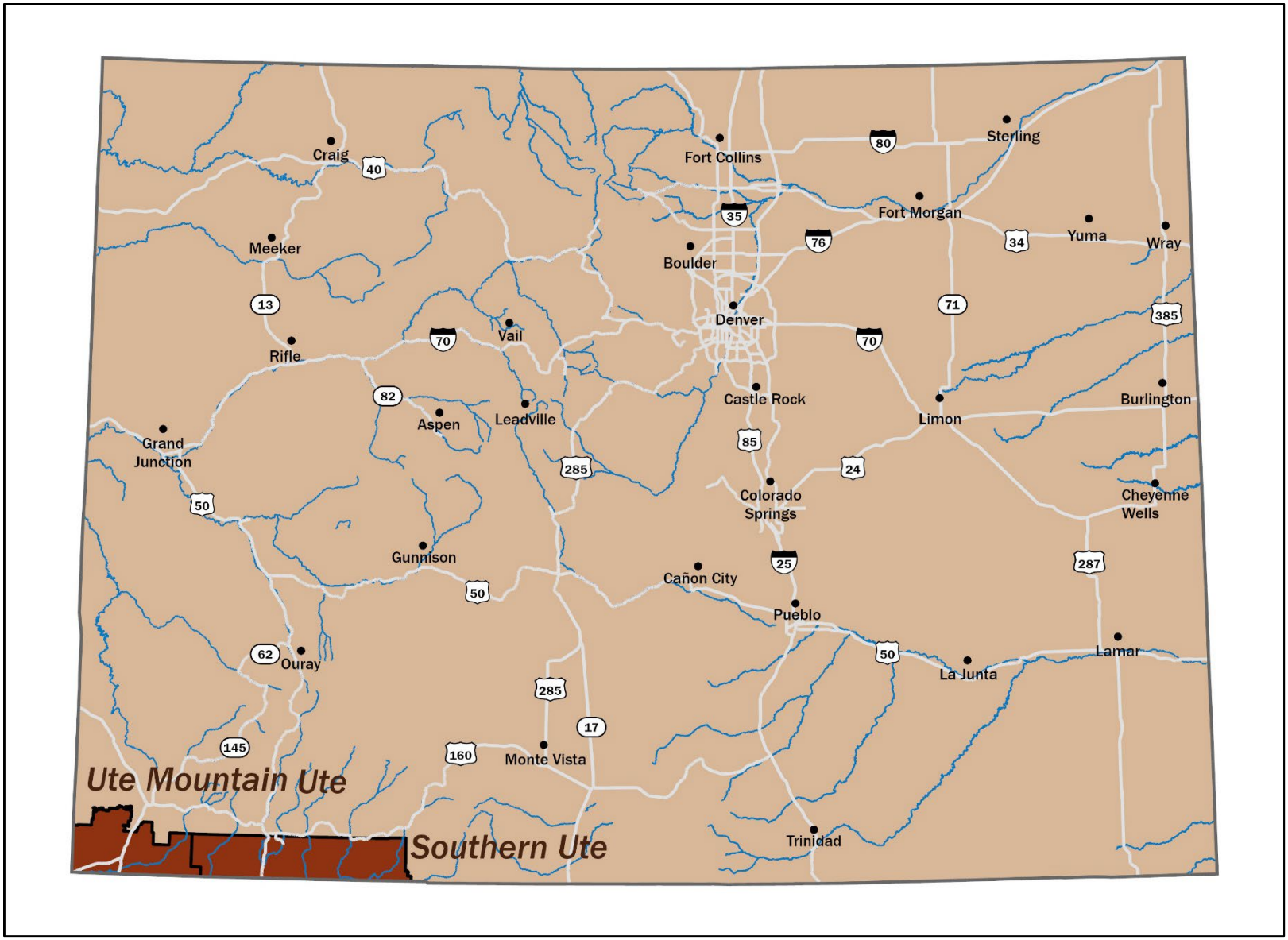

Figure 1-2. Colorado Tribal Lands Map

1.3. Process for Using this Programmatic Environmental Assessment

A PEA addresses a group of projects that are similar in scope, scale, magnitude, and nature of impact. Consistent with NEPA, as amended, an agency may rely on the analysis included in a programmatic document for related actions that are considered beyond the 5-year anniversary of the Finding of No Significant Impact, so long as the agency reevaluates the analysis in the programmatic environmental document and any underlying assumption to ensure reliance on the analysis remains valid.

For a project to qualify under this PEA, the scope of the project and the nature of impact must be evaluated within this PEA. A finding that the project conforms to the PEA must be documented using a Record of Environmental Consideration or other documentation. Additional project-specific analyses may be required if the context and intensity of a proposed project substantively differ from those described in this PEA. All projects using this PEA must undergo standard compliance procedures regarding other federal laws (e.g., Endangered Species Act [ESA], National Historic Preservation Act [NHPA], and regulations addressing Floodplain Management and Protection of Wetlands (44 CFR Part 9).

Utility improvement projects that are less complex may be eligible for a categorical exclusion (CATEX) and would not require coverage under this PEA. A CATEX is a class of action that FEMA established through public review and comment that would not typically result in significant impacts, either individually or cumulatively. CATEXs commonly used for projects that involve utility work include N2 Federal Assistance for Facility Repair, N6 Federal Assistance for Relocation/Realignment of Structures and Facilities, and N7 Federal Assistance for Structure and Facility Upgrades (FEMA Instruction 108-1-1). If a specific project proposal is not included in the activities described in the action alternatives and does not fall within the parameters of a CATEX or would result in impacts or require mitigation measures not described in this PEA, then a separate NEPA evaluation would need to be conducted.

Some proposed utility improvement projects are expected to be more complicated and involve larger-scale efforts than those contemplated in this PEA. If a specific action is expected to (1) create impacts not described in this PEA, (2) create impacts greater in magnitude, extent, or duration than those described in this PEA, or (3) require mitigation measures to keep impacts below significant levels that are not described in this PEA, then a supplemental environmental assessment (SEA) would be prepared to address the specific action. The SEA would be tiered from this PEA in accordance with DHS Instruction Manual 023-01-001-01, Revision 01, Implementation of the National Environmental Policy Act. Actions that require a more detailed or broader environmental review may warrant the preparation of a stand-alone environmental assessment or other applicable NEPA process.

This PEA is intended to facilitate FEMA's compliance with NEPA by providing a framework to address the potential impacts of utility improvement actions. FEMA coordinates and integrates—to the maximum extent possible—the review and compliance processes required by other federal laws and policies, such as Section 106 of the NHPA, Section 7 of the ESA, the Eight-Step Decision-Making

Process for Floodplain Management and for Protection of Wetlands (44 CFR Part 9), and others. This PEA provides a framework for integrating these requirements with NEPA compliance for utility projects.

This PEA does not cover actions where there are likely to be significant effects and for which it would be appropriate to develop an environmental impact statement. FEMA guidance for implementing NEPA (U.S. Department of Homeland Security [DHS] Instruction 023-01-001 and FEMA Instruction 108-01-1) provides guidance to determine whether the effects of an action could be significant, including the following:

- To determine whether the effects of the Proposed Action are significant, agencies will examine both the context of the action and the intensity of the effect. In assessing context and intensity, agencies should consider the duration of the effect. Agencies may also consider the extent to which an effect is adverse at some points in time and beneficial in others. However, agencies shall not offset an action's adverse effects with other beneficial effects to determine significance.
- Agencies should consider the characteristics of the geographic area, such as proximity to unique or sensitive resources or socioeconomic concerns. Depending on the scope of the action, agencies should consider the potential global, national, regional, and local contexts as well as the duration, including short-term and long-term effects.
- Agencies shall analyze the intensity of effects considering the following factors, as applicable to the Proposed Action and in relationship to one another:
    - The degree to which the action may adversely affect public health and safety.
    - The degree to which the action may adversely affect unique characteristics of the geographic area such as historic or cultural resources, parks, tribal sacred sites, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
    - Whether the action may violate relevant federal, state, tribal, or local laws or other requirements or be inconsistent with federal, state, tribal, or local policies designed for the protection of the environment.
    - The degree to which the potential effects on the human environment are highly uncertain.
    - The degree to which the action may adversely affect resources listed or eligible for listing in the National Register of Historic Places.
    - The degree to which the action may adversely affect an endangered or threatened species or its habitat, including habitat that has been determined to be critical under the Endangered Species Act of 1973.
    - The degree to which the action may adversely affect communities within the project area.

- The degree to which the action may adversely affect rights of Tribal Nations that have been reserved through treaties, statutes, or EOs.

SECTION 2. Purpose and Need

FEMA's various grant programs share a goal of helping state, local, and tribal governments recover from disasters and mitigate future losses. The purpose of utility improvement projects is to fulfill this goal by protecting life and reducing the threats to property during future severe weather events, flooding, drought, wildfire, and other natural hazards. These projects would restore utilities and mitigate future losses from natural hazards through the construction of resilient facilities. Improvements are needed because aging infrastructure, the need for increased resilience, and damage due to natural hazards all have the potential to limit the ability of utility systems to function safely. Failure of these systems can cause injury and loss of life; loss of access for residents, government entities, and businesses to services and critical infrastructure; and the occurrence of significant environmental impacts.

SECTION 3. Alternatives

This section describes the No Action Alternative, the action alternatives, and alternatives that were considered but dismissed.

3.1. No Action Alternative

Under the No Action Alternative, FEMA would not undertake or fund any utility improvement mitigation action outside of existing CATEX thresholds. There could be a range of possible outcomes if FEMA does not provide funding, depending on the amount of alternative funding available and priorities established by communities and utilities. Because there is a broad range in the size and capabilities of communities within Colorado, it is impossible to predict each community's actions, time frame, and standards by which work would be completed. Therefore, to provide a consistent basis for comparison to the Proposed Action, it is assumed, for the purposes of this PEA, that utilities would remain in their current state (i.e., damaged utilities would not be repaired or replaced and hazards would not be mitigated) or state, tribal, and local governments and private property owners might construct some non-FEMA-funded minor utility improvement projects. These projects would be properly engineered and permitted but may not provide the same level of risk reduction as the action alternatives and, because of the time needed to gather enough funding for construction, specific actions may take longer to implement under the No Action Alternative. The utilities within the project area would still be subject to the risk of failure for the planning horizon of the PEA because of the unmitigated effects of severe weather, flooding, wildfire, drought, and other natural hazards within the State of Colorado. The No Action Alternative would not result in long-term resilience or hazard mitigation.

3.2. Action Alternatives

The following action alternatives are being considered for further evaluation in this PEA. These alternatives represent types of actions that may be implemented individually or in combination with one another. In some instances, there may be only one viable option to be implemented. Some specific items of work may include, but are not limited to, the following:

- Placement of temporary crossings, utilities, staging areas, access, and safety features.
- Restoration, installation, and relocation of production, collection, transmission, and treatment facilities needed to provide utility services in the event of a natural hazard.
- Construction, excavation, trenching, and directional boring to allow repair, replacement, relocation, or installation of utilities and ancillary facilities.
- Upsizing, encasing, armoring, and upgrading utilities to improve function and protect from future events.

- Repair and reconstruction of disturbed areas, including adjacent roadway and other connected infrastructure necessary to restore function.

Utility improvement mitigation projects may include some repair to pre-disaster conditions that normally would be considered a categorical exclusion under NEPA review as a stand-alone project. However, as part of a mitigation project, repair work would be considered a connected action and would require further NEPA review that may be eligible for coverage under this PEA. The following list of alternatives may not be available in all project locations. Therefore, each project may have a different preferred alternative. The selected alternative (or combination of alternatives) would be documented in the Utilities Checklist (Appendix A).

3.2.1. ALTERNATIVE 1: REPLACEMENT

Under this alternative, existing utilities would be replaced with the same type of utility in the existing location. In some situations, leaving utilities in their existing locations may be the safest or most cost-effective option. This alternative differs from the No Action Alternative in that it includes projects such as ground stabilization and grade control; the hazard in that segment would be mitigated without relocating the utility.

Changes in materials and dimensions are included in this alternative, including changes in capacity. This may include upgrades to meet existing codes and standards as well as upgrades warranted to address conditions that have changed since the original construction. In the case of corridors that no longer serve as functional routes, bank stabilization or grade control may be needed to restore function and stability. The alternative includes any site restoration and repair of disturbed areas, such as reconstruction of existing roadway infrastructure. Included in this alternative are upgrades to current codes, standards, and construction of facilities necessary to maintain current infrastructure function. Applicable design codes would be followed for all design and construction. Utility components that are replaced would be removed and disposed of in compliance with applicable federal, tribal, state, and local laws.

3.2.2. ALTERNATIVE 2: RELOCATION

Under this alternative, all or part of an existing utility would be relocated to a new location with a connection to the existing system. Aging infrastructure and outdated design may limit the ability of existing systems to function safely. In some locations, the current utility alignment is vulnerable to hazards, threatening public safety and the existing infrastructure. Utilities in these locations may need to be relocated to protect life safety and prevent or minimize infrastructure damage during future disaster events. Relocation of the utility would typically occur within the existing utility or transportation corridors, ROWs, easements, or otherwise previously disturbed areas. However, some projects may include the relocation of utilities within new and undisturbed ROWs or utility easements. Utility relocations would contain a beginning and end point that tie back into the existing system. Segments that are relocated would be abandoned in place or removed and disposed of in compliance with applicable federal, tribal, state, and local laws.

Changes to materials and dimensions are included in this alternative, as are improvements needed to meet current codes, standards, and upgrades warranted to address conditions that have changed since the original construction. The alternative includes any site restoration and repair of disturbed areas, such as reconstruction of existing roadway infrastructure. These projects may also include actions such as bank stabilization or grade control as needed to mitigate hazards such as bank erosion and slope failures in a particular segment. Applicable codes and standards would be followed for all design and construction. Compliance with all other federal, tribal, state, and local laws, regulations, and EOs is required and would be evaluated on a project-specific basis.

3.2.3. ALTERNATIVE 3: INSTALLATION

Under this alternative, new utilities would typically be installed within existing utility or transportation corridors or ROWs, or otherwise previously disturbed areas. However, some projects may include the installation of utilities within new and undisturbed ROWs or utility easements. These improvements may be needed to restore or expand the design capacity of existing systems and may include detention and retention ponds that increase capacity of stormwater management utilities. These projects may also include actions such as bank stabilization or grade control needed to mitigate hazards (e.g., bank erosion or slope failures) in a particular segment. The alternative includes any site restoration and repair of disturbed areas, such as reconstruction of existing roadway infrastructure. Applicable codes and standards would be followed for all design and construction. Compliance with all other federal, tribal, state and local laws, regulations, and EOs is required and would be evaluated on a project-specific basis.

3.2.4. ALTERNATIVE 4: COMBINATION

This alternative includes some combination of the Replacement, Relocation, and Installation alternatives. Vulnerable or damaged utilities would be replaced, relocated, or upgraded to reduce hazards and risks to system operations and functions. Individual utility segments may be left in their existing location if it is determined that No Action is the safest, most cost-effective alternative for a particular segment. New utilities may be installed with a connection to the existing system, or existing utilities may be replaced, repaired, or relocated to restore the function of the infrastructure and reduce the risk of damage in the future. The alternative includes any site restoration and repair of disturbed areas, such as reconstruction of existing roadway infrastructure. Applicable codes and standards would be followed for all design and construction. Compliance with all other federal, tribal, state and local laws, regulations, and EOs is required and would be evaluated on a project-specific basis.

3.3. Additional Action Alternatives Considered and Dismissed

This section describes utility improvement activities considered but eliminated from evaluation within the PEA because they are either ineligible activities or activities that fall within the parameters of a CATEX.

3.3.1. ACTIVITIES WITH A PRIMARY PURPOSE NOT RELATED TO UTILITY IMPROVEMENT HAZARD MITIGATION

Utility improvement activities that do not have a primary purpose of mitigating the impacts of severe weather, flooding, drought, wildfire, and other natural hazards, and are not connected actions to a covered utility improvement project are not eligible for coverage under this PEA. For example, new utility installation intended to provide new service to a new area would not be a project eligible for coverage under this PEA.

3.3.2. ACTIVITIES INELIGIBLE FOR FEMA FUNDING

FEMA policies for the HMA programs identify the eligible and ineligible types of activities under each program. Activities that are not eligible for funding under any program are not feasible alternatives to the Proposed Action; therefore, they were not retained as alternatives for consideration under this PEA.

3.3.3. ACTIONS COVERED BY CATEGORICAL EXCLUSIONS

FEMA grant funding may be used for repairing or replacing utilities in their existing location to their existing capacity, including minor mitigation upgrades under FEMA's Public Assistance Program. These types of projects typically fall into a CATEX under NEPA and would be evaluated accordingly. Projects that are covered by a CATEX should use the CATEX for compliance with NEPA and would not need to use the PEA. Therefore, activities that would be individually covered by a CATEX are not evaluated in this PEA.

SECTION 4. Affected Environment, Potential Impacts, and Mitigation

This section describes the environment potentially affected by the alternatives, evaluates potential environmental impacts, and recommends measures to avoid or reduce those impacts. When possible, quantitative information is provided to establish potential impacts; the significance of potential impacts is based on the criteria listed in **Table 4.1.** The study area generally includes the project area and access and staging areas needed for the alternatives. If the study area for a particular resource category is different from the project area, the differences will be described in the appropriate subsection.

Table 4.1. Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None/Negligible	The resource area would not be affected, or changes or benefits would be either nondetectable or, if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, although the changes would be small and localized. Impacts or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional-scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary to reduce any potential adverse effects.
Major	Changes would be readily measurable and would have substantial consequences on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

Table 4.2 establishes the criteria for determining whether a Proposed Action may be covered under the FONSI for this PEA, or through a tiered SEA if unmitigated extraordinary circumstances exist. In these situations, an SEA should be prepared, focusing on the resource where the extraordinary circumstances exist. If a project is consistent with the scope and potential impacts described and would apply the mitigation measures proposed in this PEA, then no further NEPA documentation would be required. Section 4.16 summarizes potential effects and mitigation measures that would be required to avoid or minimize adverse effects.

Table 4.2. Thresholds for Preparing Tiered SEAs

Area of Evaluation	Action Covered by This PEA	Tiered Supplemental Environmental Assessment May Be Required
Soils and Topography	Negligible or minor impacts on soils or topography. Or Mitigation measures are used to reduce potential impacts to a minor level.	Impacts on soils and topography are moderate or major after the application of mitigation measures.
Air Quality	Emissions in nonattainment and maintenance areas would be less than exceedance levels. Emissions in attainment areas would not cause air quality to go out of attainment for any National Ambient Air Quality Standards (NAAQS). Or Mitigation measures are used to reduce potential impacts below the level described above.	Emissions would be greater than the exceedance levels for nonattainment and maintenance areas. Emissions in attainment areas would cause an area to be out of attainment for any NAAQS.
Water Quality and Water Resources	Negligible or minor impacts on water quality and would not exceed water quality standards or criteria. Localized and short-term alterations in water quality and hydrologic conditions relative to historical baseline may occur. Or Mitigation measures are used to reduce potential impacts to a minor level.	The Proposed Action would cause or contribute to existing exceedances of water quality standards on either a short-term or prolonged basis. Or The Proposed Action would require in-water work that would result in the dredging or filling of more than 1 acre of a waterbody, exceeding the typical thresholds of a Nationwide Permit, and potentially requiring an Individual Permit from the U.S. Army Corps of Engineers (USACE).

Area of Evaluation	Action Covered by This PEA	Tiered Supplemental Environmental Assessment May Be Required
Wetlands	The Proposed Action would either have no impacts or up to minor adverse impacts on wetlands and would be covered under a Nationwide Permit from USACE. Or Mitigation measures are used to reduce potential impacts to a minor level.	The Proposed Action would require in-water work that would result in the dredging or filling of more than 1 acre of wetlands, exceeding the typical thresholds of a Nationwide Permit, and potentially requiring an Individual Permit from USACE.
Floodplains	The Proposed Action would either have no impacts or up to short-term minor adverse impacts or is not located in and does not adversely affect floodplains.	The Proposed Action would have moderate to major long-term adverse impacts on floodplains.
Vegetation	Negligible to moderate impacts on native species, their habitats, or the natural processes sustaining them. Population levels of native species would not be affected. Sufficient habitat would remain functional to maintain the viability of all species.	Major impact on native species, their habitats, or the natural processes sustaining them. Population numbers, population structure, genetic variability, and other demographic factors for species might have large short-term declines, with long-term population numbers significantly depressed. Loss of habitat would affect the long-term viability of native species. Or The Proposed Action causes the spread of noxious weeds resulting in major impacts. Or The Proposed Action includes the clearing of forested land with old-growth characteristics.

Area of Evaluation	Action Covered by This PEA	Tiered Supplemental Environmental Assessment May Be Required
Fish and Wildlife Habitat	Negligible to moderate impacts on native species, their habitats, or the natural processes sustaining them. Population levels of native species would not be affected. Sufficient habitat would remain functional to maintain the viability of all species.	Major impact on native species, their habitats, or the natural processes sustaining them. Population numbers, population structure, genetic variability, and other demographic factors for species might have large short-term declines, with long-term population numbers significantly depressed. Loss of habitat would affect the long-term viability of native species.
Threatened and Endangered Species	FEMA can make a "No Effect" determination. Or FEMA can make a "Not Likely to Adversely Affect" determination along with concurrence from U.S. Fish and Wildlife Service (USFWS). Or Mitigation measures are used to reduce potential impacts to a minor level or a "Not Likely to Adversely Affect" level.	FEMA determines that the Proposed Action is likely to adversely affect a listed species or will adversely modify critical habitat that cannot be resolved through consultations with the USFWS.
Cultural Resources	No historic properties affected. Or FEMA can make a determination of "No Adverse Effect" with concurrence from the State Historic Preservation Officer (SHPO) and the Tribal Historic Preservation Officer (THPO).	FEMA makes an "Adverse Effect" determination that is not resolved through consultations with the SHPO, THPO, or other consulting parties.

Area of Evaluation	Action Covered by This PEA	Tiered Supplemental Environmental Assessment May Be Required
Socioeconomics	There would be no adverse environmental or health effects on surrounding populations. Or Mitigation measures are used to reduce potential impacts to a negligible level.	There would be unmitigated adverse environmental and health impacts on surrounding populations.
Hazardous Materials	Hazardous or toxic materials or wastes would be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks. There would be no short-term or long-term adverse impacts on public safety. Or Mitigation measures are used to reduce potential impacts such that there would be no short-term or long-term adverse impacts on public health and safety.	The Proposed Action would result in a net increase in the amount of hazardous or toxic materials or wastes that need to be handled, stored, used, or disposed of, resulting in unacceptable risks, the exceedance of available waste disposal capacity, or probable regulatory violation(s). Or A Phase I or Phase II environmental site assessment indicates that contamination exceeding reporting levels is present and further action is warranted.
Noise	Noise levels would not exceed typical noise levels expected from equipment or vehicles, would comply with local noise ordinances, and would not adversely affect sensitive receptors. Noise generated by construction would be temporary or short-term in nature. Or Mitigation measures are used to reduce potential impacts below the levels described above.	Noise levels would exceed typical noise levels expected from equipment permanently or for a prolonged period, would not comply with local noise ordinances, or would adversely affect a sensitive receptor.

Area of Evaluation	Action Covered by This PEA	Tiered Supplemental Environmental Assessment May Be Required
Traffic and Transportation	The Proposed Action would have only negligible or minor impacts on traffic and transportation. Or Mitigation measures are used to reduce potential impacts to a minor level.	Long-term impacts on traffic and transportation would be moderate or major even with mitigation.
Public Services and Utilities	The Proposed Action would have only negligible or minor impacts on public services and utilities. Or Mitigation measures are used to reduce potential impacts to a minor level.	Long-term impacts on public services and utilities as a result of the Proposed Action may be moderate or major with mitigation.
Cumulative Impacts	No past, present, or future actions are near the project area. Or The Proposed Action in connection with past, present, or future actions would have only negligible or minor cumulative impacts. Or Mitigation measures are used to reduce the potential cumulative impacts to a minor level.	Cumulative impacts as a result of the Proposed Action in connection with past, present, or future actions may be moderate or major.

4.1. Resources Not Affected and Not Considered Further

The following resources (Table 4.3) would not be affected by either the No Action Alternative or the action alternatives because they do not exist within Colorado, or the alternatives would have no effect on the resource. These resources have been removed from further consideration in this EA.

Table 4.3. Resources Eliminated from Further Consideration

Resource Topic	Reason for Elimination
Wild and Scenic Rivers Act	According to the National Wild and Scenic River System database, there is one National Wild and Scenic River in Colorado—the Cache la Poudre River (National Wild and Scenic Rivers System 2024). However, the Cache la Poudre River is excluded from the study area covered by this PEA. Therefore, none of the alternatives would have the potential to affect rivers protected under the Act.
Sole Source Aquifers	According to the U.S. Environmental Protection Agency's (EPA) sole source aquifer map (EPA 2024a), there are no sole source aquifers designated in Colorado; therefore, the alternatives would have no effect on sole source aquifers.
Coastal Zone Management Act	There are no coasts in Colorado. Thus, the alternatives would have no effect on coastal zones.
Coastal Barrier Resources Act (CBRA)	Areas within the Coastal Barrier Resources System (CBRS) would not be eligible for FEMA grant funding because federal expenditures that support development within the CBRS are restricted. Moreover, there are no CBRS areas in Colorado; therefore, CBRS areas are not covered under this PEA.
Essential Fish Habitat (Magnuson-Stevens Fishery Conservation and Management Act)	There is no designated Essential Fish Habitat in Colorado (National Oceanic and Atmospheric Administration 2024). Thus, the alternatives would have no effect on Essential Fish Habitat.

4.2. Soil and Topography

Alternatives are evaluated for the potential to cause erosion, sedimentation, and compaction impacts on soils and topography—in the short term, during construction, and over the long term. Potential impacts on soils and topography are assessed qualitatively by comparison with the surrounding environment. Therefore, this section presents existing soil and topographic conditions within Colorado for this PEA to provide a basis for this analysis.

Colorado encompasses approximately 103,404 square miles. The state is divided into three major geologic regions: Colorado Plateau, Southern Rocky Mountains, and Great Plains (**Table 4.4**). The Colorado Plateau covers the western quarter of the state, the Southern Rocky Mountains runs north-south through the center of the state, and the Great Plains covers the eastern portion of the state, from the eastern border of the Rocky Mountains to Kansas (Colorado State University 2024).

Table 4.4. Major Geologic Regions in Colorado

Region	Characteristics	Elevation
Colorado Plateau	Mainly consists of a succession of plateaus, mesas, mountains, and canyons.	5,000 – 11,000 feet

Region	Characteristics	Elevation
Southern Rocky Mountains	Majority of areas are glaciated, mountainous, steeply sloped, and hilly. All areas contain headwaters and/or intermittent streams.	6,000 – 14,400+ feet
Great Plains	Composed of generally flat-lying sedimentary rock. Smooth to slightly irregular plains having a high percentage of cropland.	3,350 – 6,000 feet

Source: Colorado State University 2024

In many areas of the state, bedrock slowly formed as sedimentary rocks, such as sandstone and limestone. During periods of volcanic activity, molten igneous rocks formed from cooling magma throughout areas that have present-day calderas. These types vary between plutonic-containing precious metals and volcanic, such as basalt and rhyolite. In regions that did not undergo significant volcanic activity, the prominent type of rock is metamorphic. The most dominant types of rocks in the state are gneiss, schist, amphibolite, and quartzite (Colorado Geological Survey 2024).

Colorado consists of five different orders of soils, with the most dominant being Mollisols. This order is characterized as having a dark surface horizon layer containing a very high amount of organic matter (U.S. Department of Agriculture [USDA] 2024). Under this order, the most dominant suborder in the state is Ustolls. Over time, these soils generally accumulated concentrations of calcium carbonate. Mollisols are some of the most fertile soils on Earth, which greatly improves the biodiversity across the state, and allows for significant success in crop growth and agriculture (USDA 2024).

Officially, Colorado's state soil series is Seitz (Colorado Geological Survey 2024). This under the order Alfisols, in the Cryalfs suborder. Seitz consists of very deep, well-drained, slowly permeable soil that was formed from igneous, sedimentary and volcanic rocks. Seitz soils are found on hills, ridges, valley slopes, and mountains, mainly in southwestern and central Colorado (Colorado Geological Survey 2024).

As shown in **Table 4.5**, land in Colorado consists primarily of montane forests, prairie and grasslands, and cropland. The Farmland Protection Policy Act (FPPA) of 1981, 7 U.S.C. §§ 4201 et seq., was enacted to minimize conversion of 'prime and unique farmland' and 'farmland of statewide or local importance to nonagricultural uses,' and to ensure that federal programs are compatible with tribal, state, local, and private programs and policies to protect farmland. The FPPA does not consider areas already committed to urban uses as farmland (7 CFR. § 658.2[a]). If an individual project area is outside of an urban area, the subapplicant should confirm whether the area contains farmland soils by using the USDA Natural Resources Conservation Service's (NRCS) web soil survey. Projects that would result in the conversion of important farmland soils to non-farm uses would need to consult with NRCS and complete a land evaluation and site assessment (USDA Form AD-1006). While the presence of farms does not necessarily indicate farmland soils, they can provide an indication of which areas may include protected farmland soils. Additional farmland soils could exist in parts of the states that are not currently occupied by farms. Furthermore, farms do not

exist solely within croplands; other land cover types can be used for agriculture, depending on the specific commodity. Farms in the state increased steadily between 1997 and 2017 but have since declined. According to the USDA Census of Agriculture, operational farmland occupies approximately 45 percent of Colorado, encompassing 35,900 farms as of 2023 (USDA 2022). The size of said farms, as well as the land needed to operate them, has also declined slightly since 2012 (USDA 2022).

Table 4.5. Land Cover in Colorado

Land Cover Type	Total Land Use Within State (square miles)	Land Cover Percentage
Evergreen Woodlands	9,065	9%
Montane Forests	20,822	20%
Riparian and Emergent Wetlands	5,784	6%
Prairie and Grasslands	21,724	21%
Shrublands	15,455	15%
Scrubland	1,314	1%
Badlands and Tundra	3,603	3%
Cropland	19,269	19%
Recently Disturbed and Modified	141	1%
Developed and Urban	4,374	4%
Open Water	478	1%
Total	**102,029**	**100%**

Source: U.S. Geological Survey 2018

4.2.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects. These activities could have minor short-term adverse impacts on soils, including farmland soils, and topography from ground-disturbing activities, such as excavation and grading, which may lead to increased erosion. Clearing or grading during construction would also result in the temporary loss of native vegetation and exposure of soils to the elements, which could cause increased erosion. Site soils may be revegetated, and topography may be altered by grading within the ROWs or utility easements.

Under this alternative, the risk that utilities may be damaged or fail to properly function because of a natural hazard would not be substantively reduced. This could result in the temporary or permanent disruption of services or utilities. Loss of use in developed or agricultural land may occur as a result of the collapse of pipes or other modes of failure within the specified utility network. Additionally, lack of repair to certain utilities has the potential to cause damage to land, both at the surface level and underground (through ground collapse). Flooding and erosion could also occur if severe weather events exceed the existing stormwater or wastewater utility capacity. Electric utilities that are

aboveground and made of combustible materials would continue to be at risk for starting or spreading utility-associated wildfire. High-intensity wildfires can alter the physical and chemical properties and the moisture, temperature, and biotic characteristics of soils (U.S. Forest Service 2005). Continued utility damage and failure from natural hazards would require repetitive repair work, which could result in construction-related impacts on soils and topography from ground-disturbing activities, leading to increased erosion. Thus, the No Action Alternative may result in minor to moderate long-term adverse impacts on soils, including farmland soils and topography.

4.2.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

In the short term, construction activities associated with the action alternatives that disturb the ground would have similar impacts on soils and topography as those described under the No Action Alternative. Potential impacts would be from excavation, removal of concrete or other material, and installation of replacement utilities. However, erosion and sediment control measures would be implemented in accordance with applicable federal, tribal, state, and local requirements. Specifically, construction of the action alternatives would comply with the General Construction Stormwater Permit, which is required for construction disturbance of 1 or more acres and is discussed in greater detail in Section 4.4. In accordance with the General Construction Stormwater Permit, the project proponent would develop a Stormwater Pollution Prevention Plan (SWPPP) for specific proposals under the action alternatives, which would require the implementation of measures to reduce pollutants in stormwater discharges and prevent sediment from leaving the construction site. Example control measures include minimizing areas of exposed soil, retaining natural buffers around surface waters, and installing erosion control measures, such as silt fencing. Stabilization of disturbed soil and backfill, as well as compaction of soils and disturbed land, would also mitigate these impacts. During construction, the action alternatives would have minor short-term adverse impacts on soils and topography.

In the long term, utility projects under the action alternatives would reduce the risk that utilities may be damaged or fail to properly function because of a natural hazard. Reduced flooding, wildfire risk, slope failure, ground collapse, and erosion would help to conserve soils and protect existing topography. Stabilization projects that reduce erosion and slope failure would have the potential to protect adjacent farmland soils from washing away. All action alternatives would reduce the need for future utility repairs, reducing the potential for additional construction-related impacts on soils and topography from ground-disturbing activities. The action alternatives would result in negligible to moderate long-term beneficial impacts on soils and topography, depending on the project type and location.

Replacement Alternative

Utility replacement projects are not expected to have a direct impact on farmland soils. These projects would replace utilities in their existing location and would not irreversibly convert farmland to other uses. Therefore, the Replacement Alternative would likely be consistent with the FPPA. If

NRCS requires further review of a specific project, FEMA would complete Form AD-1006 (NRCS 2022) and make a determination under the FPPA.

Relocation Alternative

Utility relocation projects could have minor long-term adverse impacts on farmland soils, depending on the project type and location. Small parcels of ROW, which may include farmland soils, may be acquired to accommodate the relocation. If the relocation requires aboveground components on farmland soils, some small areas of farmland may be converted. However, the relocation of utilities underground, which is typical of most utility line installation, would not irreversibly convert farmland to other uses. Therefore, the Relocation Alternative would likely be consistent with the FPPA. If NRCS requires further review of a specific project, FEMA would complete Form AD-1006 (NRCS 2022) and make a determination under the FPPA.

Installation Alternative

Utility installation projects could have minor long-term adverse impacts on farmland soils, depending on the project type and location. Parcels of ROW or land, which may include farmland soils, may be acquired to accommodate the installation. If a larger area of land is needed to construct a new utility, such as a detention or retention pond, some areas of farmland may be converted. Therefore, the Installation Alternative could be inconsistent with the FPPA. If NRCS requires further review of a specific project, FEMA would complete Form AD-1006 (NRCS 2022) and make a determination under the FPPA.

Combination Alternative

Generally, the impacts on soils and topography from this alternative would be similar to those described for Replacement, Relocation, and Installation alternatives, as this project type includes a combination of utility replacement, relocation, and/or installation projects.

4.3. Air Quality

This section evaluates the alternatives for the potential to impact air quality from emissions of air pollutants, in both the short term and long term.

The Clean Air Act (CAA), as amended, requires EPA to establish NAAQS for six pollutants harmful to human and environmental health, including ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter (PM) (including PM that is less than 10 micrometers in diameter [PM10] and fine particulate matter less than 2.5 micrometers in diameter [PM2.5]) (EPA 2024b). Fugitive dust, which is considered a component of PM, can also affect air quality. Fugitive dust is released into the air by wind or human activities, such as construction, and can have human and environmental health impacts. Federally funded actions in nonattainment and maintenance areas for these pollutants are subject to conformity regulations (40 CFR Parts 51 and 93) to ensure that emissions of air pollutants from planned federally funded activities would not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the

NAAQS or any interim milestone. Activities that would cause an exceedance of the NAAQS or cause an area to fall out of attainment status would be considered a significant impact.

The status of nonattainment and maintenance areas is available through EPA's Green Book, which is updated periodically (EPA 2024c). Table 4.6 summarizes counties in nonattainment status within Colorado. According to the EPA Green Book, Colorado is currently in nonattainment status for 8-hour ozone in several counties along the Front Range (EPA 2024c). The Colorado Air Quality Control Commission oversees Colorado's air quality program. Permitting under the CAA in Colorado is the responsibility of the Air Pollution Control Division of the CDPHE.

Table 4.6. Counties in Nonattainment Status within Colorado

County	Criteria Pollutant
Adams County	8-Hour Ozone (2008, 2015)
Arapahoe County	8-Hour Ozone (2008, 2015)
Boulder County	8-Hour Ozone (2008, 2015)
Broomfield County	8-Hour Ozone (2008, 2015)
Denver County	8-Hour Ozone (2008, 2015)
Douglas County	8-Hour Ozone (2008, 2015)
Jefferson County	8-Hour Ozone (2008, 2015)
Larimer County	8-Hour Ozone (2008, 2015)
Weld County	8-Hour Ozone (2008, 2015)

Source: EPA 2024c

4.3.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects, but they would not constitute the same level of risk reduction as the action alternatives described in this PEA. Minor utility improvement projects would involve the use of construction equipment that would release air pollutants in emissions from the use of heavy equipment and vehicles. However, construction activities would not be expected to increase either air emissions to the extent that they would affect regional attainment status with the NAAQS. Therefore, there may be minor short-term adverse impacts from vehicle and equipment emissions at project sites.

The minor improvements would reduce the risk of utility failure, but not to the level of the action alternatives. Electric utilities that are above ground and made of combustible materials would continue to be at risk for starting or spreading utility-associated wildfire. Wildfire smoke can deteriorate air quality and expose sensitive groups (such as young people, older people, or people with previous respiratory or circulatory health concerns) to harmful pollutants (EPA et al. 2019). In addition, continued utility damage and failure from natural hazards would require repair work. Repair work could result in minor temporary increases in localized air emissions from construction equipment and vehicles. Repair activities would also not be expected to affect local compliance with the NAAQS. Therefore, there may be a minor periodic long-term adverse impact on air quality.

4.3.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

Utility projects associated with the action alternatives would result in temporary emissions from construction activity and the use of vehicles and equipment fueled by diesel and gasoline engines. During the construction phase, exposed soil could temporarily increase airborne PM into the project area from fugitive dust. Emissions from construction equipment could have minor temporary effects on the levels of some air pollutants, including carbon monoxide, volatile organic compounds, nitrogen dioxide, ozone, and PM. Local PM2.5 and PM10 levels can increase during activities that generate fugitive dust, such as the excavation of soils, demolition of concrete structures, and movement of vehicles on unpaved surfaces. Temporary impacts on air quality would be reduced through the implementation of best management practices (BMPs). Vehicles and equipment running times would be kept as short as possible and areas of exposed soil would be covered or wetted to reduce fugitive dust. Depending on the extent of the equipment and vehicle use, and with implementation of standard construction BMPs and compliance with current EPA emissions standards (EPA 2016) and all other applicable federal, tribal, state, and local regulations, there would be negligible to minor short-term adverse impacts on air quality during construction.

Generally, activities would be expected to be below de minimis thresholds and would not increase emission levels of regulated air pollutants. However, some large utility projects, or those with longer construction periods, could involve more truck trips and longer durations of heavy equipment usage. Among other factors, the total volume of emissions is a function of the number and type of vehicles and equipment, the distance driven or hours per day operated, and the number of trips made during the project. Prior to applying the PEA to a specific project, consideration should be given as to whether a conformity analysis is necessary.

The action alternatives would reduce the need for utility repairs, thus reducing the air pollutants emitted during repairs. In addition, the retrofit, replacement, or relocation of electric utilities would reduce the risk of utility-associated wildfires and wildfire smoke. Utility improvement projects would have beneficial effects consistent with the Principles, Requirements, and Guidelines (PR&G) sustainable economic development and public safety principles because they would ensure continuity of services and reduce the requirement that infrastructure needs to be built elsewhere to serve a community (FEMA Instruction 108-1-1). The action alternatives would result in long-term negligible to moderate beneficial impacts on air quality.

Replacement Alternative

For most infrastructure replacement projects, no long-term adverse impacts on air quality would be anticipated because projects completed would replace existing components or would not be a source of long-term air emissions. Some replacement projects may increase the capacity of some components, such as pump stations, which may require additional power. In these instances, it is expected that these components would be powered by electricity and would not result in long-term emissions. If a project would result in a new long-term major source of air pollutants that would be

greater than the exceedance levels for nonattainment and maintenance areas or cause an area to be out of attainment for any NAAQS, an SEA would need to be prepared.

Relocation Alternative

Similar to replacement projects, no long-term adverse impacts on air quality are anticipated because proposed utility relocation projects would relocate existing components or would typically not be a source of long-term air emissions. Some electrical components of utility systems may be upgraded but would not result in long-term emissions. However, some project types may include the installation of an emergency backup generator for new or existing facilities, considered a new source of emissions, which would need to be permitted and comply with all air quality standards. If a project would result in a new long-term major source of air pollutants that would be greater than the exceedance levels for nonattainment and maintenance areas or cause an area to be out of attainment for any NAAQS, an SEA would need to be prepared.

Installation Alternative

Similar to replacement and relocation projects, no long-term adverse impacts on air quality are anticipated. While utility installation projects may include the construction of new electrical components, it is expected that the operation of these components would not result in long-term emissions. However, some project types may include the installation of an emergency backup generator for new or existing facilities, which would be considered a new source of emissions and would need to be permitted and comply with all air quality standards. If a project would result in a new long-term major source of air pollutants that would be greater than the exceedance levels for nonattainment and maintenance areas or cause an area to be out of attainment for any NAAQS, an SEA would need to be prepared.

Combination Alternative

Generally, the impacts on air quality from this alternative would be similar to those described for Replacement, Relocation, and Installation alternatives, as this project type includes a combination of utility replacement, relocation, and/or installation projects.

4.4. Surface Waters and Water Quality

This section evaluates the alternatives for the potential to degrade existing water quality conditions or impact surface and groundwater resources regulated by the Clean Water Act (CWA) of 1977, 33 U.S.C. §§ 1251 et seq., and other federal, tribal, state, and local water quality laws.

There are over 90,000 miles of rivers and more than 270,000 acres of lakes in Colorado. The majority of the rivers originate in the pristine, high alpine environment of the Rocky Mountains and flow downstream through the high desert or high plains regions before leaving the state (CDPHE n.d.). Roughly 2,000 reservoirs exist in Colorado with a total capacity of 7.5 million acre-feet of water storage. Nine river basins cover the state: the Arkansas, Colorado, Gunnison, North Platte, Republican, Rio Grande, South Platte, Dolores/San Juan/San Miguel, and the Yampa/White/Green (Water Education Colorado 2024).

Section 401 of the CWA gives states and tribes the authority to grant, deny, or waive certification of proposed federal licenses or permits for projects that result in discharges into waters of the United States 33 U.S.C. § 1341. Furthermore, Section 401 also requires that, before a Section 404 permit (as discussed below) can be issued for an activity, the activity must not exceed state- or tribal-specific water quality standards. The Colorado Department of Public Health and Environment (CDPHE) issues 401 Water Quality Certifications for projects that require a Section 404 permit from USACE to address impacts on waters of the United States. Subapplicants should coordinate with the CDPHE to determine the applicable project-specific regulations and conditions. For waters on tribal reservation lands, tribes may obtain treatment in a similar manner as a state or the EPA would certify projects on behalf of the tribe.

The CWA further requires states, territories, and authorized tribes to identify waters that do not or are not expected to meet applicable water quality standards with current pollution control technologies alone. On an annual basis, states, territories, and authorized tribes issue a water quality report under Sections 305(b) and 303(d) of the CWA (referred to as the Integrated Water Quality Report) (33 U.S.C. § 1313). Section 303(d) authorizes EPA to assist states, territories, and authorized tribes in listing impaired waters and developing Total Maximum Daily Loads (TMDLs) for impaired waterbodies. A TMDL establishes the maximum amount of a pollutant or contaminant allowed in a water body and serves as the starting point or planning tool for restoring water quality. In compliance with CWA Section 303(d), CDPHE maintains a list of water quality impaired waters, also known as the 303(d) list.

Section 402 of the CWA regulates the discharge of pollutants or contaminants from point sources, as well as stormwater runoff, into waterways through National Pollutant Discharge Elimination System (NPDES) permits 33 U.S.C. § 1342. These permits limit what can be discharged into waterways and provide for project-specific monitoring and reporting requirements. Construction activities that have the potential to disturb soils that could lead to erosion and sedimentation must obtain and comply with a general construction NPDES permit for stormwater discharges. Under the NPDES, the CDPHE regulates both point and nonpoint pollutant sources, including stormwater and stormwater runoff, via a permitting system. Activities that disturb one or more acres of ground are required to apply for a permit through the CDPHE. For tribal lands in Colorado, the EPA issues NPDES permits.

Section 404 of the CWA regulates the placement of dredged or fill material into waters of the United States, including wetlands, lakes, streams, rivers, and other waterways (33 U.S.C. § 1344). Through Section 404 permitting, EPA and the USACE aim to avoid and minimize loss of wetlands and other water resources and to compensate for unavoidable loss through mitigation, restoration, enhancement, and creation. Section 404 is implemented by USACE in Colorado.

On May 30, 2024, House Bill 24-1379 was signed into law in Colorado with the intent to ensure that state waters are protected from the impacts of dredge and fill activity. The legislation directs the Water Quality Control Division of the CDPHE to develop a dredge and fill authorization program and the Water Quality Control Commission to establish permitting and mitigation rules by December 31, 2025. The outcome is Regulation No. 87, a control regulation for avoiding, minimizing, and

mitigating the impacts of dredge and fill activity (CDPHE 2024), which went into effect January 1, 2025.

4.4.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects. Some of these projects may require in-water work that could further contribute to sedimentation and may potentially alter waterways. However, these project types would be required to adhere to CWA and state waterway regulations, including obtaining necessary permits that would require mitigation and BMPs to minimize impacts on surface waters. These projects would be smaller in scale and would likely not provide the same level of hazard mitigation, repair, or resilience as the action alternatives described in this PEA. Therefore, as long as projects under the No Action Alternative adhere to permitting requirements, there would be minor short-term adverse impacts from construction activities.

Although minor utility improvement projects under the No Action Alternative would have some mitigative effects, these effects would be limited because the projects would likely be smaller in scale and less comprehensive than the action alternatives. Under the No Action Alternative, the risk to utilities would remain, potentially leaving communities without services and vulnerable to future natural hazards. Erosion and sedimentation may increase if banks are left in disrepair because damaged utility infrastructure may be a source of sediment inputs into surface waters. Failed or inadequately sized stormwater utilities could result in increased flooding because stormwater would not be adequately collected or managed. In some cases, during extreme weather events, wastewater treatment lagoons would remain at risk for overflowing, which would result in untreated wastewater flowing into the surrounding area and into groundwater and other waterways. Continued utility damage and failure from natural hazards would require repetitive repair work, which could contribute to sedimentation and water quality impacts from construction activities. Therefore, there may be a minor to moderate long-term adverse impact on surface waters and water quality under the No Action Alternative.

4.4.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

In the short term, ground-disturbing construction activities associated with utility projects, such as excavation and grading, may increase erosion and cause sedimentation to enter surface waters. Excavation and grading would also result in the temporary loss of native vegetation and subsequently expose soils to the elements, which could further increase erosion and sedimentation. Construction activities, including grading and excavation, and the discharge of fill material into surface waters may temporarily alter surface water quality, including but not limited to temperature, dissolved oxygen, or turbidity. Prior to construction, the Subapplicant would coordinate with USACE or authorized tribes and the CDPHE, as needed, to obtain any required CWA permits. Potential erosion issues would be minimized by following all conditions required by CWA permits, including developing a SWPPP, and by state, tribal, and local regulations that require erosion control.

Pollutants such as oils, lubricants, and other hazardous materials have the potential to percolate down to aquifers as a result of spills and leaks from construction equipment. Project activities would need to adhere to applicable state, tribal, and local regulations to reduce the risk of hazardous leaks and spills, as discussed further in Section 4.12 therefore, there would be a minor short term adverse impact from construction activities.

In the long term, projects associated with the action alternatives would reduce the risk of utilities being damaged or functioning improperly because of a natural hazard. Surface waters would be better protected by the reduction in flooding, wildfire risk, slope failure, ground collapse, and erosion that may be associated with damaged or vulnerable utilities. Properly functioning stormwater and wastewater utilities could reduce the risk of flooding, thereby protecting waterbodies from runoff and pollutants and improving water quality. The action alternatives would reduce the need for utility repairs, thus reducing potential sedimentation and water quality impacts from repairs. Further, the beneficial effects on water quality would be consistent with the PR&G guiding principle on healthy and resilient ecosystems (FEMA Instruction 108-1-1). The action alternatives would result in negligible to moderate long-term beneficial impacts on surface waters and water quality, depending on the project type and location.

Replacement Alternative

The impact on surface waters and water quality under the Replacement Alternative would be the same as those discussed under the General Consequences of the Action Alternatives.

Relocation and Installation Alternatives

In addition to the previously discussed short-term impacts, utility relocation and installation projects may require the removal or relocation of utility line water crossings. Utility removal may include excavation and restoration of the area along streambanks or abandonment in place. Utility relocation would most likely include trenchless crossing methods, such as high-pressure directional drilling or punch-and-bore crossings that cause very little disturbance to the streambed and banks. However, some projects may include minor trenching through stream banks and channels. Prior to construction, the Subapplicant would coordinate with USACE or authorized tribes and the CDPHE, as needed, to obtain any required CWA permits. If a project would require in-water work that would result in the dredging or filling of more than 1 acre of a waterbody, it may not be covered under a Nationwide Permit from USACE as the project could have major impacts on surface water and water quality, and an Individual Permit may be needed. The impact of in-water work activities would be considered on a project-specific basis, and for any projects that would have major impacts on surface water and water quality, an SEA would need to be prepared. However, the Subapplicant would be responsible for implementing the general conditions and mitigation measures stipulated in the USACE permit, which could reduce potential impacts to a minor level. In addition, project activities must adhere to applicable federal, tribal, state, and local regulations that require erosion control and reduce the risk of hazardous leaks and spills; therefore, there would be a minor short-term adverse impact from construction activities.

Combination Alternative

Generally, the impact on surface waters and water quality from this alternative would be similar to those described for Replacement, Relocation, and Installation alternatives, as this project type includes a combination of utility replacement, relocation, and/or installation projects.

4.5. Wetlands

This section evaluates the alternatives for the potential to generate impacts on wetlands. FEMA considers alternatives to working within wetlands and to limit potential impacts on wetlands if there are no practicable alternatives. FEMA regulation 44 CFR Part 9, Floodplain Management and Protection of Wetlands, sets forth the policy and procedure for protection or wetlands and prohibits FEMA from funding activities in a wetland unless no practicable alternatives are available. Activities that disturb wetlands may also require a permit from USACE under Section 404 of the CWA.

As discussed in Section 4.4, the CDPHE issues 401 Water Quality Certifications for projects that require a Section 404 permit from USACE to address impacts on waters of the United States, including wetlands. For waters on tribal reservation lands, tribes may obtain treatment in a similar manner as a state or the EPA would certify on behalf of the tribe. The Water Quality Control Division of the CDPHE is also responsible for regulating drainage and the placement of fill for non-tribal lands in Colorado. Colorado recognizes wetlands under the definition of state waters and, therefore, wetlands are subject to regulations by the CDPHE (5 CCR 1002-31). The CDPHE also provides input on Section 404 permits through the Section 401 Certification Program.

If work within wetlands is necessary to complete a project, federal, tribal, state, and local permits and mitigation may be required. Wetland impacts may require a Section 404 permit from USACE. State, tribal, and local permits may be required even if a federal permit is not. If wetland impacts are unavoidable, compensatory mitigation may be required by federal, tribal, and state authorities. Coordination with NRCS may also be needed if there are any impacts on wetland reserve easements.

Wetlands cover approximately 1.7 million acres of Colorado and include marshes, wet meadows, fens, riparian areas, playas, alkaline flats, and seep and springs (Colorado Natural Heritage Program 2022). In Colorado, wetlands are classified by ecological system and plant association. There are 15 wetland and riparian ecological systems and over 200 wetland and riparian plant associations (National Association of Wetland Managers 2015).

4.5.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, there would be some construction associated with minor utility improvement projects that could occur within or adjacent to wetlands, which could potentially release pollutants and sediments into those wetlands or result in the fill of wetlands. Although minor projects under the No Action Alternative may have some long-term mitigative effects, the risk that utilities may be damaged or fail to properly function because of a natural hazard would not be substantively reduced. The risk of flooding and erosion would not be substantially reduced if severe weather events exceed the existing stormwater or wastewater utility capacity, and sediments,

pollutants, and contaminants would continue to be transferred into wetlands via floodwaters. In addition, continued utility damage and failure from natural hazards would require repair work, which could also result in the release of pollutants and sediment into wetlands. Therefore, potential impacts on wetlands would be minor to moderate and adverse, in both the short term and long term.

4.5.2. ACTION ALTERNATIVES

General Consequences of Action Alternatives

The action alternatives have the potential to cause short-term temporary impacts if wetlands are directly disturbed or impacted by temporary fill or other construction activities within or adjacent to wetlands, thereby increasing sedimentation or turbidity within wetland waters.

There may be impacts beyond the project footprint if sources of hydrology are affected or if portions of wetlands require permanent filling or conversion to non-wetland uses. When partially filled or converted, the remaining wetland acreage may experience changes in hydrology and natural flow within the wetlands, spread of invasive species, and declines in functions, values, and habitat quality. This PEA presumes that projects and any connected actions would follow any applicable CWA permit conditions to minimize impacts on wetlands. The PEA also presumes projects would be designed to avoid permanent impacts on wetlands. Wetland impacts would be considered on a project-specific basis and for any projects that would have major impacts on wetlands, an SEA would need to be prepared. However, the Subapplicant would be responsible for implementing the general conditions and mitigation measures stipulated in the USACE permit, which could reduce potential impacts to a minor level. Therefore, individual projects covered under this PEA may have either no impacts or up to minor adverse impacts on wetlands, in the short term and long term, because projects would follow all required permitting conditions. Stormwater and wastewater utility improvement projects would be consistent with the PR&G guiding principles (FEMA Instruction 108-1-1) because stormwater management could protect wetlands from runoff and pollutants and would benefit affected watersheds. Therefore, these projects would have negligible to moderate long-term beneficial impacts on wetlands, depending on the project type and location. FEMA will apply the eight-step decision-making process to consider site-specific impacts of proposed projects prior to approval to consider alternatives and mitigation measures.

4.6. Floodplains

This section evaluates the alternatives for the potential to generate impacts on floodplains. FEMA's regulations for Floodplain Management are found in 44 CFR Part 9, which requires federal agencies to avoid, to the extent possible, short-term and long-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development, wherever there is a practicable alternative. Under the National Flood Insurance Act, 42 U.S.C. § 4001 et seq. and its implementing regulations, 44 CFR Part 60, communities must meet certain floodplain development standards to participate in the National Flood Insurance Program. Implemented locally by the Colorado Water Conservation Board, there are 253 National Flood Insurance Program–participating communities in Colorado (FEMA 2024c). Subapplicants may need

to coordinate with the Colorado Water Conservation Board and local or tribal floodplain administrator to acquire any necessary approval for construction within the floodplain.

4.6.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, there could be some construction associated with minor utility improvement projects occurring within the floodplain that could potentially release pollutants and sediments into the floodplain. Any potential release of pollutants and sediment would be limited to the construction period and could temporarily increase the concentration of pollutants in the floodplain. Thus, there would be a negligible to minor short-term adverse impact on floodplains.

Under the No Action Alternative, communities may alter the floodplain by implementing minor utility improvement projects, but they would not constitute the same level of risk reduction as the action alternatives described in this PEA. In the long term, the risk that utilities may be damaged or fail to properly function because of a natural hazard would not be substantively reduced. The risk of flooding would not be substantially reduced if severe weather events exceed the existing stormwater or wastewater utility capacity. Electric utilities that are above ground and made of combustible materials would continue to be at risk for starting or spreading utility-associated wildfire. If a wildfire were to occur, structures and vegetation would be destroyed, which could result in an increase in stormwater runoff and sedimentation following a rain event. For all project types, periodic utility damage and failure from natural hazards would also require repair work, which could result in the release of pollutants and sediment into the floodplain from repair-related construction activities. Therefore, there would be a minor to moderate long-term adverse impact from flood risks and impacts on floodplains.

4.6.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

Under the action alternatives, construction activities would have the potential to release sediments and pollutants into the floodplain. These impacts would be minimized by following all permit conditions related to sediment control. Thus, there would be a minor short-term adverse impact on floodplains. The Subapplicants would also be required to comply with applicable state, tribal, and local floodplain and floodway regulations, including coordination with their local or tribal floodplain manager, to ensure impacts on floodplains would be minimized.

In the long term, utility projects under the action alternatives would reduce the risk that utilities may be damaged or fail to properly function because of a natural hazard. The implementation of stormwater and wastewater improvement projects would reduce the risk of flooding and the amount of pollutants entering the floodplain. In addition, the retrofit, replacement, or relocation of electric utilities would reduce the risk of utility-associated wildfires and increased runoff and sedimentation in the event of a wildfire. All action alternatives would reduce the need for utility repairs, thus reducing the potential release of pollutants and sediment into the floodplain from construction activities. Therefore, there would be a minor to moderate long-term beneficial impact from utility

improvement projects on floodplain resources, depending on the project type and location. FEMA will apply the eight-step decision-making process to consider site-specific impacts of proposed projects prior to approval to consider alternatives and mitigation measures.

4.7. Vegetation

This section evaluates the alternatives for their potential to impact all plants and trees that occur within Colorado, in both the short term and long term. EO 13112, Invasive Species, requires federal agencies to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health impacts caused by invasive species. EO 13112 defines invasive species as alien species whose introductions do or are likely to cause economic or environmental harm or harm to human health, including noxious weed plant species. Invasive plants can alter an area's diversity for both plant and animal life by dominating areas where they have become established and crowding out native vegetation (U.S. Forest Service 2024).

EPA has defined a system of ecoregions to describe and assess national and regional environmental resources and to structure and implement ecosystem management strategies across federal and state agencies, tribal entities, and nongovernmental organizations. Ecoregions are areas where the type, quality, and quantity of environmental resources are generally similar; they are identified by analyzing the patterns and composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality (EPA 2024d). These ecoregions provide a high-level view of the vegetation and general ecosystem characteristics within their footprints. Colorado overlaps six EPA-designated Level III ecoregions, as shown in **Figure 4-1** and described in **Table 4.7.**

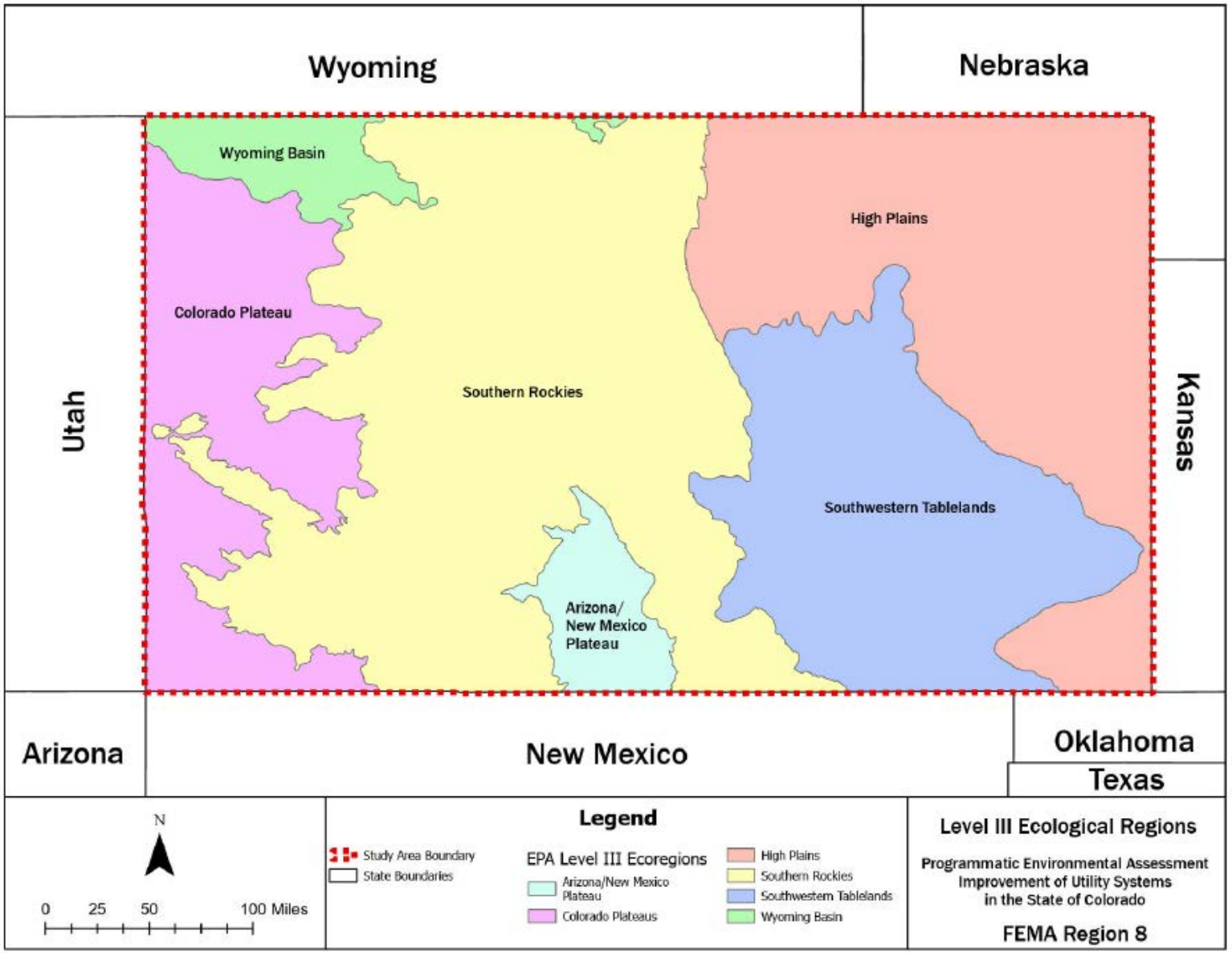

Figure 4-1. Ecoregions in Colorado

Table 4.7. EPA Level III Ecoregions in Colorado

Level III Ecoregion	Area (Acres)	Percentage of Total Area	Description of Vegetation and Other Ecosystem Features
Southern Rockies	25,396,863	38.1%	Characterized by high elevation, steep, rugged mountains. Vegetation at lower elevations consists of grasses or shrubs and are heavily grazed. Low to middle elevations have more diverse vegetation, including Douglas-fir, ponderosa pine, aspen, and juniper-oak woodlands. Middle to high elevations include coniferous forests, and the highest elevations have alpine characteristics. The ecoregion includes the Colorado Mineral Belt and has most of the historic mining camps of Colorado.
High Plains	15,889,898	23.9%	Characterized by smooth to slightly irregular plains supporting cropland. Vegetation is dominated by grama-buffalo grass. The northern boundary is the limit of winter wheat and sorghum growth, whereas the southern boundary is the limit of spring wheat. Gas and oil fields are dispersed throughout the region.
Southwestern Tablelands	12,107,710	18.2%	Characterized by red-hued canyons, mesas, badlands, and river breaks. Vegetation communities consist of sub-humid grasslands and semiarid rangeland, with grama-buffalograss and juniper-scrub oak-grass savanna.
Colorado Plateaus	9,007,348	13.5%	Characterized by canyons, mesas, plateaus, and mountains with rugged tableland topography. Vegetative communities include pinyon-juniper and Gambel oak woodlands at higher elevations and saltbrush and greasewood in drier low-lying areas.
Arizona/New Mexico Plateau	2,126,355	3.2%	Characterized as a transitional region, bordered by forest-covered mountains. This ecoregion has the lowest annual precipitation in the state, but surface runoff from the surrounding mountains and groundwater supplies sufficient water for the San Luis Lake, the low point of the ecoregion. The high water table also supports ephemeral lakes, springs, wetlands, and flowing wells. However, flowing wells have been disappearing because of decreasing groundwater levels in the San Luis Valley. Wetland areas provide migratory bird habitat; however, desert areas also occur in this region.

Level III Ecoregion	Area (Acres)	Percentage of Total Area	Description of Vegetation and Other Ecosystem Features
Wyoming Basin	2,091,560	3.1%	Characterized by high hills and low mountains. Vegetation is dominated by arid grasslands and shrublands. The ecoregion is surrounded by forest-covered mountains, and contains coal deposits and areas used for trona, bentonite, clay, and uranium mining. Much of the region is used for livestock grazing.

Source: U.S. EPA 2024d

Vegetation refers to all plants and trees that occur within Colorado. Vegetation composition varies greatly between habitats and microhabitats, depending on environmental conditions (e.g., water availability, soil type, temperature, and sunlight exposure). Because the action alternatives focus on utility improvement projects, most projects would occur within an existing ROW, near and connected to existing utility systems, and within previously disturbed areas. However, some projects may include construction within new and undisturbed ROWs.

The primary vegetation communities in Colorado are plains/grasslands, foothills, montane, subalpine, alpine, and semi-desert shrublands (U.S. Department of the Interior Bureau of Land Management 2024).

The plains/grasslands occur as three zones with shortgrass/mixed prairie, sandhill prairie, and tallgrass prairie. Common shortgrass prairie vegetation includes buffalo grass (*Bouteloua dactyloides),* galetta grass *(Hilaria jamesii*), blue grama (*Bouteloua gracilis*), and western wheatgrass (*Pascopyrum smithii*). Common shrubs include sand sage (*Artemisia filifolia*) and spreading buckwheat (*Eriogonum effusum*). Common sandhill prairie vegetation includes sand sage, skunkbush sumac (*Rhus trilobata var. trilobata*), rusty lupine (*Lupinus pusillus*), Texas croton (*Croton texensis*), hairy grama (*Bouteloua hirsuta*), and broom snakeweed (*Gutierrezia sarothrae*), In the tallgrass prairie, common vegetation includes switchgrass (*Panicum virgatum*), Indiangrass (*Sorghastrum nutans*), prairie cordgrass (*Spartina pectinata*), blue grama, and little bluestem (*Schizachyrium scoparium*) (Colorado Native Plant Society 2024).

The foothills are transitional zones of gambel oak (*Quercus gambelii*), pinyon (*Pinus edulis*)-juniper (Family: *Cupressaceae*) woodlands, and ponderosa pine (*Pinus ponderosa*). At elevations closer to the montane zone, common vegetation includes mountain mahogany (*Cercocarpus montanus*), Rocky Mountain juniper (*Juniperus scopulorum*), and ponderosa pine. In riparian woodlands common vegetation includes cottonwood trees (*Populus spp.*), willows (*Salix spp.*), and Rocky Mountain juniper. In drier areas, common vegetation includes gambel oak, big sagebrush (*Artemisia tridentata*), western serviceberry (*Amelanchier alnifolia*), and antelope bitterbrush (*Purshia tridentata*) (Colorado Native Plant Society 2024).

In the montane zone, common vegetation consists of ponderosa pine, western wheatgrass, blue grama, Geyer's sedge (*Carex geyeri*), and sagebrush species. Aspen (*Populus tremuloides*) forests are widespread and can be found with understory shrubs including serviceberry (*Amelanchier*

alnifolia), rose species (*Rosa spp.*), and chokecherry (*Prunus virginiana*) (Colorado Native Plant Society 2024).

In the subalpine zone, vegetation consists of forests of Engelmann spruce (*Picea engelmannii*), subalpine fir (*Abies lasiocarpa*), bristlecone pine (*Pinus* subsect. *Balfourianae*) and limber pine (*Pinus flexilis*) (U.S. Department of the Interior Bureau of Land Management 2024). In the semi-desert shrublands, vegetation consists of sagebrush, saltbrush (*Atriplex spp.*), and greasewood (*Sarcobatus spp.*) dominated shrublands. Riparian communities are dominated by mountain willow (*Salix monticola*), plain-leaf willow (*Salix planifolia*), Wolf's willow (*Salix wolfii var. wolfii*) and short-fruit willow (*Salix brachycarpa*) (Colorado Native Plant Society 2024).

At the highest elevations, in the alpine zone, vegetative communities are diverse and can be further separated into the alpine turf plant community, the alpine wet meadows, and the alpine fellfield. The alpine turf plant community commonly consists of blackroot sedge (*Carex elynoides*), avens (*Geum rossii var. turbinatum*), Bellardi bog sedge (*Carex myosuroides*), northern single-spike sedge (*Carex scirpoidea*), Idaho fescue (*Festuca idahoensis*), moss campion (*Silene acaulis*), and arctic bluegrass (*Poa arctica*). In the alpine wet meadows, common vegetation includes plain-leaf willow, dwarf birch (*Betula glanulosa*), dwarf blueberry (*Vaccinium cespitosum*), alpine laurel (*Kalmia microphyllua*), and shrubby cinquefoil (*Diasphora fruiticosa*). In the alpine fellfield, common vegetation includes dwarf clover (*Trifolium nanum*), globe sedge (*Carex perglobosa*), Fendler's sandwort (*Eremogone fendleri*), western Indian paintbrush (*Castilleja occidentalis*), featherleaf daisy (*Erigeron pinnatisectus*), and arctic alpine forget-me-not (*Eritrichium nanum*) (Colorado Native Plant Society 2024).

Current mapped wetlands comprise less than 2 percent of Colorado's topography (Colorado Parks and Wildlife [CPW] 2024a). Common wetland types include fens, marshes, wet meadows, riparian wetlands, and salt flats. Fens are dominated by sedges (*Carex spp.*), mosses, shrubs, and trees (Gage and Cooper n.d.). Wet meadows are comprised mostly of herbaceous plants, such as marsh marigolds (*Caltha leptosepala*), creeping sibbaldia (*Sibbaldia procumbens*), and Parry's clover (*Trifolium parryi)* (Colorado Native Plant Society 2024). Marsh vegetative communities are variable and dependent on water depth and salinity in wet and dry years. Salt flat wetlands are dominated by halophytes and plant cover is typically low. Riparian wetlands are dominated by cottonwoods and willows (Gage and Cooper n.d.).

Federally listed plant species that may occur in the vicinity of the proposed project areas are discussed in Section 4.9.

Widespread invasive plants include bulbous bluegrass (*Poa bulbosa*), chicory (*Cichorium intybus*), common burdock (*Arctium minus*), common mullein (*Verbascum thapsus*), common St. John's wort (*Hypericum perforatum*), downy brome (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), halogeton (*Halogeton glomeratus*), johnsongrass (*Sorghum halepense*), perennial sowthistle (*Sonchus arvensis*), poison hemlock (*conium maculatum*), puncturevine (*Tribulus terrestris*), quackgrass (*Elymus repens*), redstem filaree (*Erodium cicutarium*), Siberian elm (*Ulmus pumila*), tree of heaven (*Ailanthus altissima*), velvetleaf (*abutilon theophrasti*), and wild-proso millet (*Panicum*

miliaceum). These species are listed as noxious weeds subject to management plans to stop the continued spread of the species (Colorado Department of Agriculture 2024).

4.7.1. NO ACTION ALTERNATIVE

Communities may implement minor utility improvement projects under the No Action Alternative. These project activities could cause a short-term minor to moderate localized effect on vegetation from ground disturbance and possible vegetation removal, which could alter the composition of the vegetative community and result in the introduction or spread of invasive species. Therefore, the No Action Alternative may have negligible to minor short-term adverse impacts on vegetation.

In the long term, the risk that utilities may be damaged or fail to properly function because of a natural hazard would not be substantively reduced. The risk of flooding would not be substantially reduced if severe weather events exceed the existing stormwater or wastewater utility capacity, which could negatively impact vegetation leading to root damage, reduced oxygen, disease, or stunted growth. Electric utilities that are aboveground and made of combustible materials would continue to be at risk for starting or spreading utility-associated wildfire. In the event of a wildfire, there could be a loss of vegetation and the subsequent establishment of invasive species. In addition, continued utility damage and failure from natural hazards would require repair work, which could also result in vegetation removal. Therefore, there would be a negligible to moderate long-term adverse impact on vegetation and adverse effects related to invasive species.

4.7.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

In the short term, equipment and vehicles used during construction of utility projects could disturb or require the removal of vegetation, which could result in the fragmentation of native plant communities and the loss of pollinator habitat. The removal of upland vegetation could result in compacted and disturbed soils that are more prone to erosion and colonization by invasive species. Removal of riparian vegetation could result in stream banks becoming destabilized, which could increase the potential for erosion. However, most projects would require disturbed areas to be replanted (with native or desirable species and BMPs) to reduce the impacts from erosion; this would reduce the susceptibility for invasive plants and noxious weeds to regrow in the project area. Vegetation removal would be considered on a project-specific basis. For any projects that would have major impacts on native species, their habitats, or the natural processes sustaining them, cause the spread of noxious weeds, or include the clearing of forested land with old-growth characteristics, an SEA would need to be prepared. Therefore, the action alternatives would have a negligible to moderate short-term adverse effects on vegetation and invasive species, depending on the quality of existing vegetation.

The long-term maintenance of utilities may require the use of herbicide or livestock grazing to remove or manage vegetation and control invasive species. Herbicide has the potential to directly affect non-target plant and animal species by causing mortality and morbidity. Indirect impacts on

wildlife include loss of habitat due to effects on non-target plant species. To minimize these potential impacts, herbicide use would be limited to EPA-approved herbicide for the project-specific application (i.e., if used near water, would be approved for use in or near water) and with appropriate BMPs to prevent drift, overspray, or impacts on non-target plants or areas. The use of grazing livestock has the potential to deplete vegetation and displace natural wildlife species or disrupt feeding and nesting patterns. The Subapplicant would monitor the quantity and quality of residual vegetation to obtain the desired amount of vegetation management without overgrazing. To avoid loss of desirable plants and sensitive species, these areas would be fenced off or protected to prevent the grazing of such plants. The Subapplicant would also avoid grazing programs during seed production of non-target species. Therefore, the action alternatives would have a minor long-term adverse effect on vegetation from the use of herbicide or livestock grazing.

In the long term, the action alternatives would reduce the risk that utilities may be damaged or fail to properly function because of a natural hazard. The implementation of stormwater and wastewater improvement projects would reduce the risk of flooding, protecting nearby vegetation from flood damage. In addition, the retrofit, replacement, or relocation of electric utilities would reduce the risk of utility-associated wildfires and the loss of vegetation and establishment of invasive species in the event of a wildfire. Therefore, there would be a negligible to moderate long-term beneficial impact from utility improvement projects on vegetation.

4.8. Fish and Wildlife

This section evaluates the alternatives for the potential to impact all fish and wildlife that occur within Colorado, in both the short term and long term. Fish and wildlife include any species that occupy, breed, forage, rear, rest, hibernate, or migrate through Colorado. Regulations relevant to fish and wildlife include the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), and EO 13112 (Invasive Species). The Ute Mountain Ute Indian Tribe and the Southern Ute Indian Tribe manage and regulate fish and wildlife resources on their respective tribal lands in Colorado. Threatened and endangered fish and wildlife species are evaluated separately in Section 4.9.

The MBTA of 1918, as amended, 16 U.S.C. §§ 703 through 712, protects migratory birds and their nests, eggs, and body parts from killing, capturing, selling, trading, and transport. All native birds, including common species, are protected by the MBTA. A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. Projects likely to result in the purposeful taking of birds protected under the MBTA would require the issuance of permits from the USFWS.

The BGEPA of 1940, 16 U.S.C. §§ 668 et seq., prohibits the take, possession, sale, or other harmful action of any golden eagle (*Aquila chrysaetos*) or bald eagle (*Haliaeetus leucocephalus*), alive or dead, including any part, nest, or egg (16 U.S.C. § 668[a]). The BGEPA requires consultation with USFWS to ensure that proposed federal actions do not adversely affect bald or golden eagles. Project activities may be required to avoid certain seasons or buffer areas around nesting eagles.

As described in Section 4.7, EO 13112 (Invasive Species) requires federal agencies to prevent the introduction of invasive plant and animal species and provide for their control to minimize the economic, ecological, and human health impacts that invasive species cause. Each state designates invasive species and has adopted regulations regarding the sale, spread, and control of invasive species.

Terrestrial invasive species of concern within Colorado include the emerald ash borer (*Agrilus planipennis*), spongy moth (*Lymantria dispar*), Japanese beetle (*Popillia japonica*), and feral hogs (Family: *Suidae*) (CPW 2024c). Aquatic invasive species include the zebra mussel (*Dreissena polymorpha*), quagga mussel (*Dreissena bugensis*), New Zealand mudsnails (*Potamopyrgus antipodarum*), rusty crayfish (*Orconectes rusticus*), and waterflea (*Daphnia lumholtzi; Bythotrephes longimanus; Cercopagis pengoi*) (CPW 2024e).

Utility improvement projects would be constructed in upland, terrestrial habitats and may affect aquatic habitats. Colorado includes both terrestrial and aquatic habitats that have potential to support a diversity of fish and wildlife species. As described in Section 4.7, Colorado comprises six of EPA's Level III ecoregions (**Figure 4-1**) and contains several different terrestrial and aquatic habitat types, including prairies, forests, wetlands, rivers, lakes, and developed areas.

Colorado provides habitat for hundreds of species of birds, including migratory birds protected under the MBTA. Common species include the house finch (*Haemorhous mexicanus*), red-tailed hawk (*Buteo jamaicensis*), dark-eyed junco (*Junco hyemalis*), American robin (*Turdus migratorius*), black-billed magpie (*Pica hudsonia*), mallard (*Anas platyrhynchos*), blue jay (*Cyanocitta cristata*), northern flicker (*Colaptes auratus*), and house sparrow (*Passer domesticus*) (iNaturalist 2024, Denver Audubon 2024). MBTA protects all native birds, including common species.

Common mammals expected to occur within the terrestrial portions of Colorado include the coyote (*Canis latrans*), black-tailed prairie dog (*Cynomys ludovicianus*), rabbits and hares (family Leporidae), porcupine (*Erethizon dorsatum*), North American elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), and squirrels and chipmunks (*Sciuridae spp.*) (iNaturalist 2024). Many of the reptiles, amphibians, mammals, and birds also use and require suitable terrestrial habitat adjacent to aquatic habitats.

Bald eagles require habitats that have perching areas and nesting sites and that support an adequate prey base. Bald eagles often occur near large lakes, reservoirs, and rivers, although they are increasingly being found in drier areas that are farther from water sources, such as in farmlands and suburban and urban habitats (USFWS 2024a). Based on a review of recent occurrence data and the general habitat conditions, bald eagles have the potential to occur within and around utility projects and are a fairly common in Colorado (Cornell Lab of Ornithology 2024a). Bald eagles also have potential to breed in Colorado (CPW 2024b). Additionally, golden eagles are typically found in areas of open land near hills, cliffs, and bluffs. Golden eagles are known to be sensitive to human activity and tend to avoid more developed areas. A review of species occurrence data indicates that golden eagles also have moderate potential to occur within Colorado, particularly in the western half

of the state, which provide suitable habitat (Cornell Lab of Ornithology 2024b). Both bald eagles and golden eagles occur year-round and breed within Colorado (CPW 2024b).

Aquatic habitat resources in Colorado include freshwater rivers, streams, wetlands, lakes, and ponds. Over 35 fish species commonly occur in Colorado, including carps and minnows (*Cyprinidae*), bass (*Micropterus*), and trout and salmon (*Salmonidae*) (CPW 2024b,d). Additional common fish include the American eel (*Anguilla rostrata*), bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), and yellow perch (*Perca flavescens*). Freshwater mollusks, including mussels, clams, and snails, are also found within Colorado. Common reptiles and amphibians that may use aquatic habitats in Colorado include the northern water snake (*Nerodia sipedon*), painted turtle (*Chrysemys picta*), plains garter snake (*Thamnophis radix*), spiny softshell turtle (*Apalone [Trionyx] spinifera*), barred tiger salamander (*Ambystoma mavortium*), and the western chorus frog (*Pseudacris triseriata*). Mammals, including river otters (*Lontra canadensis*) and muskrats (*Ondatra zibethicus*), also may use aquatic habitats within Colorado, as well as birds such as mallards (*Anas platyrhynchos*) and Canada geese (*Branta canadensis*) (CPW 2024b, iNaturalist 2024).

4.8.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects. The areas where these utility projects would occur may provide suitable habitat for some wildlife species. In the short term, construction activity and equipment use in terrestrial habitats may adversely impact wildlife by crushing and trampling wildlife and generating habitat destruction. Noise disturbance from construction activities could also disrupt wildlife and lead to habitat avoidance. Furthermore, construction within or near aquatic habitats could degrade water quality within aquatic habitats in addition to the direct impacts on aquatic life and habitats from equipment use and dredging or filling activities. Therefore, the No Action Alternative may have negligible to minor short-term adverse impacts on fish and wildlife species.

In the long term, the risk that utilities may be damaged or fail to properly function because of a natural hazard would not be substantively reduced. The risk of flooding and erosion would not be substantially reduced if severe weather events exceed the existing stormwater or wastewater utility capacity, and sediments, pollutants, and contaminants would continue to be transferred into waterways and aquatic habitats. Electric utilities that are aboveground and made of combustible materials would continue to be at risk for starting or spreading utility-associated wildfire. In the event of a wildfire, there could be damage to vegetation and terrestrial habitats along with the subsequent establishment of invasive species. Continued utility damage and failure from natural hazards would require repair work, which could also result in construction-related impacts on fish and wildlife, including crushing and trampling wildlife and habitat destruction. Therefore, there would be a minor to moderate long-term adverse impact on fish and wildlife.

4.8.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

Utility improvement projects under the action alternatives include potential disturbance within both previously disturbed and undisturbed areas. Both disturbed and undisturbed areas may provide suitable habitat for some wildlife species. Construction activity and equipment use in terrestrial habitats may adversely impact wildlife by crushing and trampling wildlife and habitat destruction. Noise disturbance from construction activities could disrupt acoustic signals that may hinder the wildlife's ability to hear and avoid predators. Dust from construction activities may coat sensitive plants and insect larvae. However, areas of exposed soil would be covered or wetted to reduce fugitive dust. Additionally, construction noise and visual disturbances could lead to habitat avoidance, which may prevent wildlife from successfully foraging, finding cover, or reproducing. If construction were to occur within or near aquatic habitats, then increased ground disturbance could result in erosion that, in turn, could increase turbidity and sedimentation, which could degrade water quality within aquatic habitats. Construction may also include temporary dewatering activities. Should a project require dewatering or in-water work, impacts on aquatic species would be minimized or mitigated by seasonal restrictions for in-water work as well as adherence to any relevant conditions prescribed in project-specific CWA permits or agency consultations.

Potential vegetation removal associated with construction under the action alternatives could have a minor long-term adverse impact on migratory birds by incrementally decreasing nesting habitat availability within the project area. If vegetation removal were to occur during the bird nesting season, then a take of migratory birds could occur, and the action alternatives would be subject to the prohibitions of the MBTA. The Subapplicant would be responsible for complying with applicable federal, tribal, and state laws that protect birds before initiating work. To the extent feasible, activities involving the removal of vegetation would occur outside of the general bird nesting season for migratory birds in Colorado, which is generally April 1 through August 31 for songbirds and February 1 through August 31 for raptors.

If vegetation removal must occur during the general bird nesting season for migratory birds and raptors, the Subapplicant must retain qualified personnel to perform a pre-construction inspection of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the MBTA. The pre-construction inspection must be performed no more than 7 days prior to the commencement of vegetation removal activities. The results of the pre-construction inspection must be documented by the qualified personnel. If the qualified personnel determines that no active migratory bird or raptor nests are present, the activities would be allowed to proceed without any further requirements. If the qualified personnel determines that an active migratory bird or raptor nest is present, construction activity would not be allowed to occur within 300 feet (500 feet for raptors) of the active nest until the young have fledged from the nest and the nest is confirmed to no longer be active, or as determined by the qualified personnel. The biological monitor may modify the buffer or propose other recommendations to minimize disturbance to nesting birds.

If bald or golden eagle nests or roost sites are identified in or near a project area, consultation with USFWS would be required to establish appropriate buffers and actions to protect sites and the Subapplicant would be responsible for obtaining an eagle disturbance permit if necessary. Typical mitigation measures include establishing seasonal limits on vegetation clearing activities, retaining nest trees, establishing buffers around nest trees or roosts, and implementing the USFWS Bald Eagle Management Guidelines.

In the long term, utility improvement projects could permanently modify or remove aquatic habitat, including altering the discharge quantity of pipes in streams or constructing a stormwater detention basin. A change of flow in some streams and channels may benefit some aquatic species, yet the same change could be harmful to other aquatic species. Any permanent loss of aquatic habitat would have an adverse effect on aquatic species. The action alternatives may also have long-term adverse effects on terrestrial species associated with ground disturbance and the removal of vegetative cover, which could increase susceptibility to predation and could lead to a loss of forage or prey species. Additionally, ground and vegetation disturbances may degrade the existing habitat through the introduction of noxious weeds and invasive plants, which could increase competition for some wildlife species for forage. Most projects would require disturbed areas to be replanted and BMPs for reducing the susceptibility for disturbed areas to invasive plants and noxious weeds would be implemented. However, for some utility improvement projects, it may not be possible to restore terrestrial habitat back to existing conditions. Trees would not be able to be replanted on top of or under utilities lines and restoration of vegetation within stormwater basins would be limited. Vegetation removal would be considered on a project-specific basis and for any projects that would have major impacts on native species, their habitats, or the natural processes sustaining them, an SEA would need to be prepared. Therefore, the action alternatives would have minor to moderate long-term adverse impact on terrestrial and aquatic wildlife, depending on the species, and location and duration of the project activities.

In the long term, projects would reduce the risk of utilities being damaged or functioning improperly because of a natural hazard. Properly functioning stormwater and wastewater utilities could reduce the risk of flooding, thereby reducing impacts on waterways and aquatic habitat from runoff and pollutants and improving water quality. In addition, the retrofit, replacement, or relocation of electric utilities would reduce the risk of utility-associated wildfires and wildfire damage to vegetation and terrestrial habitats. The action alternatives would reduce the need for utility repairs, thus reducing construction-related impacts on fish and wildlife. Therefore, the action alternative would have a negligible to minor long-term beneficial impact on fish and wildlife species, depending on the species, and location and duration of the project activities.

Replacement Alternative

Because utility replacement projects include the replacement of existing infrastructure, there would be no disturbance to previously undisturbed areas. However, the previously disturbed areas where utility replacement projects would occur may provide suitable habitat for some wildlife species. These areas may have been disturbed years prior and routine maintenance may not have occurred, which would leave the areas in a more natural state. Because utility replacement activities would

occur in previously disturbed areas, habitat fragmentation is not a concern for this alternative. Therefore, with compliance with the MBTA, CWA, BGEPA, and other applicable regulations, and because utility replacement activities would only occur in previously disturbed areas, there would be negligible to minor adverse impacts on fish and wildlife, including migratory birds and eagles, in the short term.

Relocation and Installation Alternative

In previously undisturbed areas, long-term impacts from utility relocation or installation projects may include habitat fragmentation or degradation. These impacts may cause changes in wildlife movement patterns and prevent individuals from successfully foraging, finding cover from predators, or reproducing. This can be especially harmful for smaller prey species, including species of conservation priority, which would be more prone to predation. Because utility relocation or installation projects may take place in previously undisturbed habitats that are suitable for a larger suite of species, there is the possibility of increased adverse effects as compared to utility replacement projects. Therefore, because of compliance with the MBTA, CWA, and other applicable regulations, and because utility relocation and installation activities may occur in previously undisturbed areas, there would be minor to moderate adverse impacts on fish and wildlife, including migratory birds and eagles, in the short term and long term, depending on the species, and location and duration of the project activities.

Combination Alternative

Generally, the impacts on fish and wildlife from this alternative would be similar to those described for Replacement, Relocation, and Installation alternatives, as this project type includes a combination of utility replacement, relocation, and/or installation projects.

4.9. Threatened and Endangered Species and Critical Habitat

This section evaluates the alternatives for the potential to impact endangered and threatened species and their habitats that occur within Colorado as well as critical habitat, in both the short term and long term. The ESA of 1973, 16 U.S.C. §§ 1531 through 1544, provides a framework for the conservation of endangered and threatened species and their habitats. The lead federal agencies for implementing the ESA are USFWS and the National Marine Fisheries Service (NMFS). Federal agencies are required to ensure that actions they fund, authorize, or carry out are not likely to jeopardize the continued existence of any listed species (including plant species) or result in the destruction or adverse modification of designated critical habitats for such species. The ESA also prohibits any action that causes a "take" of any listed species. The term "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect, or to attempt to engage in any such conduct."

Based on a review of the USFWS Information for Planning and Consultation tool conducted in October 2024, there are 42 federally listed species and 3 species proposed for listing that have the potential to occur within Colorado (**Appendix B1**). All federally listed or proposed species with the potential to occur in Colorado are under USFWS's jurisdiction; no federally listed species under

NMFS's jurisdiction have potential to occur in Colorado (NMFS 2022). All ESA-listed species that may be near the project area are listed in **Table 4.8** (USFWS 2024a) and discussed further in **Appendix B1**.

Table 4.8. Federally Listed Species with the Potential to Occur Within Colorado

Common Name	Scientific Name	Status
Mammals		
Black-footed ferret	*Mustela nigripes*	Endangered (experimental)
Canada Lynx	*Lynx canadensis*	Threatened
Gray wolf	*Canis lupis*	Threatened (experimental)
New Mexico meadow jumping mouse	*Zapus hudsonius luteus*	Endangered
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	Threatened
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered
Birds		
Eastern black rail	*Laterallus jamaicensis ssp. Jamaicensis*	Threatened
Gunnison sage-grouse	*Centrocercus minimus*	Threatened
Lesser prairie-chicken	*Tympanuchus pallidicinctus*	Threatened
Mexican spotted owl	*Strix occidentalis lucida*	Threatened
Piping plover	*Charadrius melodus*	Threatened
Rufa red knot	*Calidris canutus rufa*	Threatened
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered
Whooping crane	*Grus americana*	Endangered
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened
Fishes		
Bonytail	*Gila elegans*	Endangered
Colorado Pikeminnow	*Ptychocheilus lucius*	Endangered
Greenback cutthroat trout	*Oncorhynchus clarkia stomias*	Threatened
Humpback chub	*Gila cypha*	Threatened
Pallid sturgeon	*Scaphirhynchus albus*	Endangered
Razorback sucker	*Xyrauchen texanus*	Endangered
Insects		
Monarch Butterfly	*Danaus Plexippus*	Proposed Threatened
Pawnee montane skipper	*Hesperia leonardus montana*	Threatened
Silverspot	*Speyeria nokomis nokomis*	Threatened

Common Name	Scientific Name	Status
Uncompahgre fritillary butterfly	*Boloria acrocnema*	Endangered
Western regal fritillary	*Argynnis idalia occidentalis*	Proposed Threatened
Flowering Plants		
Clay-loving wild buckwheat	*Eriogonum pelinophilum*	Endangered
Debeque phacelia	*Phacelia submutica*	Threatened
Dudley bluffs bladderpod	*Lesquerella congesta*	Threatened
Dudley bluffs twinpod	*Physaria obcordata*	Threatened
Jones Cycladenia	*Cycladenia humilis var. jonesii*	Threatened
Knowlton's cactus	*Pediocactus knowltonii*	Endangered
Mancos milkvetch	*Astragalus humillimus*	Endangered
Mesa verde cactus	*Scierocactus mesae-verdae*	Threatened
Navajo sedge	*Carex specuicola*	Threatened
North park phacelia	*Phacelia formosula*	Endangered
Osterhout milkvetch	*Astragalus osterhoutii*	Endangered
Pagosa skyrocket	*Ipomopsis polyantha*	Endangered
Parachute beardtongue	*Penstemon debilis*	Threatened
Penland alpine fen mustard	*Eutrema penlandii*	Threatened
Penland beardtongue	*Penstemon penlandii*	Endangered
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
Western prairie fringed orchid	*Platanthera praeclara*	Threatened

Source: USFWS 2024a

Designated critical habitat for the Bonytail, clay-loving wild buckwheat, Colorado pikeminnow, debeque phacelia, Gunnison sage-grouse, humpback chub, Mexican spotted owl, New Mexico meadow jumping mouse, pagosa skyrocket, parachute beardtongue, Preble's meadow jumping mouse, razorback sucker, southwestern willow flycatcher, and yellow-billed cuckoo also occurs in Colorado (USFWS 2024a,b) (**Appendix B2**).

4.9.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects. In the short term, construction activity and equipment use in terrestrial habitats may adversely impact listed species by crushing and trampling listed wildlife species and their habitats. Noise disturbance from construction activities could also disrupt listed wildlife species and lead to habitat avoidance. Vegetation removal, sedimentation, and erosion could degrade the quality of or destroy designated critical habitat or suitable habitat for federally listed species. Therefore, the No Action Alternative

may have negligible to moderate short-term adverse impacts on threatened and endangered species.

In the long term, the risk that utilities may be damaged or fail to properly function because of a natural hazard would not be substantively reduced. The risk of flooding and erosion would not be substantially reduced if severe weather events exceed the existing stormwater or wastewater utility capacity, and sediments, pollutants, and contaminants would continue to be transferred into waterways and aquatic habitats. Electric utilities that are aboveground and made of combustible materials would continue to be at risk for starting or spreading utility-associated wildfire. In the event of a wildfire, there could be damage to vegetation and terrestrial habitats along with the subsequent establishment of invasive species. Continued utility damage and failure from natural hazards would require repair work, which could also result in construction-related impacts on listed species, including crushing and trampling listed wildlife species and habitat destruction. Therefore, there would be a minor to moderate long-term adverse impact on threatened and endangered species.

4.9.2. ACTION ALTERNATIVES

General Consequences of the Proposed Action

Utility projects performed under the action alternatives have the potential to affect federally listed species and their designated critical habitats, which would be subject to the same impacts as those described in Section 4.7.2 and Section 4.8.2. Although the magnitude of the potential effects is expected to vary based on the listed species expected to be present in a project area, FEMA expects that short-term or long-term impacts would not exceed minor levels because construction activities and operation of the action alternatives would be limited by permit conditions and any recommendations from USFWS resulting from informal or formal consultation. Before implementing any project under the PEA, FEMA would analyze the project location, habitat conditions, USFWS's Information for Planning and Consultation tool, and any available and relevant natural heritage database information. Based on the review, FEMA would determine whether there is a potential for the project to affect federally listed species or designated critical habitat.

FEMA would consult with USFWS under Section 7(a)(2) of the ESA regarding all projects that may affect listed species or designated critical habitats (including newly listed species and critical habitats that were not originally summarized in **Table 4.8**) and would seek concurrence with findings of not likely to adversely affect, or conduct a formal consultation for findings of likely to adversely affect. If a proposed project is likely to adversely affect a federally listed species, issuance of a biological opinion and incidental take permit by USFWS would be required before project implementation. If FEMA determines the Proposed Action is likely to adversely affect a listed species or will adversely modify critical habitat with no resolution through consultations with the USFWS, then a tiered SEA will need to be developed.

As described in Section 4.7.2 and Section 4.8.2, in the long term, projects would reduce the risk of utilities being damaged or functioning improperly because of a natural hazard, which could reduce adverse impacts on listed fish and wildlife species and their associated habitat. Therefore, the action

alternative would also have the same negligible to minor long-term beneficial impact on threatened and endangered species, depending on the species and location and duration of the project activities.

Threatened and endangered species are expected to be subject to the same project-specific impacts as other fish and wildlife species; however, based on the listed species expected to be present in the state and the implementation of any recommendations from USFWS, the action alternatives would have minor short-term and long-term adverse impacts on threatened and endangered species.

4.10. Cultural Resources

This section evaluates the alternatives for the potential to impact cultural resources. Section 106 of the NHPA, as amended (54 U.S.C. §§ 300101–307108), requires that federal agencies consider the potential effects of proposed actions (i.e., an undertaking) on cultural resources. Cultural resources are defined as precontact or historic archaeology sites, historic standing structures, historic districts, objects, artifacts, cultural properties of historic or traditional significance—referred to as Traditional Cultural Properties—that may have religious or cultural significance to federally recognized Indian Tribes, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons.

Cultural resources listed, eligible for listing, or potentially eligible for listing in the National Register of Historic Places (NRHP) or their state equivalent are subject to protection from adverse impacts resulting from a federally funded undertaking.

Pursuant to 36 CFR § 800.4(a)(1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. Within the APE, impacts on cultural resources are evaluated for both historic structures (aboveground cultural resources) and archaeology (belowground cultural resources).

In addition to the NHPA, FEMA must also comply with other federal laws that relate to historic and cultural resources:

- Archaeological and Historic Preservation Act of 1974 provides for the survey, recovery, and preservation of significant scientific, precontact, archaeological, or paleontological data when such data may be destroyed or irreparably lost because of a federal, federally licensed, or federally funded (in part or whole) project.
- American Indian Religious Freedom Act of 1978, 42 U.S.C. § 1996 provides for the protection and preservation of American Indian sites, possessions, and ceremonial and traditional rites.
- Archaeological Resources Protection Act of 1979 (16 U.S.C§ 470aa et seq.) provides archeologists and law enforcement with tools to protect archeological resources on public lands and Native American lands.

- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. § 3001 et seq.) mandates the protection and return of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony.

Colorado's history is rooted in its Native American heritage, beginning with the Paleo-Indians living in the region more than 13,000 years ago. The Ancestral Puebloans and the Ute tribes have lived in Colorado for centuries and shaped the cultural landscape of the state. Perhaps the most significant and well-known archaeological landmarks is the Mesa Verde National Park, located in southwestern Colorado. Mesa Verde consists of cliff dwellings built by the Ancestral Puebloans between AD 600 and 1300. These structures include multi-story buildings and intricate kivas (a Hopi word meaning "place of emergence" and is a place where special purposes, such as ceremonies, were held)—a true testament to the advanced culture of the Puebloans. Such material culture provides insight into their daily lives and culture. The Cheyenne and Arapaho tribes have also played crucial roles, particularly during the nineteenth century as European colonization spread throughout the state. The arrival of European settlers brought significant challenges and conflict between the Native populations and Europeans. This is most evident at the Sand Creek Massacre National Historic Site, where, in 1864, a village of Cheyenne and Arapaho was attacked by the Colorado Territory militia.

The discovery of gold in 1858 near present-day Denver sparked the Colorado Gold Rush, drawing thousands of settlers to the area. This led to the establishment of mining towns and the rapid development of infrastructure. The late-nineteenth and early-twentieth centuries saw continued growth with the expansion of railroads, agriculture, and surrounding industry.

Colorado contains a multitude of recorded archaeological sites that offer a window into the lives of Colorado's early inhabitants and settlers over thousands of years. Common archaeological and historic sites include buildings, estates, mills, mining and hunting sites, fort complexes, fur trade outposts, and battlegrounds. More recently developed infrastructure features include canals, ornamental masonry retaining walls, bridges, and dams. These resources can be NRHP-eligible individually or they may contribute to a historic district or landscape. Stream banks and the upland areas associated with utility services are often archaeologically sensitive as well, with a high likelihood to contain precontact sites in undisturbed soil.

4.10.1. CONSULTATION PROTOCOLS

FEMA has an executed NHPA Programmatic Agreement with the Colorado SHPO and the Colorado Division of Homeland Security and Emergency Management (signed 2022). FEMA also has an executed NHPA Programmatic Agreement with the Southern Ute Tribe (signed 2021). These programmatic executed documents stipulate roles and responsibilities, exempt certain undertakings from Section 106 review, establish protocols for consultation, facilitate identification and evaluation of historic properties, and streamline the assessment and resolution of adverse effects to historic properties.

For any tribe that has assumed the Section 106 responsibilities of the SHPO for activities on tribal land, pursuant to Section 101(d)(2), the THPO is the official representative to ensure a project

complies with Section 106 of the NHPA. Therefore, FEMA consults with the THPO instead of the SHPO regarding undertakings occurring on, or affecting historic properties on, tribal lands. Non-federally recognized tribes can participate in the Section 106 process as interested parties.

The Ute Mountain Ute Tribe and Southern Ute Tribe have formally assumed the responsibilities of the SHPO for purposes of Section 106 compliance on their tribal lands in Colorado (**Figure 1-2**), and should be consulted for undertakings occurring on, or affecting historic properties on, those tribal lands.

To acknowledge and honor the sovereignty of tribal nations, FEMA regularly consults with tribal governments to ensure that FEMA policies and programs address tribal needs. As directed by EO 13175, Consultation and Coordination with Indian Tribal Governments, and stated in the 2019 FEMA Consultation Policy, "FEMA tribal consultation is the process for communicating and collaborating with federally recognized Indian tribal governments and Alaska Native Corporations (… collectively referred to as "tribal governments") to exchange information, receive input, and consider their views on actions that have tribal implications."

FEMA Region 8 regularly consults with all federally recognized Native American tribes with jurisdictional lands in Colorado. In addition, FEMA consults with federally recognized tribes that reside outside of Colorado but have areas of ancestral interest within the region, including the neighboring states of South Dakota, Montana, Wyoming, Utah, and North Dakota.

Consultation would be conducted for each project reviewed under this PEA and would follow the regulations and guidance that are in place at the time of review. For each project, FEMA would update the list of tribes, interested parties, and contacts to be consulted with to ensure that notice of an undertaking and requests for comment under Section 106 are appropriately addressed to all federally recognized Indian Tribes believed to have current or ancestral interest in each undertaking's location. FEMA would consult resources such as the tribal nations' websites and National Park Service and the Bureau of Land Management–maintained tribal directories for information. In addition, each notification lists the federally recognized tribes being contacted and requests notice of any other tribes that may have an interest in the undertaking.

As of November 2024, there are 1,652 historic properties listed in the NRHP in Colorado. The majority (approximately 63 percent) of the historic properties are categorized as buildings (1,047) followed by structures (154), districts (345), archaeological sites (101), and objects (4) (National Park Service 2024). **Table 4.9** lists the NRHP properties in Colorado.

Table 4.9. National Register Historic Properties in Colorado

Historic Properties by Category	Count	Percentage
Building	1,047	63.38%
Structure	154	9.32%
District	345	20.88%

Historic Properties by Category	Count	Percentage
Archaeological Site	101	6.11%
Object	5	0.31%
Total	**1,652**	**100%**

Source: National Park Service 2024

4.10.2. NO ACTION ALTERNATIVE

Under the No Action Alternative, there would be no FEMA action; therefore, there would be no effect on historic and cultural resources from FEMA-funded grant activities. However, under the No Action Alternative, minor utility improvement projects would be completed in limited areas. In addition, continued utility damage and failure from natural hazards would require repair work. Because these minor measures and repairs would not necessarily be constructed with federal funding, there may be no tribal consultation and only compliance with applicable state law to account for the potential identification and protection of cultural resources. However, these projects and repairs would likely be smaller in scale and within existing utility infrastructure and disturbed areas. Therefore, the No Action Alternative would have negligible to minor short-term adverse impacts on historic and cultural resources.

Under this alternative, the risk that utilities may be damaged or fail to properly function because of a natural hazard would not be substantively reduced. Thus, in the long term, cultural resources, such as archaeological sites and cultural artifacts, would continue to be exposed to impacts (e.g., flooding, wildfire, slope failure, ground collapse, and erosion) that may be associated with damaged or vulnerable utilities. Therefore, there would be a minor to moderate long-term adverse impact on historic and cultural resources.

4.10.3. ACTION ALTERNATIVES

General Consequences of Action Alternatives

All action alternatives have the potential to impact aboveground historic architectural resources, both physically and visually, as well as belowground archaeological sites. Archaeological resources have a high potential of being impacted by excavation, construction staging, and site access activities that disturb previously undisturbed soils. Projects that include construction, excavation, trenching, directional boring, placement of temporary crossings, and staging areas may affect character-defining elements of a historic property, if present.

The replacement, relocation, and/or installation of utilities—including in-kind repairs, minor upgrades, and small-scale realignments—within previously disturbed soil of ROWs or utility corridors are generally considered as activities with minimal potential to impact historic and cultural resources. These activities fall under the Second Tier Allowances, outlined in Region 8's Programmatic Agreement with the Colorado SHPO and Southern Ute Tribe THPO, unless they are near known archaeological sites or within the viewsheds of historic districts that are eligible for or

listed in the NRHP. Additionally, directional boring for new or replacement service lines, involving boring or slit trenches in previously disturbed soils of ROWs or utility corridors, is deemed to have minimal impact on historic and cultural resources, unless it occurs within the boundaries of NRHP-listed, eligible, or unevaluated archaeological sites.

However, proposed utility projects involving replacement, relocation, or installation within areas that are known to contain NRHP-listed, eligible, or unevaluated archaeological sites, or NRHP-eligible or listed historic properties, may have the potential to affect historic or cultural resources. Before the start of a project, FEMA and the Subapplicant would comply with the NHPA by identifying the potential for resources to occur in the project area, reviewing any programmatic allowances defined in the applicable executed Programmatic Agreements, and completing standard Section 106 review by consulting with the appropriate parties. To comply with the NHPA, project-specific consultation with the SHPO or THPO would be necessary for utility improvement projects and any identified connected actions that exceed the applicable programmatic allowances covered by the Proposed Action. FEMA would conduct an individual Section 106 consultation for each project application (in accordance with the NHPA and any applicable Programmatic Agreement) before the grant is awarded.

The Section 106 process requires consideration of the potential for known and unknown resources to be affected, including a good faith effort to identify all resources within a project area. FEMA would identify the APE for each project and determine whether there were any historic or cultural resources potentially present within the project area. This identification would be conducted in consultation with the SHPO and the THPO, and any interested parties, including tribes, as appropriate. The APE would consider the horizontal and vertical area of disturbance to account for any excavation and to encompass any access and staging areas required to implement the project. Field surveys or architectural assessments may be needed to determine if resources are present, particularly if proposed utility projects include expansion and excavation outside of previous utility alignments, areas of new ground disturbance, and in areas determined to have high archaeological sensitivity.

To minimize potential impacts on cultural resources, low-impact equipment should be used to cross intact landscapes to access project areas to the extent practicable (e.g., rubber-tired vehicles and equipment). Construction, excavation, trenching, and directional boring should be limited to the minimum required depth and avoid natural cultural resource-bearing strata, if possible. Existing roads and access points should be used to the maximum extent possible to limit construction-related land clearing and impacts from heavy machinery. If new access roads or staging areas are required, those areas would be surveyed for the presence of cultural resources before construction begins.

If resources are identified as potentially present, then FEMA would determine whether the resource could be affected by the proposed undertaking and would consult with the SHPO or THPO and other potentially interested parties, as appropriate on potential effects and any avoidance or mitigation measures proposed. If any adverse effects are identified, FEMA would consult on any identified mitigation measures, as appropriate.

Inadvertent discovery protocols would be applied as a mitigation measure to any project that proposes ground-disturbing activities, regardless of how minor the disturbance may appear.

Inadvertent discovery protocols specify that if archaeological deposits, including any Native American properties, stone tools, bones, or human remains are uncovered, all work in the vicinity of the discovery must be halted immediately, and all reasonable measures must be taken to avoid or minimize harm to the finds. All archaeological resources would be secured, and the Subapplicant would restrict access to the sensitive area. The Subapplicant would inform FEMA immediately of such finds, and FEMA would consult with the SHPO or THPO, as appropriate. Work in sensitive areas would not resume until consultation is complete and until FEMA determines that the appropriate measures have been taken to ensure project compliance with the NHPA.

Through Section 106 consultation with the SHPO or THPO and via the application of project-specific mitigation measures developed through the consultation process, potential effects to aboveground and belowground historic properties and subterranean cultural resources would be assessed as a negligible to moderate adverse impact in both the short term and long term.

A tiered SEA would be required for a project for which FEMA makes an Adverse Effect determination that is not resolved through consultations with the SHPO, THPO, and any additional consulting parties.

In the long term, utility projects under the action alternatives would reduce the risk that utilities may be damaged or fail to properly function because of a natural hazard. The reduced risk of flooding, wildfire, slope failure, ground collapse, and erosion associated with damaged or vulnerable utilities would help protect cultural resources, such as archaeological sites and cultural artifacts. The action alternatives would result in negligible to moderate long-term beneficial impacts on cultural resources, depending on the project type and location.

4.11. Socioeconomics

Socioeconomic analysis uses demographic and socioeconomic data to examine the impact of the proposed actions on the human environment and how those impacts affect surrounding communities. The analysis is focused on the local level (i.e., census track or block group).

For each proposed project, demographic characteristics and environmental indicators for the adjacent populations would need to be investigated to determine whether there could be the potential for adverse impacts on the surrounding community. Specific project areas may have higher percentiles of demographic indicators when compared to the state.

Resilient utility infrastructure is critical to the increasing growth of communities in Colorado. According to the U.S. Census, the population estimate of Colorado in 2024 was 5,957,493 and the recorded Census population in April 2020 was 5,775,324 displaying a 3.2% growth rate (United States Census Bureau 2025). As of 2024, the five largest counties in Colorado are El Paso County with a population of 730,395; Denver County with 715,522; Arapahoe County with 655,070; Jefferson County with 582,910; and Adams County with 519,572 (United States Census Bureau, 2025). The 2020 Decennial Census reported 2,491,404 housing units in the state with a 65.7% homeownership rate and 8% rental vacancy rate. The 2020 Census identified the population in

Colorado as 61.6% White; 12.4% Black or African American; 18.7% Hispanic; 6% Asian; 1.1% American Indian or Alaska Native; 0.2% Native Hawaiian and Other Pacific Islander; 8.4% Other/Multiracial; and 10.2% two or more races. The median household income in Colorado was $92,470 with 9.3% of the state living in poverty.

4.11.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement some minor utility improvement projects. In addition, continued utility damage and failure from natural hazards would require repair work. Temporary construction activities from these minor efforts may result in noise, traffic, and air quality impacts. These short-term temporary impacts may adversely affect communities but would be unlikely to result in adverse effects. The location of work would be constrained by the location of the utility system, and construction impacts would likely affect all populations in the project area equally. The risk of utility failure or disruption from natural hazards would not be substantially mitigated under the No Action Alternative, potentially leaving communities without services and vulnerable to future natural hazards. The potential for adverse impacts would vary widely by location, and lack of resilient utility systems could affect communities with socioeconomic and environmental concerns. Therefore, potential impacts on these communities would range from none to moderate over the short term and long term.

4.11.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

FEMA anticipates that none of the action alternatives would have adverse long-term impacts on surrounding communities. For each project location, FEMA would consider the scope of work and location to identify potential impacts on communities of concern. Short-term construction impacts would primarily include temporary increases in traffic, air emissions, and noise associated with vehicles and heavy equipment use. Rerouting of traffic is possible during construction, which could temporarily increase traffic within communities with socioeconomic and environmental concerns.

FEMA anticipates that construction of the action alternatives would have negligible to minor impacts for projects located in communities of concern during construction. If a project would have the potential to affect communities with socioeconomic and environmental concerns adversely, then a SEA would be required. If communities are present in a project area where there would be adverse impacts, the Subapplicant would develop public outreach efforts and engagement strategies to effectively engage these populations about the proposed project and identify mitigation measures.

In the long term, populations within the project area would see a reduction in the risk of the loss or disruption of utility services from natural hazards under the action alternatives. Therefore, there would be a minor to moderate beneficial impact on communities in the project vicinity.

4.12. Hazardous Materials

This section evaluates the alternatives for the potential to generate impacts through the creation of additional hazardous materials and waste or expose previously undisturbed hazardous materials and waste. Hazardous materials and wastes are regulated under several federal laws, including 40 CFR Part 260; the Resource Conservation and Recovery Act of 1976; the Solid Waste Act; the Toxic Substances Control Act; the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act; and the CAA of 1970. Occupational Safety and Health Administration standards under the Occupational Safety and Health Act seek to minimize adverse impacts on worker health and safety (29 CFR Part 1926). Evaluating hazardous substances and wastes includes consideration of whether any hazardous material would be generated by the proposed activity or if any already exists at or in the general vicinity of the site (40 CFR § 312.20).

Hazardous materials may be encountered over the course of a project, or they may be generated by the project activities. To determine the types of hazardous waste facilities that exist within Colorado, a search for Superfund sites, Toxic Release Inventory sites, industrial water dischargers, hazardous facilities or sites, and multiactivity sites was conducted using EPA's EnviroMapper (EPA 2024e). According to the database, Colorado has 133 Brownfields, 244 Toxic Release Inventory Sites, 5,411 Resource Conservation and Recovery Act Corrective Actions, and 25 Superfund sites. As outlined in the Hazard Mitigation Assistance Program and Policy Guide (FEMA 2024b) site remediation of hazardous materials is not an eligible activity for funding under the Hazard Mitigation Assistance Program.

4.12.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects, which would introduce the risk of oil and fuel leaks from equipment during construction and the potential use of exposure of contaminated fill and materials. However, minor utility improvement projects would be required to conform to applicable federal, tribal, state, and local regulations and standards. Equipment would be inspected to monitor for leaks and stored at the appropriate staging areas. Therefore, construction of these projects would have a negligible to minor short-term adverse impact from hazardous materials.

In the long term, the risk that utilities may be damaged or fail to properly function because of a natural hazard would not be substantively reduced. The risk of flooding and erosion would not be substantially reduced if severe weather events exceed the existing stormwater or wastewater utility capacity and could continue threaten exposure of hazardous material sites or release hazardous materials into the environment within or near Colorado. Contaminated materials at hazardous material sites could be carried by floodwaters and subsequently lead to the contamination of soil and water within the project area and vicinity. Electric utilities that are aboveground and made of combustible materials would continue to be at risk for starting or spreading utility-associated wildfire. In the event of a wildfire, hazardous materials sites could be directly impacted, potentially releasing contaminants into the ground, water resources, or to the air. In addition, continued utility damage

and failure from natural hazards would require repair work, which would result in the risk of leaks from equipment and use of exposure of contaminated fill and materials associated with construction activities. Therefore, the No Action Alternative could result in negligible to minor long-term adverse impacts related to hazardous materials.

4.12.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

During construction, there would be a minor risk for leaks of oils, fuels, and lubricants from construction equipment. Any fill brought in from outside the project site would need to come from a licensed or permitted source and would be free of contaminants. There is also a potential for construction to expose unknown contaminated materials as a result of excavation and removal of soil and construction debris from the project area. FEMA would review the databases of known contaminated sites during project reviews to confirm that there would not be more than a minor potential for people and the environment to be exposed to hazardous materials. In addition, the project would have to conform to applicable federal, tribal, state, and local regulations and standards. With the implementation of the BMPs listed below, the action alternatives would have negligible to minor short-term adverse impacts related to hazardous materials.

- Any hazardous and contaminated materials discovered, generated, or used during construction of the action alternatives would be disposed of and handled by the Subapplicant in accordance with applicable federal, state, tribal, and local regulations.
- Construction equipment would be kept in proper working order. Any equipment to be used above, in, or within 100 feet of water would be inspected daily for fuel and fluid leaks consistent with 29 CFR 1926.1412(d). Any leaks would be promptly contained and cleaned up, as required by 40 CFR 450.21(d)(3), and the equipment would be repaired.
- Any imported fill used at the project site would meet applicable state, tribal, and local regulations for clean fill. Fill material discharged below the ordinary high-water mark of a stream or into a wetland would require a Section 404 permit and must be free from hazardous materials, as determined by 40 CFR 230.60(b).
- In the event of an inadvertent spill, the Subapplicant would immediately contact the appropriate regulatory agency, or other contact listed on the Subapplicant's NPDES permit, if applicable. The Subapplicant would also follow applicable state, tribal, and local requirements that may necessitate reporting of spills or other prohibited discharges to local emergency response, public health, or drinking water supply agencies.

In the long term, some utility improvement projects could involve the storage and use of hazardous chemicals, such as the use of chlorine at wastewater treatment plants and water treatment plants. However, all chemical storage and handling would comply with applicable federal, tribal, state, and local regulations. Therefore, there would be negligible to minor adverse long-term impacts under the action alternatives.

Utility projects under the action alternatives would reduce the risk that utilities may be damaged or fail to properly function because of a natural hazard. The implementation of stormwater and wastewater utility improvement projects would reduce the risk of flooding and protect hazardous sites in the vicinity of facilities from flooding and erosion damage. In addition, the retrofit, replacement, or relocation of electric utilities would reduce the risk of utility-associated wildfires and release of contaminants into the ground, water resources, or in the air. The action alternatives would reduce the need for utility repairs, thus reducing the risk of oil and fuel leaks from equipment during construction and the potential use or exposure of contaminated fill and materials. Therefore, the action alternatives would have long-term, minor to moderate, beneficial effects.

4.13. Noise

This section evaluates the alternatives for the potential to generate noise, in both the short term and long term. Noise is regulated at the federal level by the Noise Control Act of 1972, 42 U.S.C. §§ 4901, et seq., and is defined as undesirable sound. Noise standards developed by EPA (1974) provide a basis for state, tribal, and local governments' judgments in setting local noise standards. Local governments often implement noise ordinances that limit excessive noise, such as time limits on construction work.

Sound is most commonly measured in decibels on the A-weighted scale (a scale based on the range of sounds that the human ear can hear) and is expressed as dBA. The day-night averaged sound level (DNL or Ldn) is an average measure of sound for a 24-hour period expressed in dBA. It takes into account the volume of each sound incident, the number of times each incident occurs, and the time of day each incident occurs (nighttime sound being weighted more heavily because it is assumed to be more disruptive to the community). Federal agencies accept the DNL descriptor as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

Sounds that disrupt normal activities or otherwise diminish the quality of the environment are considered noise. Noise events that occur during the night (i.e., 10 p.m. to 7 a.m.) are more disruptive than those that occur during regular waking hours (i.e., 7 a.m. to 10 p.m.). Assessment of noise impacts includes consideration of the proximity of the noise sources to sensitive receptors. A sensitive receptor is defined as an area of frequent human use that would benefit from a lowered noise level.

Typical sensitive receptors in developed areas include residences, schools, churches, hospitals, and libraries. In more sparsely developed areas, noise-sensitive receptors would include recreational areas (e.g., parks, campgrounds, water access sites, trails) and Tribal Nation properties of religious and cultural significance. Sensitive recreational areas are areas that rely on quiet settings as an essential part of their character. Typical noise sources in residential or recreational areas are associated with climatic conditions (wind, rain), transportation (traffic on roads, airplanes), and life sounds (people talking, barking dogs, children playing, yard maintenance).

Colorado has a wide range of noise environments and individual project areas may include noise-sensitive receptors such as libraries, schools, parks, or residential areas. Because most projects

would be along public ROWs and within developed areas, there would likely be some human use near each project area. However, some projects may occur in more remote areas and would have limited impact on noise-sensitive receptors.

4.13.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects, which would have short-term, minor, and localized noise impacts from construction activities.

The utilities within the project area would still be subject to the risk of failure and continued natural hazards could result in damage to utilities and service disruptions. Construction activities to repair utilities may follow, resulting in minor short-term increases in noise levels from equipment use and potential detours. These activities may occur near sensitive receptors, thus resulting in adverse impacts. Any construction work would comply with local noise ordinances that regulate the hours of construction. Therefore, long-term noise impacts would be intermittent, minor, and relatively short in duration from both the construction of minor utility project and from the repair of utilities affected by natural hazards.

4.13.2. ACTION ALTERNATIVES

General Consequences of the Action Alternatives

Construction activities associated with the action alternatives would temporarily increase noise levels in each project vicinity, thereby causing minor short-term adverse impacts on the ambient noise levels in the project area. Common equipment used for construction would include excavators, dump trucks, dozers, and other heavy equipment, as needed. Minor traffic noise would also be produced by construction vehicles and trucks arriving and departing from the project area. If detours are required, traffic noise could be rerouted, resulting in an increase in vehicle noise in detour areas. Construction activities would be limited to allowable construction noise in a timeframe consistent with local noise ordinances, and equipment used would meet applicable federal, tribal, state, and local noise control regulations. All construction equipment would be well-maintained, have sound-control devices no less effective than those provided on the original equipment, and have muffled exhaust. Therefore, the action alternatives would have negligible to minor short-term adverse effects related to noise.

Following construction, most project types would not be expected to generate any increases in traffic or create new permanent noise sources. However, some projects may include new elements, such as larger pumps or backup generators at pump stations or new processes at treatment plants. However, all noise would be attenuated consistent with local noise control ordinances. Therefore, operation of the action alternatives may have a negligible long-term adverse impact on noise.

The action alternatives would reduce the risk of utility and infrastructure damage, thereby indirectly reducing future construction activities and noise associated with repairs. Therefore, operation of the action alternatives would have a negligible, long-term, beneficial impact on noise.

4.14. Transportation

This section evaluates the alternatives for the potential to impact traffic and transportation, in both the short term and long term.

The U.S. Department of Transportation (USDOT) Federal Highway Administration has jurisdiction over the National Highway System, which includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. The Colorado Department of Transportation (CDOT) is responsible for constructing and maintaining Interstate highways, U.S. routes, and state roads within Colorado. CDOT also administers federal highway funds provided to cities, towns, and counties, and supports and provides financial assistance to public transit systems, freight and passenger rail, and port facilities. Local cities, counties, and towns/townships are responsible for the roadways that are not Interstate highways, U.S. routes, or state roads; tribal roads are under the jurisdiction of the appropriate tribal nation. According to the Bureau of Transportation Statistics, Colorado has a total of 88,975 miles of highways, roads, and streets and 8,786 bridges (USDOT 2020).

The U.S. Department of Transportation Federal Railroad Administration regulates most railroad operational procedures, including highway-railroad crossing signals, train speeds, train horn use, and track condition. CDOT has minimal regulatory jurisdiction over rail operations or service but can provide direction to the appropriate agency or railroad representative. Colorado has 2,427 miles of freight railroad (USDOT 2020).

4.14.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects that would have negligible to minor short-term adverse impacts on traffic if road closures or detours occurred while the repairs are being constructed.

In the long term, the minor utility improvement projects would not substantially reduce the risk that utilities may be damaged or fail to properly function because of a natural hazard. The risk of flooding would not be substantially reduced if severe weather events exceed the existing stormwater or wastewater utility capacity, which could cause roadways to flood, making them hazardous or impassable. Electric utilities that are aboveground and made of combustible materials would continue to be at risk for starting or spreading utility-associated wildfire, which could encroach on roadways and produce smoke that may inhibit the ability to see roadways clearly. In addition, continued utility damage and failure from natural hazards would require repair work, which could result in construction-related lane or road closures or detours. Depending on the level of service of the infrastructure, the No Action Alternative could have negligible to minor long-term adverse impacts on traffic and transportation.

4.14.2. ACTION ALTERNATIVES

General Consequences of the Proposed Action

During construction, the action alternatives would result in minor to moderate temporary increases in traffic as materials and equipment are mobilized to project sites. Utility improvement projects away from or adjacent to roadways would have a limited impact on traffic. However, temporary lane or road closures or detours may be required during construction for utility projects that would occur within an existing roadway. If lane or road closures and detours are required during construction, traffic mitigation measures, such as the installation of clear detour signage or flaggers, would be required. Traffic management plans would typically aim to maintain at least one lane of traffic open at all times during construction. If detours are required, traffic could be rerouted, thus increasing traffic levels in the detour area. Thus, there would be minor short-term adverse impacts on traffic in and near the project site.

In the long term, utility projects under the action alternatives would reduce the risk that utilities may be damaged or fail to properly function because of a natural hazard. The implementation of stormwater and wastewater improvement projects would reduce the risk of flooding along the ROW, thus reducing the likelihood of closure of the transportation infrastructure because of future storm events and repairs. In addition, the retrofit, replacement, or relocation of electric utilities would reduce the risk of utility-associated wildfires and the encroachment of wildfire and wildfire smoke. The action alternatives would reduce the need for utility repairs, thus reducing the risk of land or road closures during repairs. Therefore, the action alternatives would have minor long-term beneficial impacts on traffic under the action alternatives.

4.15. Public Services and Utilities

This section evaluates the alternatives for the potential to impact public services and utilities, in both the short term and long term. Utility infrastructure in in the project area may include natural gas lines, electricity infrastructure, telecommunications, in addition to potable water, wastewater, and stormwater utilities. Electricity and telecommunications are often provided to communities through private suppliers. Water and wastewater facilities are generally managed, owned, and operated by local municipalities. Rural project areas are often serviced by private wells and septic systems instead of public utilities. The Colorado Public Utilities Commission regulates electric and gas utilities in the state and the Colorado Division of Water Resources manages and develops the state's water resources. Tribal utility companies in Colorado include the Ute Mountain Ute Tribe Utility Department and Southern Ute Utilities Division. Tribes work with federal agencies to manage, protect, and develop their water resources.

Public safety services include local law enforcement agencies, fire departments, and emergency medical services. Emergency response time standards frequently exist in contractual obligations between communities and emergency service organizations. As a result, there may be variation in the standards between one community and another. Most emergency response teams use roads and sometimes air transportation to reach affected people and communities. Public facilities (such

as schools, hospitals, and parks) exist throughout Colorado and may be near some project areas. Schools and hospitals are more likely to be within developed areas than undeveloped areas.

4.15.1. NO ACTION ALTERNATIVE

Under the No Action Alternative, communities may implement minor utility improvement projects and construction may result in minor interruptions to utilities and potential road closures that may impede emergency services. Interruption of utility service and road closures would follow all applicable state, tribal, and local requirements to ensure minimal impact on these services. Therefore, there would be a negligible to minor short-term adverse impact.

Under the No Action Alternative, communities may implement minor utility improvement projects, but they would not constitute the same level of risk reduction as the action alternatives described in this PEA. Flooding, strong winds, wildfire, slope failure, ground collapse, and erosion could damage utilities and result in downed power and telecommunication lines, overwhelmed stormwater systems, and interruptions in water and sewer treatment or the loss of pipelines. Interruptions could last hours or be more extensive and last days while repairs are underway. Stormwater-related flooding and utility-associated wildfires could also threaten public facilities, such as schools and parks, resulting in damage and closures. In addition, continued utility damage and failure from natural hazards would require repair work, which could also result in construction-related utility interruptions. Therefore, under the No Action Alternative, there would be long-term minor to moderate adverse impacts on public services and utilities depending on the severity and extent of the damage.

4.15.2. ACTION ALTERNATIVES

General Consequences of the Proposed Action

Utilities in Colorado, including power lines, gas lines, telecommunication lines, water, and sewer pipelines, may be temporarily shut off during construction of the action alternatives. Work may also require temporary road closures and detours, which could impact the response times of emergency services; although, in most cases, at least one lane would be kept open around the construction zone (as discussed in Section 4.14). As discussed in Section 4.14.2, detour signage and flaggers would be used to redirect traffic to other routes, which may result in minor increases in traffic on alternative routes. This minor increase in traffic could result in delays in emergency response times. Therefore, the action alternatives would have a negligible to minor impact on emergency services. If utilities or public facilities need to be temporarily shut off during construction, the Subapplicant would follow applicable state, tribal, and local ordinances and coordinate with utilities and public services regarding shutdown procedures and notifications. Any utilities that are abandoned in place during construction would be decommissioned in accordance with state, tribal, and local standards. Thus, there may be negligible to minor short-term adverse impacts on utilities and public services with implementation of BMPs.

In the long term, utility projects under the action alternatives would reduce the risk that utilities may be damaged or fail to properly function because of a natural hazard. The action alternatives would reduce the need for utility repairs, thus reducing utility interruptions during repairs. In the long term, the action alternatives would have minor to moderate benefits on public services and utilities by reducing the risk of utility damage from natural hazards and the associated loss or interruption of services. In addition, the action alternatives would provide minor long-term benefits on public services by reducing the risk of stormwater-related flooding and utility-associated wildfires.

4.16. Summary of Effects and Mitigation

Table 4.10 provides a summary of the potential environmental effects from implementing the Proposed Action, any required agency coordination efforts or permits, and any applicable proposed mitigation or BMPs.

Table 4.10. Summary of Impacts and Mitigation

Resource	No Action Impacts	Proposed Action Impacts	Agency Coordination or Permits	Mitigation/BMPs
Topography and Soils	The No Action Alternative would have minor short-term adverse impacts and minor to moderate long-term adverse impacts on soil and topography.	The action alternatives would have minor short-term adverse impacts and negligible to moderate long-term benefits on soil and topography. The Relocation Alternative and Installation Alternative may have minor long-term adverse impacts on farmland soils.	Coordination with NRCS; Farmland Conversion Impact Rating Form	• Adhere to BMPs from permits and SWPPP.
Air Quality	The No Action Alternative would have minor short-term and long-term adverse impacts on air quality.	The action alternatives would have negligible to minor short-term adverse impacts and negligible to moderate, long-term, beneficial impacts on air quality.	EPA	• Subapplicants must adhere to all applicable EPA, state, tribal, and local emission standards. • Vehicle and equipment runtimes would be kept to a minimum.
Surface Waters and Water Quality	The No Action Alternative would have minor short-term and minor to moderate long-term adverse impacts on surface waters and water quality.	The action alternatives would have minor short-term adverse impacts and negligible to moderate long-term beneficial impacts on surface waters and water quality.	USACE, CDPHE, or authorized tribes	• Adhere to project-specific BMPs from USACE permits and SWPPP.

Resource	No Action Impacts	Proposed Action Impacts	Agency Coordination or Permits	Mitigation/BMPs
Wetlands	The No Action Alternative would have minor to moderate short-term and long-term adverse impacts on wetlands.	The action alternatives would have no to minor potential impacts on wetlands, both in the short term and long term, from the alternatives. Additionally, action alternatives would have negligible to moderate long-term benefits.	USACE, CDPHE, or authorized tribes	• Avoidance of wetlands. • Adhere to project-specific BMPs from USACE permits and SWPPP.
Floodplains	The No Action Alternative would have minor short-term and minor to moderate long-term adverse impacts on floodplains.	The action alternatives would have minor short-term adverse impacts and minor to moderate long-term benefits on floodplains.	Coordination with Colorado Water Conservation Board, Local or Tribal Floodplain Manager	• Adhere to local permitting requirements
Vegetation	The No Action Alternative would have negligible to minor short-term and negligible to moderate long-term adverse impacts on vegetation and adverse effects related to invasive species.	The action alternative would have negligible to moderate short-term adverse impact. The action alternatives would have minor long-term adverse impact on vegetation from the potential use of herbicide or livestock grazing and a negligible to moderate long-term beneficial impact on vegetation.	CPW for species data, USFWS	• Restore project area with native trees and vegetation. • Use weed-free seed. Verify seed mix to ensure it does not contain invasive plants.

Resource	No Action Impacts	Proposed Action Impacts	Agency Coordination or Permits	Mitigation/BMPs
Fish and Wildlife	The No Action Alternative would have negligible to minor short-term and minor to moderate long-term adverse impacts on fish and wildlife.	The Replacement Alternative would have negligible to minor short-term adverse impacts on fish and wildlife. The Relocation, Installation, and Combination alternatives would have minor to moderate short-term adverse impacts on fish and wildlife. In the long term, the action alternatives would have minor to moderate long-term adverse impacts on fish and wildlife from the potential permanent loss of habitat and negligible to minor long-term beneficial impacts on fish and wildlife.	CPW for species data, USFWS	• Erosion control BMPs would be installed, as necessary, to prevent sedimentation from entering downstream waterbodies. • To the extent feasible, activities involving the removal of vegetation would occur outside of the general bird nesting season for migratory birds. • If vegetation removal must occur during the nesting season, a qualified personnel must perform a pre-construction inspection of potential nesting habitat prior to the start of vegetation removal activities.
Threatened and Endangered Species	The No Action Alternative would have negligible to moderate short-term and minor to moderate long-term adverse impacts on threatened and endangered species.	The action alternatives would have negligible to minor short-term adverse impact on threatened and endangered species. In the long term, the action alternatives would have minor long-term adverse impact on threatened and endangered species from the potential permanent loss of habitat and a negligible to minor long-term beneficial impact on threatened and endangered species.	USFWS Consultation	• Any project conditions provided by USFWS. • Erosion control BMPs would be installed as necessary to prevent sedimentation from entering downstream waterbodies.

Resource	No Action Impacts	Proposed Action Impacts	Agency Coordination or Permits	Mitigation/BMPs
Cultural Resources	The No Action Alternative would have negligible to minor short-term and minor to moderate long-term adverse impacts on historic and cultural resources.	The action alternatives would have negligible to moderate adverse impacts on historic and cultural resources in both the short and long term, depending on the scope and location of specific projects. The action alternatives would also have a negligible to moderate long-term beneficial impact on cultural resources.	SHPO/THPO Consultation	• Should resources be discovered during project implementation, a report will be made immediately to the Colorado Division of Homeland Security and Emergency Management, FEMA Environmental and Historic Preservation Regional Officer, the Colorado SHPO, and THPO, as applicable.
Socioeconomics	Potential impacts on surrounding communities from the No Action Alternative would range from none to moderate over the short term and long term.	The action alternatives would have negligible to minor short-term adverse impacts and minor to moderate long-term beneficial impact.	N/A	• Any project-specific public involvement requirements

Resource	No Action Impacts	Proposed Action Impacts	Agency Coordination or Permits	Mitigation/BMPs
Hazardous Materials	The No Action Alternative would have negligible to minor short-term and long-term adverse impacts related to hazardous materials.	The action alternatives would have a negligible to minor short-term adverse impact and a minor to moderate long-term beneficial impact. There would also be a long-term negligible to minor adverse impact from potential new storage or use of hazardous materials in operations.	EPA, OSHA	• Any hazardous and contaminated materials discovered, generated, or used would be disposed of and handled by the Subapplicant in accordance with applicable federal, tribal, state, and local regulations. • Equipment would be kept in good condition. • Any imported fill used at the project site would meet applicable state, tribal, and local regulations for clean fill. • Any spills or leaks from equipment would be contained and cleaned up right away. The Subapplicant must immediately contact the appropriate regulatory agency, or other contact listed on the Subapplicant's NPDES permit, if applicable.

Resource	No Action Impacts	Proposed Action Impacts	Agency Coordination or Permits	Mitigation/BMPs
Noise	The No Action Alternative would have minor short-term and long-term adverse impacts on noise.	The action alternatives would have minor short-term adverse impacts and negligible long-term adverse impacts related to noise. There would also be a potential negligible, long-term, beneficial impact related to noise due to a reduction in future repairs.	N/A	• All construction equipment would be well-maintained, have sound-control devices no less effective than those provided on the original equipment, and have muffled exhaust. • Noise-producing equipment use would be limited to allowable construction noise hours consistent with local noise ordinances. • Vehicle and equipment runtimes would be kept to a minimum.
Transportation	The No Action Alternative would have negligible to minor short-term and negligible to minor long-term adverse impacts on traffic and transportation.	The action alternatives would have minor short-term adverse impact and a minor long-term beneficial impact on transportation.	USDOT, CDOT	• Installation of clear detour signage or flaggers if road closures and detours are required during construction.
Public Services and Utilities	The No Action Alternative would have negligible to minor short-term and minor to moderate longer-term adverse impacts on public services and utilities.	The action alternatives would have a negligible to minor short-term adverse impact on public services and utilities. The action alternatives would have a minor to moderate long-term beneficial impact on utilities and a minor long-term benefit on public services.	N/A	• N/A

SECTION 5. Cumulative Effects

This section addresses the potential cumulative effects associated with the implementation of the action alternatives. Cumulative effects represent the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. "Reasonably foreseeable" means sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. FEMA's guidance for implementing NEPA requires an assessment of cumulative effects during the decision-making process for federal projects. This PEA reviews the potential for other construction projects to create cumulative effects in and near the project area. Other statutes also require federal agencies to consider cumulative effects. These include the CWA Section 404(b)(1) guidelines, the regulations implementing the conformity provisions of the CAA, the regulations implementing Section 106 of the NHPA, and the regulations implementing Section 7 of the ESA.

The specific projects and location of those projects are unknown at the time of this assessment, which limits the evaluation of cumulative impacts. Therefore, on a project-specific basis, other potential projects in the vicinity that could contribute cumulative effects would need to be evaluated. If there would be moderate to major cumulative effects, an SEA may need to be prepared.

Projects covered under this PEA may have additional activities included within their respective scopes that would normally be covered under FEMA CATEXs (FEMA Instruction 108-01-1) individually (Section 3.3.3). However, there may be cases where these separate actions would not function without one of the action alternatives and, therefore, must be evaluated as a complete project.

FEMA anticipates any CATEX action connected to the action alternatives would not have cumulatively significant adverse impacts on environmental or historic resources. If any projects covered under the PEA, in conjunction with the aforementioned CATEXs, would have major impacts or impacts that cannot be mitigated, a separate SEA would be required.

SECTION 6. Agency Coordination, Public Involvement, and Permits

6.1. Notice of Intent

FEMA published a notice of intent to solicit input on the proposed PEA from other federal and state agencies, tribes, and the public. The notice of intent was published in the *Denver Post* on August 15, 2024. The comment period to solicit input about the scope of the analysis was held open for 30 days following the publication date and then closed on September 14, 2024. Agencies, tribes, and interested persons were requested to comment on the purpose and need, alternatives, potential environmental impacts, and measures to reduce those impacts. FEMA did not receive any substantive comments related to the NOI.

6.2. Notice of Availability and Public Comment

In accordance with NEPA, FEMA is releasing this draft PEA to the public, federal and state agencies, and tribes for a 30-day public review and comment period. Comments on this draft PEA will be incorporated into the final PEA, as appropriate. This draft PEA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action; however, FEMA will consider any substantive comments received during the public review period to inform the final decision regarding NEPA reviews for grant projects under the PEA. If no substantive comments are received from the public, federal and state agencies, or tribes, this draft PEA will be finalized and a FONSI will be issued by FEMA. The Notice of Availability was posted in the *Denver Post* and the final PEA will be made available on FEMA's NEPA repository (https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository).

Comments on the draft PEA may be submitted to FEMA via email at fema-r8ehp@fema.dhs.gov; include 'Colorado Utility PEA' in the subject line. Comments also may be submitted via mail to: Denver Federal Center, Building 710, Box 25267, Denver, Colorado 80225-0267, Attn: Richard Myers.

6.3. Preparation of SEAs

Any SEAs that are tiered off this PEA would go through an appropriate level of public review before FEMA makes a NEPA compliance determination for those specific projects. When a Proposed Action could result in impacts on the environment beyond those described in this PEA and require mitigation in addition to that included in this document, or has the potential for public controversy, FEMA would prepare and circulate a draft SEA for public and agency review and comment. For these types of activities, FEMA would prepare a separate decision document (i.e., a FONSI, or a notice of intent to prepare an Environmental Impact Statement).

FEMA would comply with the public notification process required for compliance with 44 CFR Part 9, when applicable for an action. Additionally, a Cumulative Public Notice will be published at the time of the Presidential Declaration of each future disaster under which FEMA-funded projects may be proposed that could be covered by this PEA for NEPA compliance.

6.4. Potential Project Conditions and Permits

The Subapplicant will be responsible for obtaining any necessary local, state, tribal, or federal permits needed to conduct the proposed work. The Subapplicant would be required to adhere to the following conditions and permits, as applicable.

6.4.1. SOILS, WATER RESOURCES AND WATER QUALITY, FLOODPLAINS, AND WETLANDS

- For projects that would result in the conversion of important farmland soils to non-farm uses, consult with NRCS and complete a land evaluation and site assessment (U.S. Department of Agriculture's Form AD-1006).
- Coordinate with USACE or authorized tribes and the CDPHE, as needed, to obtain any required CWA permits or Nationwide Permit authorizations.
- Develop a SWPPP in accordance with the required NPDES permit.
- Comply with applicable state, tribal, and local floodplain and floodway regulations, including coordination with the local or tribal floodplain manager.

6.4.2. AIR QUALITY

- Adhere to all applicable EPA, state, tribal, and local emission standards.

6.4.3. VEGETATION AND INVASIVE SPECIES

- Confine vehicles and equipment to existing roadways to the maximum extent practicable.
- Vehicles used off-road will be rubber-tired to the maximum extent practicable to reduce the potential for soil disturbance and compaction.
- For projects involving revegetation of disturbed areas, use native plants appropriate for site conditions.

6.4.4. FISH AND WILDLIFE

- Spray/rinse all equipment used in the water with high-pressure hot water to clean off mud and kill aquatic invasive species after use in project areas. Drain motor, bilge, livewell, and other water-containing devices from all equipment before leaving aquatic project areas.

- Dry all equipment used in the water for 5 days or more or wipe dry with a towel before use in another water body.
- To the maximum extent practicable, avoid vegetation removal from March through August to avoid impacts on nesting migratory birds.
- If bald or golden eagles are present in the project area, consult with USFWS to develop mitigation measures (pursuant to 16 U.S.C. § 668).
- Conduct in-water work during times of the year that minimize adverse effects on fish spawning areas during spawning seasons.

6.4.5. THREATENED AND ENDANGERED SPECIES

- Implement BMPs related to the protection of water quality, wetlands, vegetation, and fish and wildlife habitat.
- As needed, develop avoidance and minimization measures in consultation with USFWS in accordance with Section 7 of the ESA (50 CFR Part 402).

6.4.6. ARCHAEOLOGICAL RESOURCES AND TRIBAL AND RELIGIOUS SITES

- Project designs should minimize deep cuts into natural cultural resource-bearing strata during grading and excavation to the maximum extent possible.
- Use existing roads and access points to the maximum extent possible and minimize the creation of new access roads. If new access roads or staging areas are required, survey those areas for the presence of cultural resources before construction begins.
- Use low-impact equipment to cross intact landscapes to the extent practicable (e.g., rubber-tired vehicles and equipment).
- If appropriate, design planting plans in keeping with the historic context.
- If appropriate, use materials that are context sensitive.

6.4.7. SOCIOECONOMICS

- If surrounding communities in a project area would be adversely impacted, develop public outreach efforts and engagement strategies to effectively engage these populations about the proposed project and to develop mitigation measures.

6.4.8. HAZARDOUS MATERIALS

- Manage and dispose of excavated soil and waste materials in accordance with applicable federal, state, tribal, and local regulations. In the event of discovery of soil or water contaminants exceeding reportable levels, the subapplicant and its construction contractor(s) will follow

applicable federal, state, tribal, and local protocols to report and handle the contaminants appropriately.

- All fill material must come from pre-existing stockpiles or commercially procured material from a permitted and licensed source. Documentation of borrow sources used is required at grant closeout.
- If hazardous materials (or evidence thereof) are discovered during the implementation of the project, handle, manage, and dispose of petroleum products, hazardous materials, and/or toxic waste in accordance with the requirements and to the satisfaction of the governing federal, state, tribal, and local regulations.
- During construction, the Subapplicant and their contractor must notify the CDPHE or the Colorado Division of Homeland Security and Emergency Management county or tribal representative about any sudden release or spill of any chemical (either oil or a hazardous material). The Colorado Administrative Code (Section 2 CCR 404-1-912) requires that spills and other sudden releases be reported so that assessment and cleanup can begin. Copies of documentation to and from the CDPHE must be forwarded to the state and FEMA for inclusion in the administrative record.

6.4.9. NOISE

- Construction activities must comply with allowable construction noise hours and be consistent with local noise ordinances.
- Equipment used would meet applicable federal, state, tribal, and local noise control regulations.

6.4.10. PUBLIC SERVICES AND UTILITIES

- If utilities need to be temporarily shut off during construction, follow local ordinances regarding shutdown procedures and notification.
- Decommission utilities that are abandoned in place in accordance with state and local standards.

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Appendix A:

Utilities Checklist

Appendix A. Utilities Checklist

The purpose of this checklist is to assess proposed projects potentially covered under the Programmatic Environmental Assessment (PEA) for Improvement of Utility Systems in the State of Colorado and Finding of No Significant Impact (FONSI).

Project Information

Date:	
Project Name and Location:	
Project Description:	
Comments Notes:	
PEA Alternative Used	

Evaluation

This section evaluates the potential impacts of the proposed project.

Resource	Are Impacts Consistent with Description in PEA? (Yes/No)	Are There Additional Impacts? (Yes/No)	Are Supporting Documents Attached?
Soils and Topography			
Air Quality and Climate			
Surface Waters and Water Quality			
Wetlands			
Floodplains			
Vegetation			
Fish and Wildlife			

Resource	Are Impacts Consistent with Description in PEA? (Yes/No)	Are There Additional Impacts? (Yes/No)	Are Supporting Documents Attached?
Threatened and Endangered Species and Critical Habitat			
Cultural Resources			
Socioeconomics			
Hazardous Materials			
Noise			
Transportation			
Public Services and Utilities			

REGULATORY CHANGES

Document changes to laws, regulations, and/or guidelines since signature of PEA FONSI:

IMPACT ASSESSMENT

For items checked as having additional impacts: assess the affected natural and socio-economic environment, impacts and new issues/concerns which may now exist:

MITIGATION

List specific mitigation measures for each resource impacted (both impacts from PEA or additional impacts):

PUBLIC/AGENCY INVOLVEMENT

Document any public meetings, notices, & websites, and/or document agency coordination. For each provide dates, and coordination:

PERMITS

List required permits and status of permit:

ATTACHMENTS LISTED

List maps, studies, background data, permits, etc.

Conclusion and Recommendation

	The project is consistent with the alternatives and impacts as described in the PEA.
	The project generally is consistent with the alternatives and impacts as described in the PEA, but includes some minor impacts not described in the PEA which are documented in this checklist.
	The project requires a Supplemental Environmental Assessment because (1) creates impacts not described in the PEA; (2) creates impacts greater in magnitude, extent, or duration than those described in the PEA; or (3) requires additional mitigation measures that are not described in the PEA to keep impacts below significant levels.

Appendix B1:

Wildlife and Threatened and

Endangered Species Table

Appendix B1

Based on a review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation tool conducted in October 2024, 42 federally listed species and two species proposed for listing have the potential to occur within the state of Colorado, as summarized in **Table B-1** (USFWS 2024a). The study area overlaps designated critical habitat areas for 12 species, as summarized in **Table B-1** below (USFWS 2024b). All federally listed or proposed species with potential to occur in the study area are under USFWS's jurisdiction; no federally listed species under the National Marine Fisheries Services' (NMFS's) jurisdiction have the potential to occur in the study area (**Figure B-1**) (NMFS 2022).

Table B-1. Federally Listed and Proposed Species in the Study Area

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Mammals										
Black-footed ferret *Mustela nigripes*	Endangered (experimental)	No		X	X	X				Occurs in grasslands or shrublands that supports prey species (prairie dogs [*Cynomys spp.*]). Ferrets prey on prairie dogs and take over their abandoned burrows. Reintroduction efforts began in 2001, focusing on establishing an experimental population in Colorado's prairie ecosystems, with a total of 500 individuals reintroduced since the program's inception.
Canada Lynx *Lynx canadensis*	Threatened	No							X	Occurs as a transient species in dense subalpine forest and willow-choked habitats near mountain streams and avalanche chutes. The lynx was considered extirpated in Colorado prior to a reintroduction effort in the 1990s. Since reintroduction, it is estimated that there are approximately 75 to 100 lynx in the Colorado population.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Gray wolf *Canis lupis*	Endangered (experimental)	No							X	Occurs as a transient species and habitat generalist that preys on ungulates, beaver, and smaller mammals, birds and fish. Gray wolves historically occurred statewide but were extirpated by the 1940s, prior to a pack migration from Wyoming in 2019. In 2023, ten additional wolves were released to Grand and Summit Counties as part of efforts to establish an experimental population in the state.
New Mexico meadow jumping mouse *Zapus hudsonius luteus*	Endangered	Yes (Final)				X C	X C	X C		Occurs in riparian communities along streams, springs and wetlands, or canals. Suitable habitat also includes ditches with persistent emergent herbaceous wetlands with forbs and sedges or a scrub-shrub riparian area that contains willows or alders with an understory of forbs and sedges. The jumping mouse primarily survives on seeds and hibernates for approximately 9 months of the year.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Preble's meadow jumping mouse *Zapus hudsonius preblei*	Threatened	Yes (Final)		X C						Occurs in riparian communities along streams, springs and wetlands, or canals. Suitable habitat also includes ditches with persistent emergent herbaceous wetlands with forbs and sedges or a scrub-shrub riparian area that contains willows or alders with an understory of forbs and sedges. In Colorado, the jumping mouse is also known to use upland areas extending up to 100 meters beyond the 100-year floodplain. The jumping mouse primarily survives on seeds and hibernates for approximately 9 months of the year.
Tricolored bat *Perimyotis subflavus*	Proposed Endangered	No		X						During the active season, suitable habitat includes open deciduous forests, with small insects for prey. During the winter, bats are typically found in caves and abandoned mines.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Birds										
Eastern black rail *Laterallus jamaicensis ssp. Jamaicensis*	Threatened	No		X		X	X			Suitable habitat includes marsh and emergent wetlands, with dense overhead perennial herbaceous cover. Suitable habitats also have soils that are moist to saturated and occur near shallow water. The birds forage on small invertebrates and seeds, and nest in areas near or over water. The eastern black rail is widely distributed, with northern birds migrating to warmer southern climates in the winter. Within Colorado, the species is primarily found in the southeast, particularly along the Arkansas River Basin.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Gunnison sage-grouse *Centrocercus minimus*	Threatened	Yes (Final)					X C	X C		Suitable habitats include sage with diverse grasses and forbs and healthy riparian zones. Mostly all Gunnison sage-grouse can be found in Colorado, with 3,500 breeding grouse identified in seven populations throughout southwest Colorado and southeast Utah. Specific population ranges in Colorado include: Pinion Mesa, Crawford, San Miguel Basin, Gunnison Basin, Dove Creek, Cerro Summit/Cimarron/Sims Mesa, and Poncha Pass.
Lesser prairie-chicken *Tympanuchus pallidicinctus*	Threatened	No				X				Suitable habitat requires grasslands and shrublands with diverse grasses and low-growing shrubs. Lesser prairie-chickens avoid areas with trees and vertical structures. Mating occurs in the spring and summer, and relies on appropriate vegetative cover and food sources for successful nesting and reproduction.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Mexican spotted owl *Strix occidentalis lucida*	Threatened	Yes (Final)		X C	X		X C	X		Suitable habitats include old-growth or mature forests with uneven aged stands, high canopy closure, multi-storied levels, and high tree density. Owls also occur in canyons with riparian and conifer communities and will be near a water source. Nesting and roosting suitable habitats require large trees (greater than 12 inches diameter at breast height), uneven aged tree stands, and tree canopy providing shade over at least 40 percent of the ground. Owls typically prey on small mammals, reptiles, and arthropods. Mated pairs are territorial and defend activity centers during the breeding season (March through August). Adults may or may not leave the territory during the non-breeding season (winter). Dispersal by juveniles occurs in September and can span great distances, typically connected by pinyon-juniper and riparian forests. Owls are typically found at elevations ranging from 4,100 to 9,000 feet.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Piping plover *Charadrius melodus*	Threatened	No	X			X				Suitable habitat includes sandy lakeshore beaches, sandbars within riverbeds, and along sandy wetlands. Piping plovers occur as a transient species in Colorado during migration in April and May, or some can remain throughout the summer. Nesting occurs in April. They feed on beach-dwelling invertebrates that are at or just below the sand surface.
Rufa red knot *Calidris canutus rufa*	Threatened	No							X	The rufa red knot is a migratory bird that occurs as a transient species in Colorado. Rufa red knots can migrate more than 9,300 miles in the spring and fall. Suitable migration habitats include ocean or bay-front areas and tidal flats in sheltered bays and lagoons. In nonbreeding habitats, rufa red knots require sparse vegetation and open landscapes to avoid predation. Limited information is available on stopover ranges and preferences for the rufa red knot in Colorado.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Southwestern willow flycatcher *Empidonax traillii extimus*	Endangered	Yes (Final)					X C	X C		The southwestern willow flycatcher is found at elevations below 8,500 feet and feeds on flying insects. Suitable nesting habitat occurs in dense riparian zones with saturated soils and a nearby water source. Unsuitable nesting habitats may be used for migration and foraging. Nesting occurs from late May to early June, with fledging from late June to mid-August.
Whooping crane *Grus americana*	Endangered	No								Occurs in mudflats around reservoirs and agricultural areas. In the winter, cranes live on salt flats. Nesting occurs in wetlands dominated by bulrush, and breeding occurs in the summer. Whooping cranes prey on fish, crabs, clams, frogs, snakes, insects and small mammals and birds. Whooping cranes are rare in Colorado and have not been seen in the state since 2010.
Yellow-billed cuckoo *Coccyzus americanus*	Threatened	Yes (Final)			X C			X C		Occurs in wooded areas with dense cover and nearby water. During the breeding season, nests are places along willows in streams with nearby cottonwoods.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Fish										
Bonytail *Gila elegans*	Endangered	Yes (Final)			X C					Habitats must have connectivity suitable for all life cycles – spawning, rearing, feeding, and refuge. Additional information on habitat preferences is unknown due to inadequate historical surveying. Spawning typically takes place in the spring and summer. Bonytail have historically been found in reservoirs and backwaters of the Colorado River, and are currently restricted to Mesa and Moffat Counties.
Colorado Pikeminnow *Ptychocheilus lucius*	Endangered	Yes (Final)			X C					The Colorado pikeminnow can be found in the Upper Colorado River Basin and occur in fast flowing, muddy rivers with warm backwaters. Only two populations remain, one of which is in the upper Colorado River. Spawning migration can occur over 200 miles in the spring and summer.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Greenback cutthroat trout *Oncorhynchus clarkia stomias*	Threatened	No		X						Occurs in cold, clear, gravely headwater streams and mountain lakes, which provide insects for a food supply. Spawning occurs from late May to mid-July at higher elevations in the stream system. Greenbacks were historically found in the mountains and foothills of the South Platte River system. Only one population was recently identified, and the fish were cultured in a hatchery. Reintroduction to its native habitat began in 2014.
Humpback chub *Gila cypha*	Threatened	Yes (Final)			X C					Occurs in deep, fast-moving, turbid waters near large boulders and cliffs. Spawning occurs between April and July, typically during high flows caused by snowmelt. The humpback chub can be found in deep, canyon-bound portions of the Colorado River, such as the Black Rocks and Westwater Canyons and Yampa Canyon.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Pallid sturgeon *Scaphirhynchus albus*	Endangered	No								Occurs in diverse habitats but are commonly associated with sand and fine bottom stream systems. Spawning appears to occur between March and July over firm substrates and in deeper waters with fast, turbulent flows. Pallid sturgeon are rare in Colorado, with historical ranges in the Missouri and Mississippi Rivers, extending into Montana and Louisiana.
Razorback sucker *Xyrauchen texanus*	Endangered	Yes (Final)			X C			X C		Razorback suckers are rare in Colorado, and can only be found as individuals in the Yampa, Colorado, and Gunnison Rivers. One reproducing population is in an off-channel pond in the Colorado River near Grand Junction. Suitable habitat includes quiet, muddy backwaters and deep, large rivers or reservoirs over mud, sand, or gravel. Spawning occurs in the spring.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Insects										
Monarch Butterfly *Danaus plexippus*	Proposed Threatened	Yes (proposed)							X	Occurs as a transient species in diverse habitats. During the breeding season, monarchs lay eggs on milkweed, and larvae emerge after two to five days. Milkweed is a required food source for the larvae to develop into pupae, and then adults. In temperate climates, monarchs migrate long distances (over 3,000 km) to overwintering sites. Monarchs mate in the early spring at these sites, prior to dispersing for the warmer months.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Pawnee montane skipper *Hesperia leonardus montana*	Threatened	No		X						Occurs in dry, open, ponderosa pine woodlands on moderately steep slopes. Blue grama grass and prairie gayfeather provide critical food sources. Pawnee montane skippers emerge as adults beginning in late July, and overwintering occurs in the larvae stage. The Pawnee montane skipper only occurs in the South Platte River drainage system in Colorado, which includes Jefferson, Douglas, Teller, and Park counties. The skipper has a restricted range, approximately 23 miles long and 5 miles wide.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Silverspot *Speyeria nokomis nokomis*	Threatened	No						X		Occurs in moist, open meadows with sufficient vegetative cover for shelter. Herbaceous plants are necessary for nectar supply. Eggs are laid in September on or near the bog violet (*Viola nephrophylla/V. sororia var. affinis*), which provides an exclusive food source for the hatched larvae. The larvae are dormant shortly after hatching through May, when the bog violets flower. They emerge as adult butterflies in July. The silverspot butterfly can be found at elevations ranging from 5,200 to 8,300 feet.
Uncompahgre fritillary butterfly *Boloria acrocnema*	Endangered	No			X			X		Known populations are found by snow willow, above 12,400 feet, and on northeast-facing slopes. Snow willow serve as a food source for the larvae, while adults feed on nectar from flowering alpine plants. The butterfly likely has a two-year life cycle and caterpillar development time can vary from two to four years. Variations in lifecycle timing may be attributed to very dry or wet weather.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Western regal fritillary *Argynnis idalia occidentalis*	Proposed Threatened	No		X						Occurs in large, contiguous native grasslands, generally exceeding 3.86 square miles. Violets (*Viola spp)*, the sole larval host plant for the western regal fritillary, are required to support larval development and provide a food source for nonmigratory adults.
Flowering Plants										
Clay-loving wild buckwheat *Eriogonum pelinophilum*	Endangered	Yes (Final)						X C		Occurs in the adobe hills and flats near Delta and Montrose Counties. Elevations range from 5,180 to 6,350 feet, and the current known range is roughly 11.5 miles east to west by 28.5 miles north to south. Flowering typically occurs from May to September.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Colorado hookless cactus *Sclerocactus glaucus*	Threatened	No			X			X		Suitable habitat includes alluvial benches along the Colorado and Gunnison Rivers and associated tributaries. The cactus occurs on gravelly or rocky surfaces, and are more abundant on south-facing slopes. Populations can exist near desert shrubland vegetation, in big sagebrush, and in transitions zones from sagebrush to pinyon-juniper (*Pinus edulis and juniperus osteosperma*). The cactus can be found at elevations ranging from 3,900 to 6,000 feet.
Debeque phacelia *Phacelia submutica*	Threatened	Yes (Final)			X C					Occurs in alkaline clay soils from the Wasatch Formation. These soils can be found on moderately steep slopes, benches, and ridge tops near the valley floor of the southern Piceance Basin. The plant grows in a small spot of the ground that is unique (texture, crack, color) compared to the surrounding soils.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Dudley bluffs bladderpod *Lesquerella congesta*	Threatened	No			X					Occurs on flat and or low angled slopes in Thirteen-mile Creek and Yellow Creek in the Green River Formation. Pollination occurs by ground nesting bees. Blooming occurs in late April to late May.
Dudley bluffs twinpod *Physaria obcordata*	Threatened	No			X					Occurs in barren outcrops and steep slopes of the Parachute Creek Member and within some areas of the Green River Formation. Pollination occurs by ground nesting bees. Blooming occurs between mid-May and June.
Jones Cycladenia *Cycladenia humilis var. jonesii*	Threatened	No								Occurs on steep slopes that are subject to erosion, and sparsely vegetated mixed desert shrub plant communities. Blooming occurs from mid-April to early June. The plant can be found at elevations ranging from 4,000 to 6,660 feet. While the species is endemic to the Colorado Plateau, which extends into southwestern Colorado, there are no confirmed records of Jones' cycladenia in the state. The species historical range includes Utah and Arizona.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Knowlton's cactus *Pediocactus knowltonii*	Endangered	No						X		Occurs in rolling hills with a pinon-juniper-sagebrush community with a dense cover of lichens (*Parmelia sp.*). Flowering occurs in early June, and fruits ripen in June or early July. The cactus initiates a flower in autumn, which overwinter as small buds for blooming in the spring. Specific pollinators are unknown, but the plant is likely pollinated by native bees.
Mancos milk-vetch *Astragalus humillimus*	Endangered	No						X		Occurs near pinyon-juniper woodland and desert scrub communities, and flowering occurs in the spring. The mancos milk-vetch can be found in Montezuma County, Colorado at elevations ranging from 5,200 to 6,000 feet. Most of the Colorado population is on the Ute Mountain Ute Tribal Reservation.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Mesa verde cactus *Sclerocactus mesae-verdae*	Threatened	No						X		Suitable habitat includes sparsely vegetated badlands with high alkalinity clay loam soils. Cacti are found on hilltops and benches at elevations ranging from 4,600 to 6,560 feet. Cacti are associated with the Great Basin Desert Scrub and Desert Grassland Ecotone plant communities. Blooming occurs from late April to early May.
Navajo sedge *Carex specuicola*	Threatened	No								Suitable habitat includes seep-spring pockets of the Navajo Sandstone Formation. Associated plant communities include monkey flower (*Mimulus eastwoodiae),* hellebornie (*Epipactis gigantae*), sand bluestem (*Andropogon hallii*), thistles (*Cirsium spp.*), foxtail barley (*Hordeum jubatum*), and common reed (*Phragmites communis*). Flowering and fruiting occurs from spring through summer. The Navajo sedge is rare in Colorado, with the historical species' range occurring in Utah and Arizona.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
North park phacelia *Phacelia formosula*	Endangered	No		X						Suitable habitat includes high elevations ranging from 7,940 to 8,260 feet and soil outcrops consisting of barren, raw exposures of the Coalmont Formation. Flowers are produced from the previous year's rosettes, which emerge in the spring or fall. The rosettes overwinter and mature the following summer. The North park phacelia is rare in Colorado, with an estimated eleven populations that can only be found in Jackson or Larimer Counties.
Osterhout milkvetch *Astragalus osterhoutii*	Endangered			X						Suitable habitat includes soils rich in selenium, and high elevation sagebrush valleys. Flowering and fruiting occur in the summer and fall, respectively. The osterhout milkvetch is rare in Colorado, occurring in five scattered populations along a 15-mile range.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Pagosa skyrocket *Ipomopsis polyantha*	Endangered	Yes (Final)					X C			Suitable habitat includes elevations ranging from 6,800 to 7,300 feet, gray soils derived from the Mancos Shale, and open grasslands or grassland understories. After growing as a rosette for several years, blooming occurs in June and July until conditions are favorable for flowering. Pagosa skyrocket can only be found in two populations near the town of Pagosa Springs.
Parachute beardtongue *Penstemon debilis*	Threatened	Yes (Final)			X C					Suitable habitat includes steep slopes with no surface soil and unstable surface layers of rubble. The plants are found at high elevations, ranging from 8,000 to 9,000 feet. Blooming occurs in June and July.
Penland alpine fen mustard *Eutrema penlandii*	Threatened	No		X						Occurs in alpine meadows at elevations greater than 11,800 feet and along east facing, gentle slopes and basins that are fed by snowmelt. Plants are often rooted in mosses or short-bladed grasses. Blooming occurs in June through August.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Penland beardtongue *Penstemon penlandii*	Endangered	No		X						Occurs in sparsely vegetated areas with soils that are high in selenium. The surrounding plant community of the suitable habitat consists of sagebrush, rabbitbrush, and bitterbrush. Blooming occurs in June and July. Pollination occurs by native solitary bees. The Penland beardtongue has only been found approximately 10 miles east of the town of Kremmling in Grand County, and occupies approximately 1500 acres.
Ute ladies'-tresses *Spiranthes diluvialis*	Threatened	No		X	X					Suitable habitat includes moist meadows near perennial stream terraces, oxbows, or floodplains. They also occur near human-modified berms, canals, pits, or wetlands. Fruiting occurs in August or September and flowers bloom in July to early September. Pollination occurs by the native solitary bee and other non-native insects.

Species Name	Federal Status	Critical Habitat	Potential to Occur and Designated Critical Habitat in Colorado							Suitable Habitat/Species Description
			NE	NC	NW	SE	SC	SW	Entire State	
Western prairie fringed orchid *Platanthera praeclara*	Threatened	No		X						Occurs in unplowed, calcareous prairies and sedge meadows, with mycorrhizal fungi. Suitable habitat also supports the sphinx moth, which is an important pollinator of the orchid. There are no documented occurrences of this species in Colorado.

Sources (unless otherwise indicated): CPW 2024; USFWS 2024a, 2024b, 2024c

Key: C= Critical Habitat has been designated in state, NE = Northeast Colorado, NC = Northcentral Colorado, NW = Northwest Colorado, SE = Southeast Colorado, SC = Southcentral Colorado, SW = Southwest Colorado, X = Species has potential to occur in state.

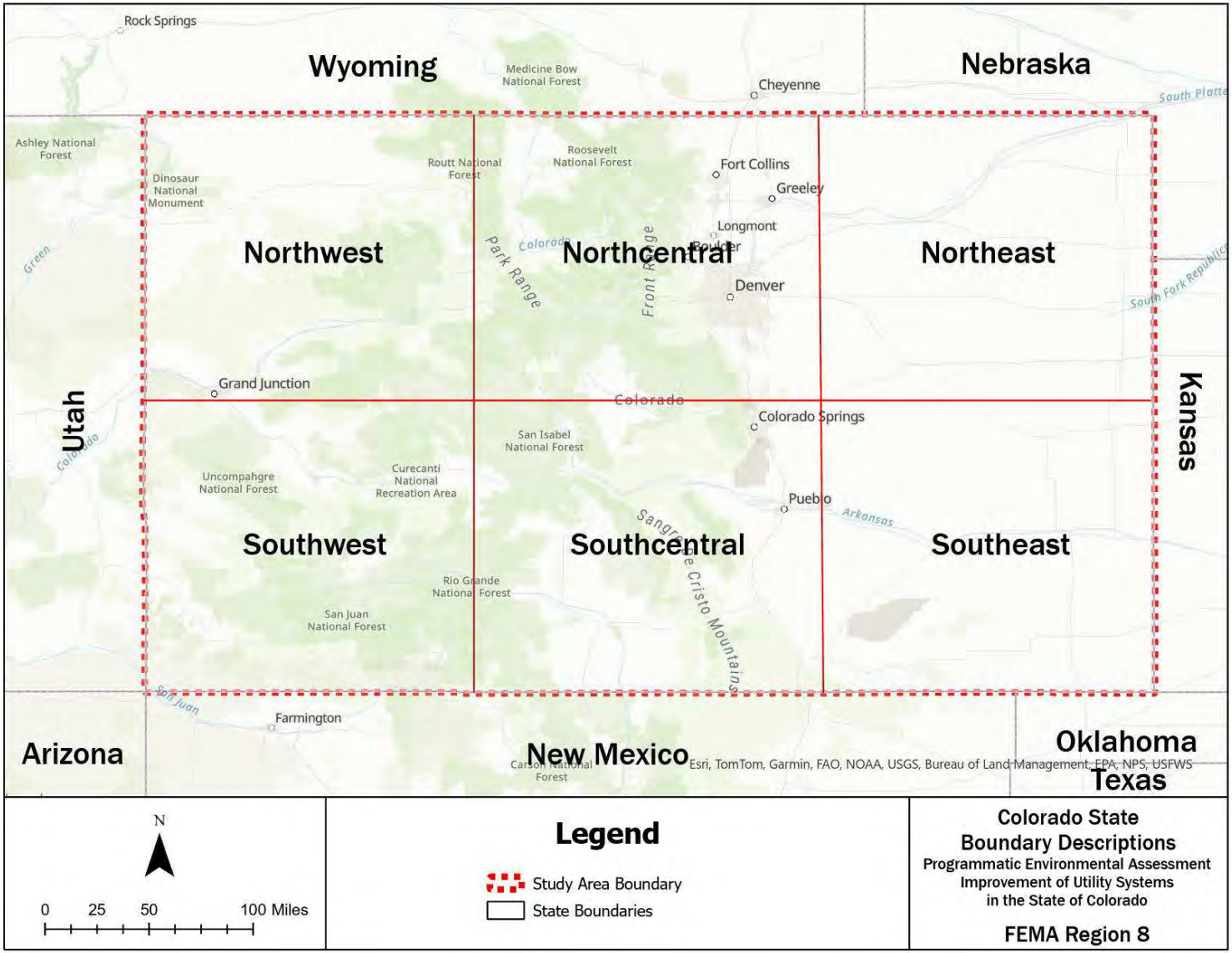

Figure B-1. Boundary Areas

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———. 2024b. USFWS Threatened & Endangered Species Active Critical Habitat Report. Accessed October 28, 2024, https://ecos.fws.gov/ecp/report/critical-habitat.

———. 2024c. Species. Accessed October 28, 2024, https://www.fws.gov/species.

Appendix B2:

Critical Habitat Figures

N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Bonytail Critical Habitat

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Bonytail Critical Habitat

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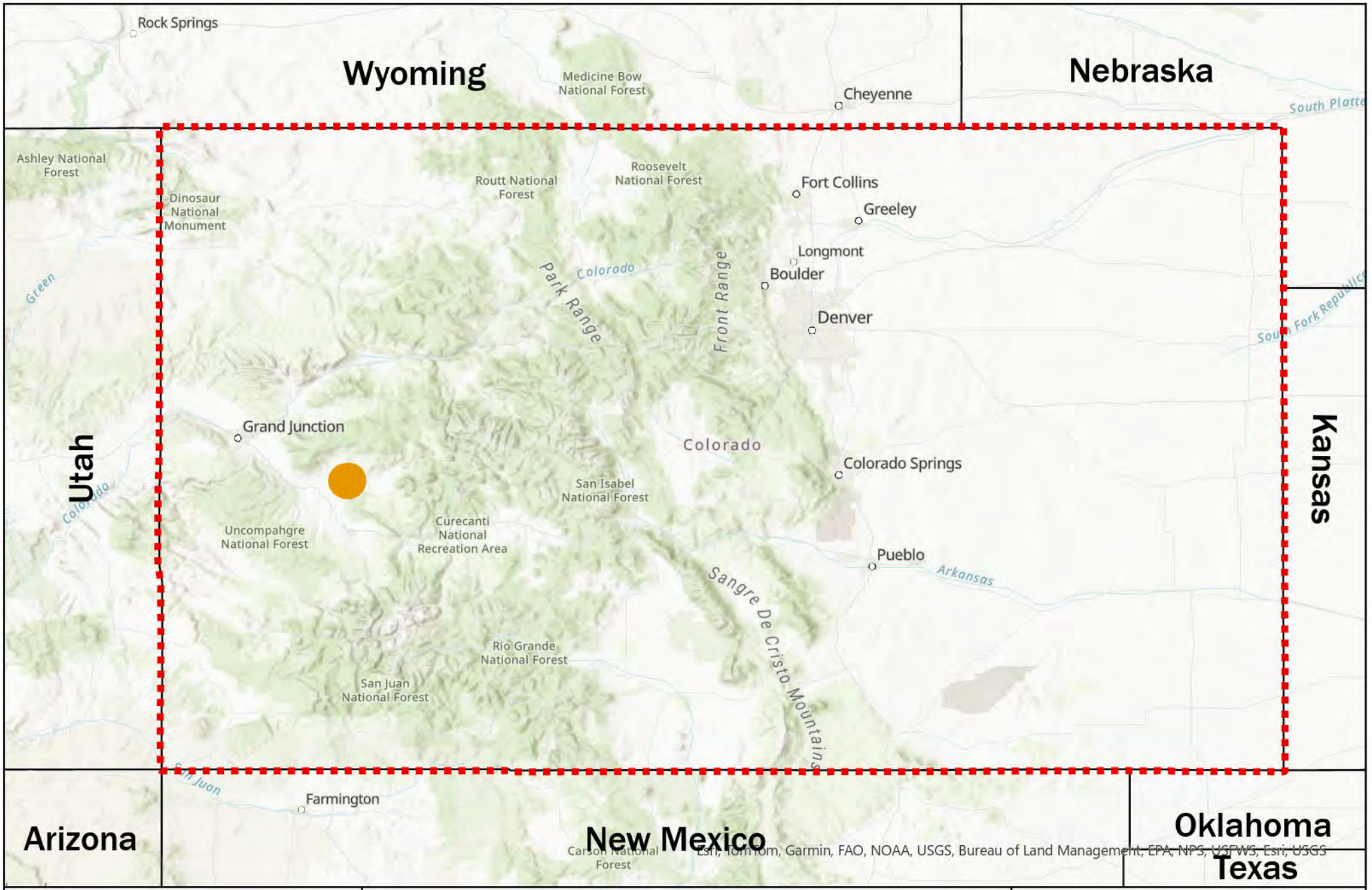

N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Clay-Loving Buckwheat

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Clay-Loving Buckwheat Critical Habitat

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N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Colorado Pikeminnow

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Colorado Pikeminnow Critical Habitat

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N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Debeque Phacelia

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Debeque Phacelia Critical Habitat

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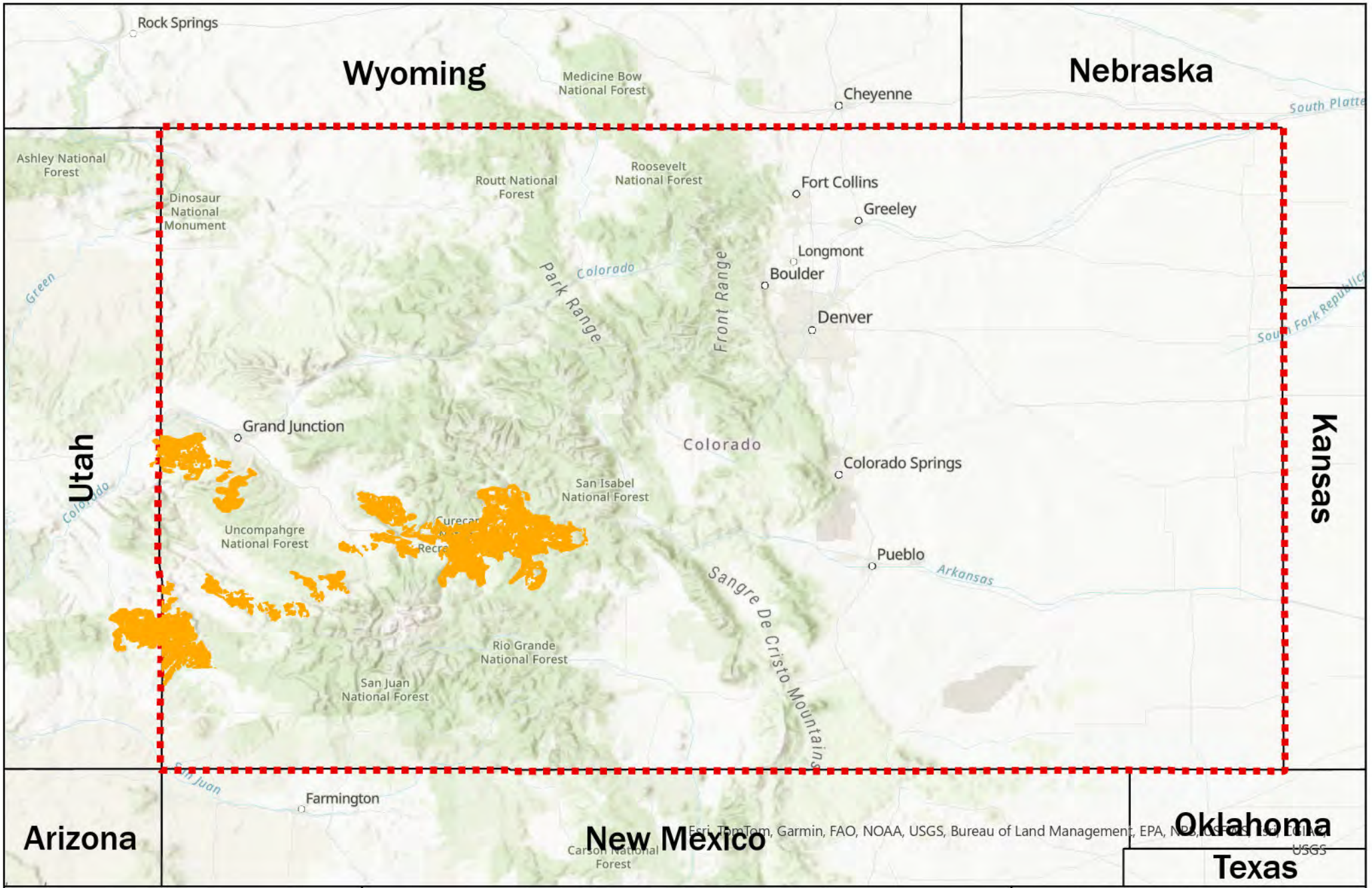

N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Gunnison Sage-Grouse

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Gunnison Sage-Grouse Critical Habitat

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N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Humpback Chub

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Humpback Chub Critical Habitat

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N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Mexican Spotted Owl

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Mexican Spotted Owl Critical Habitat

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N

0 25 50 100 Miles

Legend

Study Area Boundary

State Boundaries

Critical Habitat New Mexico Meadow Jumping Mouse

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

New Mexico Meadow Jumping Mouse Critical Habitat

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N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Pagosa Skyrocket

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Pagosa Skyrocket Critical Habitat

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N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Parachute Beardtongue

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Parachute Beardtongue Critical Habitat

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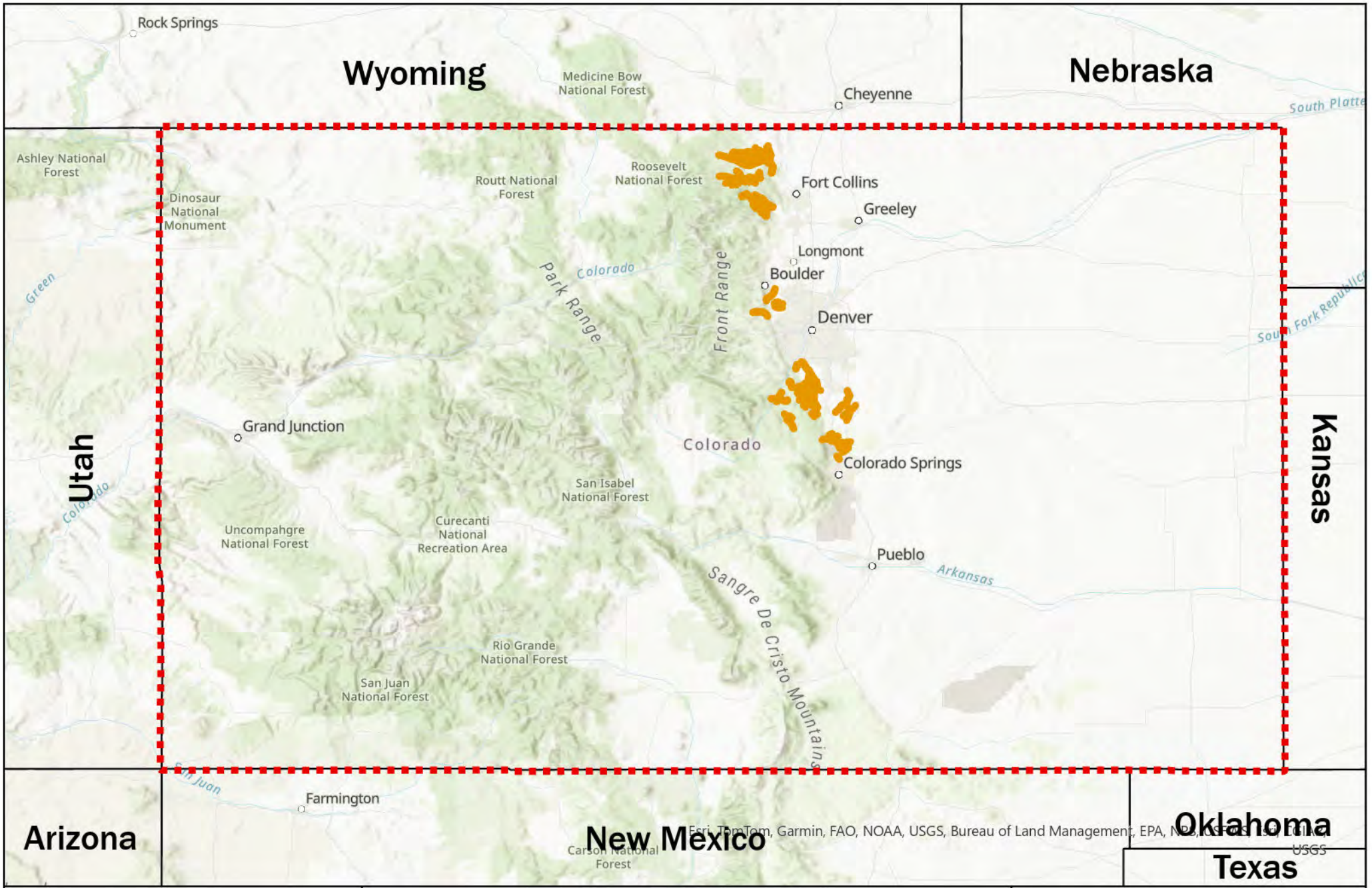

N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Preble's Meadow Jumping Mouse

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Preble's Meadow Jumping Mouse Critical Habitat

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N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Razorback Sucker

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Razorback Sucker Critical Habitat

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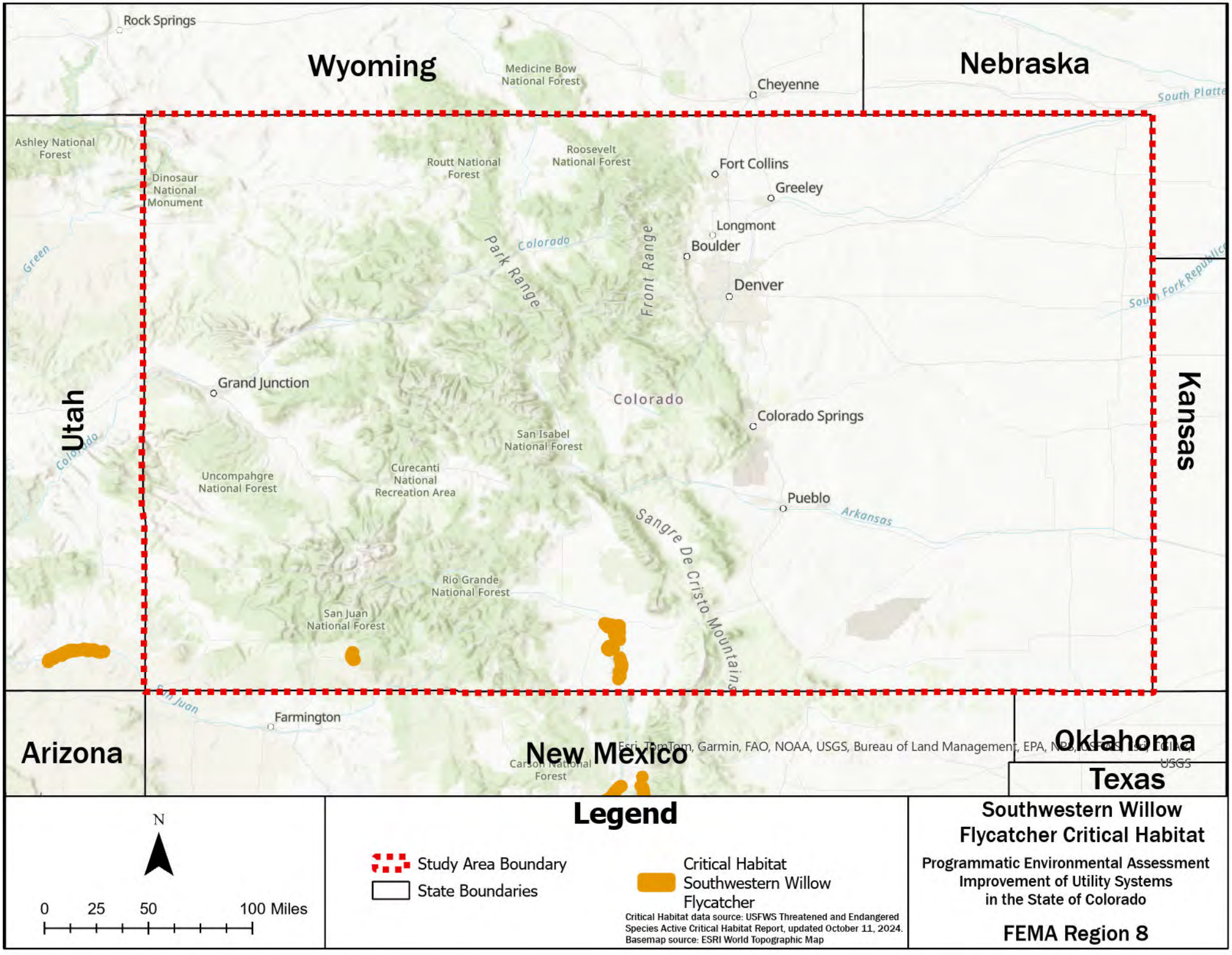
Rock Springs
Wyoming
Medicine Bow National Forest
Cheyenne
Nebraska
South Platte
Ashley National Forest
Dinosaur National Monument
Routt National Forest
Roosevelt National Forest
Fort Collins
Greeley
Longmont
Boulder
Denver
Green
Colorado
Park Range
Front Range
South Fork Republican
Utah
Grand Junction
Colorado
Colorado Springs
Kansas
San Isabel National Forest
Uncompahgre National Forest
Curecanti National Recreation Area
Pueblo
Arkansas
Sangre De Cristo Mountains
Rio Grande National Forest
San Juan National Forest
San Juan
Farmington
Arizona
New Mexico
Carson National Forest
Oklahoma
Texas
Esri, TomTom, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, USFWS, USGS
N
0 25 50 100 Miles
Legend
Study Area Boundary
State Boundaries
Critical Habitat Southwestern Willow Flycatcher
Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map
Southwestern Willow Flycatcher Critical Habitat
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N

0 25 50 100 Miles

Legend

- Study Area Boundary
- State Boundaries
- Critical Habitat Yellow-Billed Cuckoo

Critical Habitat data source: USFWS Threatened and Endangered Species Active Critical Habitat Report, updated October 11, 2024.
Basemap source: ESRI World Topographic Map

Yellow-Billed Cuckoo Critical Habitat

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