



Redistribution and Removal of Hazards from Stream Corridors

*Programmatic Environmental Assessment
Colorado | March 2014*



FEMA

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Agency**

**U.S. Department of Homeland
Security**

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ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
CDBG-DR	Community Development Block Grant – Disaster Recovery
CDNR	Colorado Department of Natural Resources
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CFLHD	Central Federal Lands Highway Division
CFR	Code of Federal Regulations
CPW	Colorado Parks and Wildlife
DHS	Department of Homeland Security
DURT	Disaster Unified Review Team
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
EWP	Emergency Watershed Protection
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
GPD	Grants Program Directorate
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HUD	U.S. Department of Housing and Urban Development
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1996
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Health and Safety Administration
PA	Public Assistance
PDM	Pre-Disaster Mitigation Program
PEA	Programmatic Environmental Assessment
PFHD	Provisional Flood Hazard Delineation
PPE	Personal Protective Equipment
ROW	Right of Way
SCMP	Stream Corridor Master Plan
SEA	Supplemental Environmental Assessment
SFHA	Special Flood Hazard Area

SHPO	State Historic Preservation Officer
SRIA	Sandy Recovery Improvement Act
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service

SECTION ONE | INTRODUCTION

1.1 OVERVIEW

The Federal Government, through multiple agencies and their programs, proposes to remove rubble from destroyed structures and fallen trees to address immediate threats, and where necessary, redistribute sediment, rock and boulders within stream corridors to reestablish appropriate hydraulic capacity. The removal and redistribution of sediments and hazards from streambeds may be implemented under Federal Emergency Management Agency (FEMA) funding programs, such as, but not limited to Individual Assistance (IA), Public Assistance (PA), Hazard Mitigation Assistance (HMA) and Grants Program Directorate (GPD) funding. The Federal Highways Administration (FHWA) may provide funding as part of the Emergency Relief (ER) program or Emergency Relief Federally Owned (ERFO) program and the Natural Resources Conservation Service (NRCS) and U.S. Department of Agriculture (USDA) may provide funding as part of the Emergency Watershed Protection (EWP) Program. Other Federal Agency (OFA) grant programs may also be applicable. The U.S. Army Corp of Engineers (USACE) will be responsible for issuing appropriate Clean Water Act (CWA) Section 404 permits as required.

This Programmatic Environmental Assessment (PEA) has been prepared to analyze the potential environmental consequences associated with the proposed action while providing a framework for the evaluation of Federal and State laws and regulations. The proposed action and no action alternative in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [USC] 55 parts 4321 et seq., 2000), the Council on Environmental Quality (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] 30 parts 1500 et seq., 2004), 44 CFR Emergency Management and Assistance Ch. I Part 10, and 23 CFR 771. This analysis is programmatic in nature and does not address individual site-specific impacts, which will be evaluated for individual projects prior to approval.

1.2 BACKGROUND

Hazards deposited within the natural stream channels have the potential to pose an imminent threat to life, safety, and improved property.

This PEA evaluates typical emergency actions undertaken by the State of Colorado and federal agencies to provide redistribution and/or removal of hazards, activities that reduce disaster losses and protect life and property from future disaster damages, to stream corridors throughout the State of Colorado. It applies to all proposed alternatives described in this document. This PEA also provides the public and decision-makers with the information required to understand and evaluate the potential environmental consequences of these actions and to consider these impacts

in decision making. The purpose of this action is to help federal agencies fulfill and expedite the environmental review process.

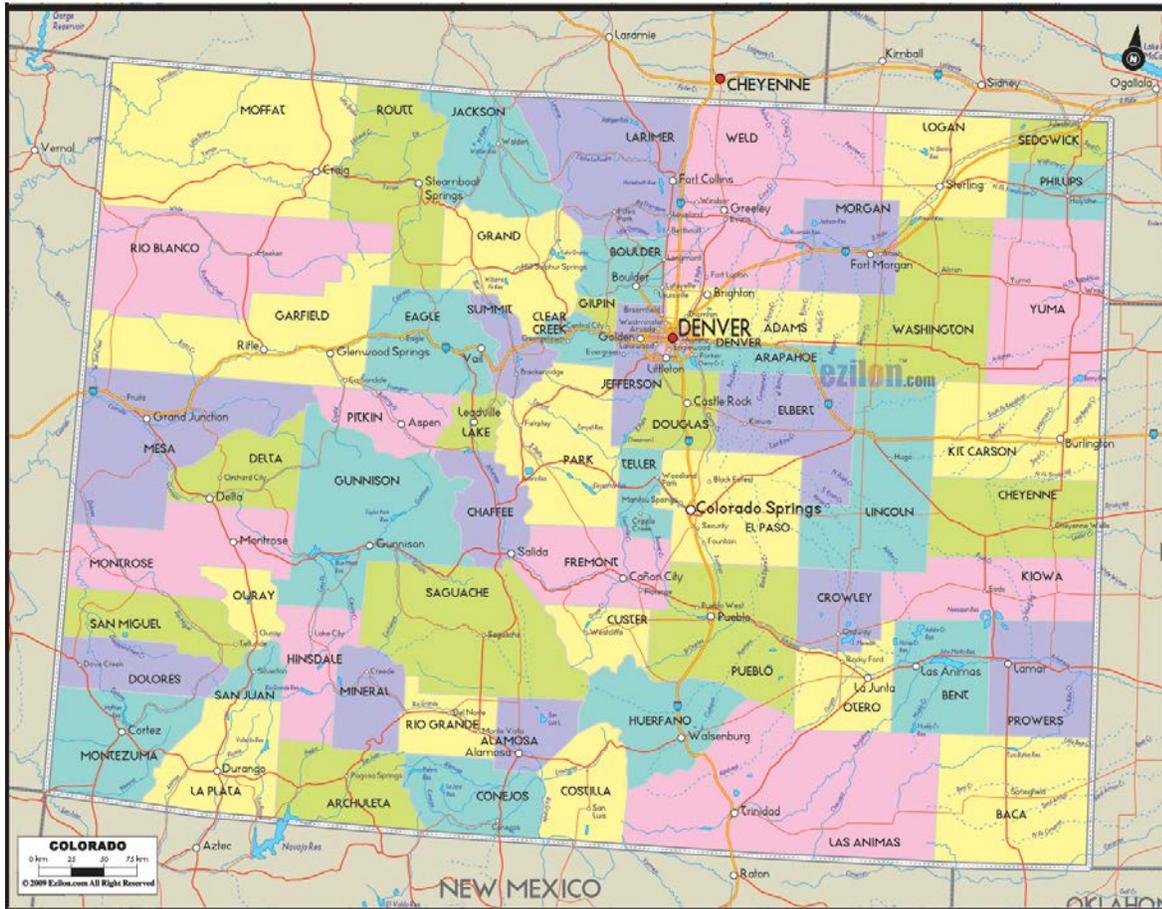
When a stream channel is obstructed by materials, its hydraulic capacity—the volume of water it can convey—is severely reduced. Hazards (debris dams) may back the water enough to overflow stream banks, cause flooding upstream of the blockage, and deposit sediment in adjacent floodplains, leading to severe damage and threatening infrastructure, property and the environment in these floodplains. Hazards can undermine, damage, or destroy downstream infrastructure such as bridges or culverts or threaten such damage in subsequent events if not removed. Bridges can be washed out and overflows may erode approaches to bridges and culverts. The NRCS EWP program hazard-removal practices are used either when the hydraulic capacity of a channel is reduced by hazards or when hazards have the potential to move during subsequent storms.

Specifically for funding received from the FEMA PA program, per FEMA Recovery Policy RP9523.5 for Debris Removal from Waterways, VIII E, Environmental Protection and Historic Preservation Review Requirements: Eligible waterway hazard removal and disposal activities must satisfy environmental protection and historic preservation compliance review requirements as established by 44 CFR Part 9, Floodplain Management and Protection of Wetlands, and Part 10, Environmental Considerations, and all other applicable local, State and Federal legal requirements.

1.3 PROJECT LOCATION

The project area of this PEA encompasses The State of Colorado, including 64 Counties and the Southern Ute and Ute Mountain Indian reservations.

Figure 1: Colorado Map



1.4 PROCESS FOR USE OF PEA

A PEA is utilized to cover a group of projects that are similar in scope, scale, magnitude, and the nature of impacts. The use of a PEA analysis can reduce or eliminate redundant and duplicative analyses and effectively address cumulative effects. In contrast to a project specific EA which emphasizes impacts on a project site and immediate surroundings; a PEA is generally regional in scope, often covers numerous ecosystems and/or political boundaries, and focuses on a range of actions with a limited magnitude of impacts. Environmental consequences captured in this PEA focus on multiple future actions, whereas a project-level EA focuses on a single action. For a project to qualify under the PEA the scope of the project and the nature of impacts must be evaluated within this document. Additional analysis and project specific mitigation may be required as context and intensity of proposed project-level impacts become apparent. All projects using this PEA must undergo standard federal environmental compliance to document the project specific information and that the project is consistent with the PEA.

Federal agencies will use this PEA to determine the level of environmental analysis and documentation required under NEPA for removal of hazard material activities for subsequent projects that use any of the proposed alternatives. If the description of the site-specific nature of the project and the levels of analysis are fully and accurately described in this PEA, federal agencies will take no further action other than what is necessary to support and document that conclusion.

If a specific project is expected to (1) create impacts not described in the PEA; (2) create impacts greater in magnitude, extent, or duration than those described in the PEA; or (3) require mitigation measures to keep impacts below significant levels that are not described in the 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 40 CFR Part 1508.28. Actions that are determined during the preparation of the SEA to require a more detailed or broader environmental review will be subject to the stand-alone EA or other applicable process.

SECTION TWO | PURPOSE AND NEED

The purpose of this action is to remove rubble from destroyed structures and fallen trees to address immediate threats and where necessary redistribute sediment, rock and boulders within stream corridors to reestablish appropriate hydraulic capacity. The need is based on the existence of hazards deposited within the natural stream channels as a result of a severe event that pose an imminent threat to life, safety, and improved property.

SECTION THREE | ALTERNATIVES

3.1 INTRODUCTION

The following Alternatives are being considered for further evaluation in this PEA. These alternatives represent classes of actions that may be implemented individually or in combination with one another. Depending upon the response action federal agencies determines is necessary to maintain buildings, infrastructure and stream corridors, and the individual characteristics of the specific site, there may be only one viable option to be implemented.

3.2 ALTERNATIVES CONSIDERED

Alternative 1: No Action

A No Action Alternative is required to be included in the environmental analysis and documentation in accordance with the Council on Environmental Quality regulations implementing NEPA. The No Action Alternative is defined as maintaining the status quo with no Agency involvement for any alternative. The No Action Alternative is used to evaluate the effects of not implementing the redistribution of sediment, rock and boulders within the streambed, or upgrade action on a programmatic level; thus, this alternative provides a benchmark against which other alternatives may be evaluated.

"No action" means the proposed activity would not take place, and hazards would remain within streambeds. Left in existing condition, hazards may cause extreme damages to infrastructure, properties and the environment from anticipated heavy spring runoff. The existing deposition of hazards within drainage corridors that run through steep narrow canyons present threats to downhill communities when large volume and high velocity flows dislodge hazards. The dislodging of hazards can destroy emergency access to communities and destruction to improved private property. When this occurs, these communities will become isolated, thus delaying emergency response actions and medical services.

The transport of hazards can also block safe egress for evacuations. There is the potential that loss of life can occur if hazard masses block conveyance structures and cause inundation of residential and commercial areas.

For the purpose of the environmental analysis, under the No Action Alternative the State of Colorado would have to rely on savings, insurance, loans, or other forms of assistance to remove hazards.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

Alternative 2 will redistribute sediment, rock and boulders within waterways to reestablish appropriate hydraulic capacity of the stream corridors, and remove rubble from destroyed

structures and fallen trees from the streambed to address immediate threats. Engineering plans which define the appropriate geometry and elevations to reestablish desired hydraulic capacity and a monitoring plan of action that oversees all contractor activity utilized to complete the scope of work will be required. Standard best management practices (BMP) to prevent erosion, sedimentation, contamination, and the spread of noxious weeds should be implemented.

Hazard removal generally involves the following components:

- Create access and staging areas when needed to move trucks and heavy equipment to a site.
- Dewater, if needed, to allow operations in-stream
- Use heavy equipment to remove hazards from a stream bank or in-stream position
- Restore stream dimension, pattern and profile
- Establish a low-flow channel, when needed
- Grade, shape, and re-vegetate affected stream banks by seeding or planting

Creating access may require removing riparian vegetation, excavating and bank filling, grading, and stabilization. Access routes, staging areas, etc... should be located within previously disturbed areas; avoid disturbing or burying any existing riparian (streamside) habitat. Dewatering diverts water within a stream, resulting in dry conditions. Using heavy equipment either from the bank or in-stream generally is the only feasible way to deal with the weight and volume of material that needs to be removed.

In establishing a low-flow channel, heavy equipment is used to excavate an impaired streambed to restore the stream's channel on its outside bends. The low-flow channel maintains the base flow (normal stream flow during average periods of rainfall) of the stream and aids in transporting fine sediment and restoring aquatic habitats.

Grading and shaping affected stream banks may be necessary during the finishing phase of a job to create slopes with a gradient suitable for sustaining vegetative growth. Reestablishing vegetation is accomplished by hand or mechanical seeding or planting. Any disturbed areas will be restored using native riparian plant species and weed-free mulch and fertilizers.

Debris use or disposal involves a number of choices, and the advantages and disadvantages of each option are affected by feasibility and cost. The method selected depends on the circumstances at the disposal site and an evaluation of how disposal may affect the environment. Debris can be used for a number of purposes either on-site or off-site. Construction and demolition debris and debris containing hazardous materials require special consideration in its disposal and would follow all applicable State and local regulations regarding handling and disposal. Cobbles or boulders may be used to stabilize banks, although retention of cobbles on

site may contribute to the debris load in flood events. Where practical, cobbles and debris will be removed from the floodplain. Cobble and gravel can restore fish habitat or modify water flow. Root wads (tree trunks with root structure intact) and tree trunks can also be used to stabilize stream banks, but must be anchored in a way to prevent release back into the waterway. The components of hazard-removal depend on the location and characteristics of the hazard. Some components of these practices, such as creating low-flow channels and re-vegetating disturbed areas, are the same as or similar to the components involved in stream restoration.

3.3 ALTERNATIVES NOT CONSIDERED

Applicants for federal grant funding may repair elements of stream corridor embankments and crossings to pre-disaster condition under programs like FEMA's Public Assistance Program or make small mitigation upgrades under Hazard Mitigation Grant Programs. These types of projects may fall into a Statutory Exclusion or a Categorical Exclusion under NEPA and will be evaluated accordingly. No further review of these types of projects will be considered in this PEA.

SECTION FOUR | AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 PHYSICAL RESOURCES

4.1.1 Affected Environment

Geology and Soils

Colorado has a diverse geology, ranging from the western mountains lifted and folded by tectonics and sculpted by glaciers to the eastern plains partly overlain by glacial till and dissected by wind and water. The 2007 state geological map included 324 distinct geological units.

Colorado's eastern plains contain more than 30,000 square miles of wind-blown (eolian) deposits. These eolian deposits consist of particles transported and deposited by the wind. Fine-grained particles (dust) form loess deposits. Coarser-grained deposits form sand dunes of varying shape.

Colorado has about a dozen glaciers. These are not remnants of the Pleistocene glaciers, but were formed about 500 years ago during the Little Ice Age. The maximum extent of the glaciers occurred about 1850. As the climate began warming again, the ice began to melt and the glaciers began retreating back into the cirques.

At 6,800 feet above sea level, Colorado has the highest average elevation in the United States. Thirty one percent (32,649 square miles) of the state is "mountainous", or greater than 8,000 feet. The vertical range in elevation is more than two miles, ranging from a low of 3,313 feet above sea level where the Arikaree River enters Kansas, to 14,440 feet at the crest of Mount Elbert near the center of the state. It is generally accepted that Colorado has 53 to 58 named peaks that are greater than 14,000 feet in elevation (depending on criteria used) and more than 700 peaks higher than 13,000 feet. The largely mountainous Continental Divide is the principal hydrological divide of the Americas. It extends from the Bering Strait to the Strait of Magellan, and separates the watersheds that drain into the Pacific Ocean from those river systems that drain into the Atlantic Ocean (including those that drain into the Gulf of Mexico and the Caribbean Sea), and along the northernmost reaches of the Divide, those river systems that drain into the Arctic Ocean. There are seven major river basins in Colorado: the Arkansas, Rio Grande, San Juan, Colorado, Green, Platte and Republican. Four major river systems – the Platte, Colorado, Arkansas, and Rio Grande – originate within the mountains of Colorado.

Five different physiographic provinces and three sub-provinces are found within Colorado: Colorado Plateau, Wyoming Basin, Southern Rocky Mountains, Middle Rocky Mountains, and the Great Plains which is divided into the Colorado Piedmont, High Plains, and Raton Basin.

Colorado's State soil is "Seitz soil" that consists of very deep, well drained, slowly permeable soils that were formed from igneous, sedimentary, and volcanic rocks. Seitz soils are found on mountains, mainly in southwestern and central Colorado.

Colorado, especially the Front Range, is classified as having two types of soil existing together: expansive and hydro-compactable. Most soil in the Front Range can be classified as a swelling soil – a soil that contains a high percentage of certain types of clay that absorb vast quantities of water. This can cause the soil to expand 10% or more as moisture enters it, usually during winter snow melt and spring runoff, and then contract when the moisture evaporates during the hot summer months.

Land Use

Land use in Colorado consists primarily of grassland/herbaceous areas (39.5%), Evergreen Forest (20.8%), and Small Grains (24.0%) according to the National Land Cover Statistics Database (USGS 2010) (Table 1). Residential development covers less than 1% of Colorado lands.

Table 1: Land Cover of Colorado

Land Cover Classes	State Totals Units in Square Miles
Water	453
Perennial Ice/Snow	138
Low Intensity Residential	539
High Intensity Residential	76
Commercial/Industrial/Transportation	309
Bare Rock	1,111
Quarries/Mines	19
Transitional	89
Deciduous Forest	7,121
Evergreen Forest	21,663
Mixed Forest	798
Shrubland	16,878
Orchards/Vineyard	5
Grasslands/Herbaceous	41,073
Pasture/Hay	3,107

Row Crops	3,266
Small Grains	24,987
Fallow	2,291
Urban/Recreational Grasses	91
Woody Wetlands	14
Emergent/Herbaceous Wetlands	67
State Total	104,094

Source: USGS 2010

According to the Economic Research Service of the U.S. Department of Agriculture, there were 31,604,901 acres in Colorado classified as farmland and 36,700 farms. Prime farmland is found throughout the state. Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to food, feed, forage, fiber, and oilseed crops. Colorado had approximately 1,696,800 acres of nonfederal prime farmland recorded in 1997. This represents over 2 percent of the state's total land area or 4 percent of the nonfederal land in Colorado. Nationally, 64 percent of soils classified as prime farmland are being used for cropland. In Colorado, 93 percent of the soils classified as prime farmland are being utilized as cropland. There has been a gradual loss overall of prime farmlands in Colorado. Approximately 53,300 acres of prime farmland were converted urban or rural development between 1982 and 1997.

Colorado is the 8th largest state by land and has 103,730 square miles. Property is divided into private, federal, state, tribal and BIA, and water.

4.1.2 Environmental Consequences

Alternative 1: No Action

Under the No Action alternative, no federal action would be completed. Alternative 1 has potential to pose safety threats, permanently displace residents, further economic strains on the State of Colorado, and change land use if hazards are not redistributed or removed. Additionally Alternative 1 has the potential to permanently alter drainage and flow rates downstream. Loss in residential, commercial, agricultural, or recreational land use is may occur.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

Under this alternative, the hazards within the stream corridor will removed or redistributed. A hydrologic and hydraulic study will be used to determine the best redistribution for stream channels. Although this will affect the physical environment spring run-off is expected to alter stream corridors at a more significant rate than the proposed actions. Stream corridor footprint is

expected to remain within the previous right-of-way (ROW) so no changes in land use are anticipated.

4.2 TRANSPORTATION FACILITIES

4.2.1 Affected Environment

Colorado has 88,259 miles of highways, roads and streets and 8,260 bridges as of 2010. There were 5,024,145 registered motor vehicles in the state as of 2009 and 3,638,374 licensed drivers in the state as of 2010. Mobility in regional areas is critical for social, recreational and economic activities. Commuting is a part of daily life and truck transportation plays a vital role in Colorado's economy. Any impediment to freight movement hinders economic performance and growth.

4.2.2 Environmental Consequences

Alternative 1: No Action

Under the No Action alternative no federal funding would be provided. Hazards would remain within the streambed and immediate threats would persist unless actions to remove or redistribute hazards would be provided by the State and/or local municipalities. This alternative may result in significant adverse impacts due to increased travel times and traffic volumes if hazards cause damage to transportation facilities.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

This alternative would remove or redistribute hazards in the streambed. Short term impacts would be expected during construction as traffic delays and alternate routes may be required. No significant adverse long term impacts are expected to the transportation volume, capacity, and time of transit. The transportation facilities would be more resilient and less likely to experience substantial damage from future severe weather events.

4.3 SAFETY AND OCCUPATIONAL HEALTH

4.3.1 Affected Environment

Safety and occupational health issues include exposure to natural hazards; one-time and long-term exposure to asbestos, lead, radiation, chemicals, and other hazardous materials; and injuries or deaths resulting from a one-time accident. Safety and occupational health concerns could impact personnel working on the project and in the surrounding area, as well as travelers near the project sites. Buildings and infrastructure are damaged or isolated in the streambed creating public safety issues. Structures constructed prior to 1978 have the potential to contain lead-based paint or asbestos.

Lead exposure can result from paint chips or dust, or inhalation of lead vapors from torch-cutting operations. Lead exposure can adversely affect the human nervous system. Exposure to lead based paint is especially dangerous to small children. Occupational Health and Safety Administration (OSHA) considers all painted surfaces in which lead is detectable to have a potential for occupational health exposure.

Asbestos exposure can result from the inhalation of dust from a plethora construction materials or household products. In 1988 the EPA issued regulations requiring certain companies to report the asbestos used in their products. However, to this day these products can easily be found anywhere in the United States. Asbestos fibers cannot be seen with the naked eye and when inhaled can cause asbestosis that often progresses to disability and death.

Considering Colorado's rich history mining history sediment within riverbeds may have high concentrations of lead and other heavy metals.

4.3.2 Environmental Consequences

Alternative 1: No Action

In the no action alternative, hazards would be left in the stream corridors and would not be redistributed or removed, leaving residents, communities, and properties susceptible to significant spring flow damage. Damaged facilities are a safety concern as they remain vulnerable to future events. Materials could be washed downstream impacting other structures. These materials may have the potential to cause both lead and asbestos exposure. A No Action Alternative may also result in restricted access for emergency, police and fire services causing the potential for significant delay. The No Action Alternative provides a significant adverse safety affect to residents of the State of Colorado.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

Alternative 2 would have no significant impact to public safety or occupational health. Communities are expected to benefit from the proposed action. Removal or redistribution of materials with painted surfaces or containing Asbestos may be required and construction workers are required to follow OSHA regulations to provide appropriate Asbestos abatement and avoid release of lead from paint. Construction workers and equipment operators are required to wear appropriate personal protective equipment (PPE) and be properly trained for the work being performed. All solid or hazardous wastes that might be generated during the removal and redistribution must be removed and disposed of at a permitted facility or designated collection point (e.g., for solid waste, a utility or construction company's own dumpster). Standard construction traffic control measures will be used to protect workers, residents and the travelling public.

4.4 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.4.1 Affected Environment

According to the U.S. Census, the population of Colorado in 2000 was 4,301,261, in 2010 was 5,029,196, with an estimated 5,268,367 in 2013. The five largest cities in Colorado at the time of the 2010 Census were: Denver with 610,345; Colorado Springs with 399,803; Aurora with 323,288; Lakewood with 141,928; and Fort Collins with 138,722. Grand Junction is the largest city on the western slope with 56,630, making it sixteenth largest city in the state.

The majority of the Census respondents (96.6%) identified themselves as being of one race. Of those who identified themselves as being of one race, 81.3% identified themselves as being White and 1.1% identified themselves as an American Indian or Alaska Native. The remaining respondents identified themselves as Black or African American (4.0%), Asian (2.8%), Native Hawaiian and Other Pacific Islander (0.1%) or some other race (7.2%).

There are two federally recognized American Indian tribes in Colorado: Southern Ute Indian Tribe of the Southern Ute Reservation and Ute Mountain Tribe of the Ute Mountain Reservation (Colorado, New Mexico and Utah)

Poverty levels in Colorado were 12.5 % for all people and 16.6% for children under age 18.

Colorado's economy broadened from its mid-19th century roots in mining when irrigated agriculture developed, and by the late 19th century, raising livestock had become important. Early industry was based on the extraction and processing of minerals and agricultural products. Current agricultural products are cattle, wheat, dairy products, corn, and hay.

According to the Bureau of Labor Statistics, in October 2013 the largest non-farm employment sector in Colorado was trade, transportation, and utilities (17.37%), followed by government (17.05%), professional and business services (15.76%), education and health services (12.37%), and leisure and hospitality (12.35%). Unemployment was 6.8% compared to 7.2% nationally.

4.4.2 Environmental Consequences

Alternative 1: No Action

Under the No-Action alternative hazard removal would proceed. There is no requirement for compliance with Executive Orders (EO) 12898 (Environmental Justice) and 13045 (Protection of Children From Environmental Health Risks and Safety Risks) since there are no federal actions. Alternative 1 has potential to result in significant adverse impact to socioeconomics of a community if buildings and critical infrastructural elements such as utilities are damaged by hazards during the spring run-off. Residents may be isolated from their homes and businesses if hazards cause roadway damages and isolation. The No Action alternative may cause significant damages to property and compromise infrastructure.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

During the construction period this alternative may provide some short term benefits by providing construction jobs and a multiple effect of increased expenditures in the local economy. There may be major effects to populations during construction periods due to road detours, to provide access or hazard removal from stream banks.

Efforts would be made during any construction to minimize short-term disruption to the local transportation system. Low income and minority populations may benefit during the construction process through the provision of construction jobs and multiplier effects of expenditures in the local economy. Any adverse impacts to low income or minority populations are expected to be short-term and not significant.

4.5 AIR QUALITY

4.5.1 Affected Environment

The Clean Air Act requires that states adopt ambient air quality standards. The standards have been established in order to protect the public from potentially harmful amounts of pollutants. The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six air pollutants. These pollutants include sulfur dioxide (SO₂), particulate matter with a diameter less than or equal to ten micrometers (PM₁₀), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and lead. The EPA has designated specific areas as NAAQS attainment or non-attainment areas. Non-attainment areas are any areas that do not meet (or that contribute to ambient air quality in a nearby area that does not meet) the quality standard for a pollutant.

Colorado is currently in attainment or maintenance for air quality as is the majority of Colorado with the exception of the Denver-Boulder-Greeley-Ft. Collins-Loveland area which is listed as being in nonattainment for 8-hour ozone under the National Ambient Air Quality Standards.

4.5.2 Environmental Consequences

Alternative 1: No Action

Under the No Action Alternative, affected areas will remain in existing conditions. Vehicle emissions would remain the same.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

Removal of hazards will involve heavy construction equipment to properly distribute or remove hazards from streambeds. During construction there may be temporary increases in equipment exhaust emissions and fugitive dust. However, the temporary increase in equipment exhaust is expected to be negligible as long as the equipment is well maintained and idling is minimized. All necessary measures must be taken to minimize fugitive dust emissions created during

construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner. The contractor would be required to keep all equipment in good working order to minimize air pollution.

If fugitive dust were to become a problem it can be mitigated by periodic watering of active construction areas, particularly areas close to any nearby sensitive receptors (e.g., hospitals, senior citizen homes, schools). Impacts from fugitive dust are anticipated to be short-term and negligible.

Where bank stabilization/construction within the stream corridor is required there would be some short term increase in fugitive dust and vehicular emissions. Mitigation of fugitive dust, if necessary can be accomplished by periodic watering of the demolition site.

After construction there would be no change in air quality as this alternative would not change roadway length, and therefore would not change the amount of vehicle emissions.

4.6 NOISE

4.6.1 Affected Environment

Sounds that disrupt normal activities or otherwise diminish the quality of the environment are designated as noise. Noise events that occur during the night (9 p.m. to 7 a.m.) are generally considered more annoying than those that occur during normal waking hours (7 a.m. to 9 p.m.).

Noise events in the project vicinity are associated with climatic conditions (e.g., wind, thunder), transportation noise (e.g., traffic on roads, airplanes) and “life sounds” (e.g., people talking, children playing).

4.6.2 Environmental Consequences

Alternative 1: No Action

Under this alternative, hazards would remain. There is the potential that overall noise levels in the immediate area may increase due to temporary construction. However, noise impacts are not expected to be significant.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

Streambed hazard removal is anticipated to carry a similar noise level to that which it had at pre-disaster damage levels. Noise from construction activities may have short term adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise impacts on residences can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours. Noise levels of construction equipment

(70 to 72 dBA) at the distance in which affected parties would likely be located (>200 feet/60 meters) will not be of a duration to be significant.

4.7 PUBLIC SERVICES AND UTILITIES

4.7.1 Affected Environment

Utility lines often cross or run along stream corridors, either overhead or underground. Public services and utilities include:

- Fire protection
- Law Enforcement
- Emergency Medical Services
- Schools
- Water
- Wastewater
- Sanitation
- Solid waste disposal
- Stormwater drainage
- Electric utilities
- Natural gas
- Telephone/Telecommunications

4.7.2 Environmental Consequences

Alternative 1: No Action

This alternative does not include any federal action. Alternative 1 does have the potential to affect public services and utilities because hazards materials can undermine, damage, or destroy downstream public facilities in subsequent storms if not removed. Fire, emergency, law enforcement, and school services would be delayed as a result of continued inaccessibility of the route due to closed roads or bridges. Depending on the length of detour required these services could be significantly impacted. In addition, utility repair crews may not be able to reach damaged utility lines, resulting in lengthy service outages.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

During construction, delays in fire, emergency, law enforcement and school services may continue, but these would be short term impacts. Once completed, public services would be restored to pre-disaster levels. Utilities that cross or run along streams may be temporarily interrupted, but this would be a short-term impact. No long term impacts would occur under this alternative.

4.8 WATER RESOURCES

4.8.1 Affected Environment

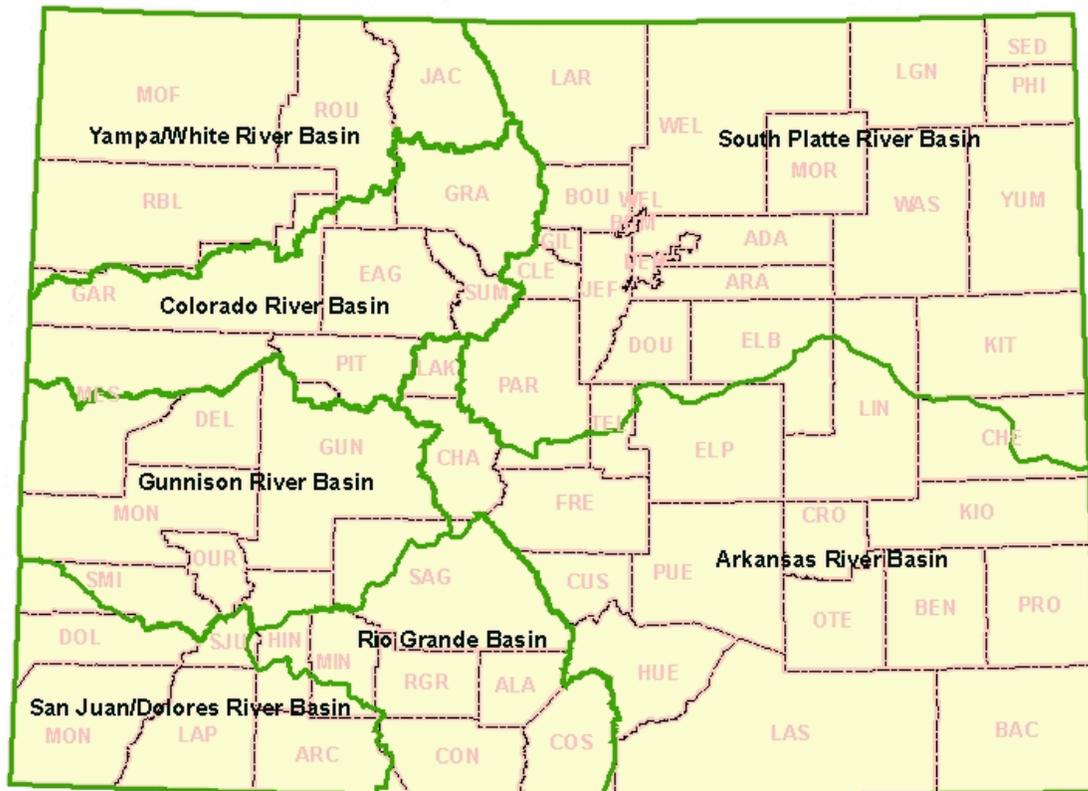
Water resources in Colorado are heavily regulated. Colorado has more than 105,344 river miles and more than 249,787 lake acres. There are seven major river basins in Colorado: the Arkansas, Rio Grande, San Juan, Colorado, Green, Platte and Republican. Four major river systems – the Platte, Colorado, Arkansas, and Rio Grande – originate within the mountains of Colorado. These systems drain fully one-third of the landmass of the lower 48 states. Around 80 percent of the state's population lives on the Eastern Slope of Colorado between Fort Collins and Pueblo, but about 80 percent of Colorado's precipitation falls on the Western Slope.

Sixty-three percent of Colorado's 4.3 million residents obtain at least part of their water from areas west of the Continental Divide via natural channels and a vast network of artificial conveyances such as tunnels, ditches, aqueducts, pipelines, and canals.

Colorado is divided into eight ground water regions: Kiowa-Bijou, Southern High Plains, Upper Black Squirrel Creek, Lost Creek, Camp Creek, Upper Big Sandy, Upper Crow Creek, and Northern High Plains. Groundwater provides 18% of public water supply and 85% of agricultural water supply in Colorado. 2,780,000 acre-feet of ground water are used annually in Colorado.

There are nine principle aquifers within the state that are categorized as follows: unconsolidated Quaternary age alluvial aquifers associated with the major river systems; poorly consolidated or unconsolidated sediments; consolidated sedimentary rock aquifers; and volcanic and crystalline rock aquifers.

The South Platte River basin drains an 18,924 square mile area. The Arkansas River basin encompasses 28,273 square mile area. The Colorado River basin watershed encompasses an area of approximately 9,830 square miles. The Colorado portion of the drainage basin encompasses an area of approximately 6,765 square miles. The White River basin encompasses approximately 3,770 square miles. The Gunnison River basin of southwestern Colorado encompasses approximately 8,000 square miles. The San Juan River encompasses about 26,000 square miles of Colorado, New Mexico, and Arizona. The Dolores River basin encompasses an area of just over 5,300 square miles. The South Platte River Basin encompasses an 18,924 square mile area.

Figure 2: Overview of Colorado River Basin

Wild and Scenic Rivers

Colorado has one river classified a wild and scenic river under the National Wild and Scenic River System (16 U.S.C. 1271 et seq.) designation: Cache La Poudre River with 30 miles designated as Wild and 46 miles as Recreational.

Floodplains

Executive Order (EO) 11988 requires federal agencies to consider the effect of their actions on the floodplain, evaluate alternatives to taking action in the floodplain and to provide opportunity for public comment if there is no practicable alternative. Colorado has 245 participating and 16 non-participating entities in the National Flood Insurance Program (NFIP). Under requirements established in 44 CFR Section 60.3, participating communities shall require permits for all development, including temporary development, in the Special Flood Hazard Areas (SFHA). Development is defined as “any man-made change to improved and unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials” and includes both permanent and temporary actions such as stream crossings and conveyance structures (public and private), sediment removal, channel restoration or relocation, etc. Effective January 14, 2011,

the State of Colorado adopted the enhanced Colorado Floodplain Damage Prevention Ordinance, which requires higher standards for floodplain management. These standards are intended to prevent loss of life and property, as well as economic and social hardships that result from flooding.

The Ordinance is available online at:

http://cwc.state.co.us/watermanagement/flood/documents/comodelordinance_12_7_12.pdf.

The Colorado Water Conservation (CWCB) Board has adopted the following requirements for a floodplain Development Permit that may include, but is not limited to, plans in duplicate drawn to scale showing the location, dimensions, and elevation of proposed landscape alterations, existing and proposed structures, including the placement of manufactured homes, and the location of the foregoing in relation to Special Flood Hazard Area. Additionally, the following information is required:

1. Elevation (in relation to mean sea level), of the lowest floor (including basement) of all new and substantially improved structures;
2. Elevation in relation to mean sea level to which any nonresidential structure shall be flood-proofed;
3. A certificate from a registered Colorado Professional Engineer or architect that the nonresidential flood-proofed structure shall meet the flood-proofing criteria of Article 5, Section B(2);
4. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.
5. Maintain a record of all such information in accordance with Article 4, Section B.

Approval or denial of a Floodplain Development Permit by the Floodplain Administrator shall be based on all of the provisions of this ordinance and the following relevant factors:

1. The danger to life and property due to flooding or erosion damage;
2. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
3. The danger that materials may be swept onto other lands to the injury of others;
4. The compatibility of the proposed use with existing and anticipated development;
5. The safety of access to the property in times of flood for ordinary and emergency vehicles;

6. The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems;
7. The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site;
8. The necessity to the facility of a waterfront location, where applicable;
9. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
10. The relationship of the proposed use to the comprehensive plan for that area.

Wetlands

EO 11990 requires federal agencies minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. To meet these objectives, the order requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. Colorado has lost approximately half of its naturally occurring wetlands since settlement. Wetlands provide flood control, recharge groundwater, stabilize stream flows, improve water quality, and provide habitat for wildlife. Though, the Federal Clean Water Act (CWA) requires that impacts to wetlands be avoided, then minimized, and finally mitigated if no practicable alternative exists for some wetland filling projects, wetlands continue to be impacted and lost as roads are expanded, land is developed and due to cumulative impacts from numerous activities such as draining, changes in land management and landowner preference for open water ponds.

4.8.2 Environmental Consequences

Alternative 1: No Action

In the no action alternative, the stream corridors would not be repaired, leaving the hazards remaining within the waterways. No work would occur in water, thus there would be no direct impact to water resources due to the proposed action. Hazards may cause a flow impediment, potentially causing significant impacts to stream and floodplain hydraulics and function.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

The proposed action will be performed within waterways. Excavation, redistribution, and fill materials may be necessary for the proposed project and thus impacting waters of the U.S. Discharge into surface water may provide a temporary alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity.

Applicants will perform a hydrologic and hydraulic analysis to determine magnitude and frequency of flows. During construction agencies would mitigate impacts by requiring the

applicant to apply BMPs to reduce sediment and fill material from entering the water. The applicant may be required to prepare a storm water pollution prevention plan (SWPPP). The applicant may also be required to obtain a Section 404 permit from the USACE and a Section 401 Water Quality Certification permit from CDPHE Water Quality Control Division or the Environmental Protection Agency (EPA). Discharges of water encountered during excavation or work in wet areas may require a Construction Dewatering Discharge Permit. The applicant is responsible for complying with any conditions outlined within these permits. Compliance with local floodplain ordinances will also be required.

While this alternative is not expected to significantly impact wetlands because actions are within stream corridors, certain sites could result in some materials or fill being placed in a wetland. Wetland boundaries would be determined in accordance with the latest regulatory guidance from the USACE and the United States Fish and Wildlife Service (USFWS). In these situations agency projects would implement the Eight-step Process to evaluate effects.

This alternative would have little if any impact on increasing impervious surfaces, reduce groundwater recharge, and adversely affect water quality through the transmission of sediment, debris, oils, and hazardous substances into surface waters. During construction, agencies would mitigate these impacts by requiring the applicant to apply BMPs to reduce impacts on wetlands and waterways.

For any work completed within the designated section of the Cache La Poudre River that is listed wild and scenic agencies would confer with the regulatory agency overseeing that section.

The results of the analyses and consultation discussed above would be documented in a memorandum to this PEA or in a SEA.

4.9 BIOLOGICAL RESOURCES

Biological resources include native or naturalized plants and animals and the habitats (e.g., wetlands, forests, and grasslands) in which they exist. Protected and sensitive biological resources include federally listed (endangered or threatened), proposed, and candidate species designated by the United States Fish and Wildlife Service (USFWS). Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the Endangered Species Act (ESA) and sensitive ecological areas as designated by state or federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer and winter habitats).

4.9.1 Affected Environment

Vegetation

Colorado contains parts of six major eco-regions and is divided into approximately 60 ecosystems (**Table 2**). The most prominent eco-region is the Southern Rockies, which occupies most of the state's central and western portions and the Great Plains-Palouse Dry Steppe in the eastern half of the state.

Table 2: Colorado Ecosystems

Ecosystem Name	Ecosystem Name
Central Mixedgrass Prairie	Colorado Plateau Blackbrush-Mormon-tea Shrubland
Colorado Plateau Hanging Garden	Colorado Plateau Mixed Bedrock Canyon and Tableland
Colorado Plateau Mixed Low Sagebrush Shrubland	Colorado Plateau Pinyon-Juniper Shrubland
Colorado Plateau Pinyon-Juniper Woodland	Inter-Mountain Basins Active and Stabilized Dunes
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	Inter-Mountain Basins Big Sagebrush Shrubland
Inter-Mountain Basins Big Sagebrush Steppe	Inter-Mountain Basins Greasewood Flat
Inter-Mountain Basins Interdunal Swale Wetland	Inter-Mountain Basins Juniper Savanna
Inter-Mountain Basins Mat Saltbush Shrubland	Inter-Mountain Basins Mixed Salt Desert Scrub
Inter-Mountain Basins Montane Sagebrush Steppe	Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland
Inter-Mountain Basins Playa	Inter-Mountain Basins Semi-Desert Grassland
Inter-Mountain Basins Semi-Desert Shrub-Steppe	Inter-Mountain Basins Shale Badland
Inter-Mountain Basins Wash	North American Alpine Ice Field
North American Arid West Emergent Marsh	Northern Rocky Mountain Avalanche Chute Shrubland
Rocky Mountain Alpine Bedrock and Scree	Rocky Mountain Alpine Dwarf-Shrubland
Rocky Mountain Alpine Fell-Field	Rocky Mountain Alpine-Montane Wet Meadow
Rocky Mountain Aspen Forest and Woodland	Rocky Mountain Cliff, Canyon and Massive Bedrock
Rocky Mountain Dry Tundra	Rocky Mountain Dry-Mesic and Mesic Montane Mixed Conifer Forest and Woodland
Rocky Mountain Foothill Limber Pine-Juniper Woodland	Rocky Mountain Gambel Oak-Mixed Montane Shrubland
Rocky Mountain Lodgepole Pine Forest	Rocky Mountain Lower Montane Riparian Woodland and Shrubland
Rocky Mountain Lower Montane-Foothill Shrubland	Rocky Mountain Ponderosa Pine Savanna
Rocky Mountain Subalpine Dry-Mesic and Mesic Spruce-Fir Forest and Woodland	Rocky Mountain Subalpine Mesic Meadow
Rocky Mountain Subalpine-Montane Fen	Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland
Rocky Mountain Subalpine-Montane Riparian Shrubland	Rocky Mountain Subalpine-Montane Riparian Woodland
Southern Rocky Mountain Juniper Woodland and Savanna	Southern Rocky Mountain Montane-Subalpine Grassland
Southern Rocky Mountain Pinyon-Juniper Woodland	Southern Rocky Mountain Ponderosa Pine Woodland
Southwestern Great Plains Canyon	Western Great Plains Cliff, Outcrop, and Shale Barren
Western Great Plains Closed Depression Wetland	Western Great Plains Big River Floodplain
Western Great Plains Foothill and Piedmont Grassland	Western Great Plains Riparian Woodland, Shrubland and Herbaceous

Ecosystem Name	Ecosystem Name
Western Great Plains Saline Depression	Western Great Plains Sand Prairie
Western Great Plains Sandhill Shrubland	Western Great Plains Shortgrass Prairie
Western Great Plains Tallgrass Prairie	Wyoming Basins Low Sagebrush Shrubland

Wildlife

Colorado hosts about 750 species of fish, mammals, birds, reptiles, and amphibians. Big game hunted in Colorado includes black bear, deer, elk, antelope, moose, bighorn sheep, mountain goat, mountain lion and turkey. Smaller game species hunted include sharp-tailed grouse, prairie chickens, sage grouse, mountain grouse, partridge, and pheasants. Hunted waterfowl includes ducks, geese, and swans. Bobcat, otter, swift fox, and wolverine are trapped.

Across the state, Colorado Parks and Wildlife (CPW) manages more than 348 State Wildlife Areas, totaling more than 684,252 acres. In addition, CPW leases approximately 550,000 acres of State Trust Lands. CPW also manages fifteen properties that house State Fish Units - hatcheries or fish rearing operations.

Protected Species

There are 50 species listed as Endangered (E), Threatened (T), Candidate (C), or Proposed (P) by the USFWS under ESA that historically occurred, occur or may potentially occur within Colorado. These species are listed below in **Table 3**. Six of these species, Preble's Meadow Jumping Mouse, Mexican Spotted Owl, Southwestern Willow Flycatcher, Colorado Pikeminnow, Whooping Crane, and Razorback Sucker have designated critical habitat in Colorado. Critical habitat designations have also been included with the proposed New Mexico Meadow Jumping Mouse, Gunnison Sage Grouse, White River Beardtongue, and Graham Beardtongue.

Out of nearly 750 fish and wildlife species in Colorado, 74 are listed as species in need of conservation and protected by CPW.

Table 3: Threatened, Endangered and Candidate Species in Colorado.

Common Name	Scientific Name	Federal Status	Habitat Requirements/Notes
Arapahoe Snowfly	<i>Capnia Arapahoe</i>	C	Typically found in cold, clean, well-oxygenated streams and rivers.
Arkansas darter	<i>Etheostoma cragini</i>	C	Prefers shallow, clear, cool water, sand or silt bottom streams with spring-fed pools and abundant rooted aquatic vegetation. During late summer low-water periods when streams may become intermittent, Arkansas darter populations in Colorado persist in large, deep pools.
Black footed Ferret	<i>Mustela nigripes</i>	E	Most of this species has been block-cleared in Colorado.
Bonytail chub	<i>Gila elegans</i>	E	Large, fast-flowing waterways of the Colorado River system.

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Common Name	Scientific Name	Federal Status	Habitat Requirements/Notes
Canada lynx	<i>Lynx canadensis</i>	T	Dense subalpine forest, willow corridors along mountain streams, avalanche chutes. Occurs at elevations between 8,000 and 14,000 feet.
Clay-loving wild buckwheat	<i>Eriogonum pelinophilum</i>	E	Endemic to the rolling clay (adobe) hills and flats immediately adjacent to the communities of Delta and Montrose, Colorado
Colorado Butterfly plant	<i>Gaura neomexicana</i> var. <i>coloradensis</i>	T	Moist areas of floodplains
Colorado hookless Cactus	<i>Sclerocactus glaucus</i>	T	Exposed stretches of gravelly clay, including alluvial benches above floodplains and on mesa slopes
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	E	Swift flowing muddy rivers with quiet, warm backwaters.
DeBeque Phacelia	<i>Phacelia submutica</i>	T	Grows on barren patches of shrink-swell clay of the Wasatch Formation at about 5,000 to 6,200 feet elevation in the southern Piceance Basin oil and gas fields of Mesa and Garfield Counties, western Colorado.
Dudley Bluffs Bladderpod	<i>Lesquerella congesta</i>	T	Barren white outcrops exposed along drainages by erosion from downcutting of streams in the Piceance Basin in Rio Blanco County, Colorado
Dudley Bluffs Twinpod	<i>Physaria obcordata</i>	T	Steep side slopes of barren white outcrops exposed along drainages by erosion from down cutting of streams in the Piceance Basin in Rio Blanco County, Colorado.
Graham beardtongue	<i>Penstemon grahamii</i>	P	Restricted to calcareous soils derived from oil shale barrens
Gray Wolf	<i>Canis lupus</i>	E	USFWS does not consult on the gray wolf as they consider it not to occur in Colorado.
Greater sage-grouse	<i>Centrocercus urophasianus</i>	C	Sagebrush ecosystem, usually inhabiting sagebrush-grassland or juniper sagebrush-grassland communities. Meadows surrounded by sagebrush may be used as feeding grounds.
Greenback Cutthroat Trout	<i>Oncorhynchus clarkii stomias</i>	T	South Platte basin
Grizzly Bear	<i>Ursus arctos horribilis</i>	T	USFWS does not consult on the grizzly bear as they consider it not to occur in Colorado.
Gunnison Sage Grouse	<i>Centrocercus minimus</i>	P	Require a variety of habitats such as large expanses of sagebrush with a diversity of grasses and forbs and healthy wetland and riparian ecosystems. It requires sagebrush for cover and fall and winter food.
Gunnison's prairie dog	<i>Cynomys gunnisoni</i>	C	Level to gently sloping grasslands and semi-desert and montane shrublands, at elevations from 6,000 to 12,000 feet (1,830 to 3,660 meters). Gunnison's prairie dogs occupy grass-shrub areas in low valleys and mountain meadows within this habitat.
Humpback chub	<i>Gila cypha</i>	E	Deep, fast-moving, turbid waters often associated with large boulders and steep cliffs
Knowlton's Cactus	<i>Pediocactus knowltonii</i>	E	On rolling, gravelly hills in a piñon-juniper-sagebrush community at about 1,900 m (6,200-6,300 ft).
Least tern*	<i>Sterna antillarum</i>	E	Bare sand and gravel bars along rivers and waste sand piles along several rivers in Nebraska.
Lesser prairie-chicken	<i>Tympanuchus pallidicinctus</i>	P	Found throughout short- and mid-grass prairies
Mancos Milk-vetch	<i>Astragalus humillimus</i>	E	Cracks or eroded depressions on sandstone rimrock ledges and mesa tops

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Common Name	Scientific Name	Federal Status	Habitat Requirements/Notes
Mesa Verde Cactus	<i>Sclerocactus mesae-verdae</i>	T	Sparsely vegetated low rolling clay hills formed from the Mancos or Fruitland shale formations at 1,500-1,700 m (4,900-5,500 feet)
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	T	Old-growth forests in western North America, where it nests in tree holes, old bird of prey nests, or rock crevices
New Mexico meadow jumping mouse	<i>Zapus hudsonius luteus</i>	P	Lives only along the banks of southwestern streams.
North America wolverine	<i>Gulo gulo luscus</i>	P	Wolverines do not appear to specialize on specific vegetation or geological habitat aspects, but instead select areas that are cold and receive enough winter precipitation to reliably maintain deep persistent snow late into the warm season
North Park Phacelia	<i>Phacelia formosula</i>	E	Ravines and bare slopes of eroding rock originating from the Coalmont Formation.
Osterhout milkvetch	<i>Astragalus osterhoutii</i>	E	Grows in high-selenium soils
Pagosa Skyrocket	<i>Ipomopsis polyantha</i>	E	Grows on weathered Mancos Shale outcrops at about 7,000 feet elevation in the vicinity of Pagosa Springs in southwestern Colorado
Pallid sturgeon*	<i>Scaphirhynchus albus</i>	T	Pallid sturgeons evolved and adapted to living close to the bottom of large, silty rivers with natural a hydrograph. Their preferred habitat has a diversity of depths and velocities formed by braided channels, sand bars, sand flats and gravel bars.
Parachute beardtongue	<i>Penstemon debilis</i>	T	Only on oil shale outcrops on the Roan Plateau escarpment in Garfield County, Colorado.
Pawnee Montane Skipper	<i>Hesperia leonardus montana</i>	T	Only in the South Platte Canyon River drainage system in Colorado, in portions of Jefferson, Douglas, Teller, and Park Counties
Penland alpine fen Mustard	<i>Eutrema penlandii</i>	T	Limestone outcrops in the Hoosier Ridge and Hoosier Pass areas of Summit County
Penland Beardtongue	<i>Penstemon penlandii</i>	E	Alkaline shale that weathers into barren clay containing selenium
Piping plover*	<i>Charadrius melodus</i>	T	Bare sand and gravel bars along rivers and waste sand piles along several rivers in Nebraska.
Preble's Meadow Jumping Mouse	<i>Zapus hudsonius preblei</i>	T	Heavily vegetated riparian habitats.
Razorback sucker	<i>Xyrauchen texanus</i>	E	Deep, clear to turbid waters of large rivers and some reservoirs over mud, sand, or gravel.
Rio Grande Cutthroat trout	<i>Oncorhynchus clarki virginalis</i>	C	Rapidly flowing water. Backwaters or banks adjacent to fast waters provide holding areas during the day. These suckers move to swifter water at night.
Schmoll milk-vetch	<i>Astragalus schmolliae</i>	C	Found primarily growing in red loess on mesa tops in old growth. pinyon-juniper woodlands between 6,500 and 7,500 feet in elevation.
skiff milkvetch	<i>Astragalus microcymbus</i>	C	Found on sparsely vegetated slopes within open sagebrush habitat.
Sleeping Ute milkvetch	<i>Astragalus tortipes</i>	C	This species is found only on the lower slopes of Sleeping Ute Mountain and grows in gravels over Mancos shale.
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E	Dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands including lakes and reservoirs. In most instances, the dense vegetation occurs within the first 10 to 13 feet above ground.
Uncompahgre Fritillary Butterfly	<i>Boloria acrocnema</i>	E	Patches of snow willow in alpine meadows at elevations above the tree line

Common Name	Scientific Name	Federal Status	Habitat Requirements/Notes
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	T	Along riparian edges, gravel bars, old oxbows, high flow channels, and moist to wet meadows along perennial streams. Stable wetland and seepy areas associated with old landscape features within historical floodplains of major rivers. It also is found in wetland and seepy areas near freshwater lakes or springs.
Western Prairie Fringed Orchid*	<i>Platanthera praeclara</i>	T	Occur most often in mesic to wet unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches
White beardtongue	<i>Penstemon scariosus albifluvis</i>	P	Grows on raw shale barrens and oil shale barrens. Soils are xeric, calcareous, fine-textured, whitish or reddish clays overlain by a white shale chips and channers.
Whooping crane*	<i>Grus americana</i>	E	Mid-river sandbars and wet meadows along the Platte River in Nebraska. This species does not occur in CO, but occurs downstream and is affected by water depletions.
Yellow-Billed Cuckoo	<i>Coccyzus americanus</i>	C	Prefer open woodlands with clearings and a dense shrub layer. They are often found in woodlands near streams, rivers or lakes.

Water depletions in the North Platte, South Platte and Laramie River Basins may affect the species and/or critical habitat associated with the Platte River in Nebraska.

ENDANGERED (E) - Any species that is in danger of extinction throughout all or a significant portion of its range.

THREATENED (T) - Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

PROPOSED (P) – Any species of that is proposed in the Federal Register to be listed under section 4 of the Act.

CANDIDATE (C) - Those taxa for which the Service has sufficient information on biological status and threats to propose to list them as threatened or endangered. We encourage their consideration in environmental planning and partnerships, however, none of the substantive or procedural provisions of the Act apply to candidate species

4.9.2 Environmental Consequences

Alternative 1: No Action

Under the No Action Alternative, no localized or regional effects to threatened or endangered species are expected. This alternative does not include any action. Therefore, the applicants would not be required to consult with USFWS to comply with the ESA, Migratory Bird Treaty Act (MBTA), Fish and Wildlife Coordination Act (FWCA), or state laws. Damaged structures left in the stream may cause a flow impediment, potentially causing impacts to species habitats and individuals.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

The actions under this alternative may have the potential to affect sensitive biological resources, wetlands or natural waterways due to construction activities; a review of available information on the potential for species and critical habitat occurrence in the area will be conducted. The proposed action requires the redistribution or removal of hazards, materials, and possibly structures from the waterway, thus reducing impacts to species. Embankment work and in-water work will occur. This type of action may require a Senate Bill (SB) 40 permit from CPW for impacts to riparian areas.

Federal Agencies will coordinate with USFWS will review the project and make a determination of affect. If an Agency determines that a project has the potential to affect sensitive biological

resources it will initiate the review process under Section 7 of the ESA, MBTA, or FWCA, the results of this consultation with USFWS would be documented in a memorandum to this PEA or in a SEA.

Because migratory birds nest on many substrates (e.g., ground, shrubs, trees, bridges, box culverts), proposed work should not occur during the breeding season (May 1st to August 15th), the Service recommends: the required cutting of trees or shrubs occur between August 16th and April 30th to remove potential nesting surfaces prior to project commencement; the removal of swallow nests as they are built, but prior to egg laying, from the bridge structures that are to be removed; and/or netting of the affected bridge structures to prevent swallow nesting prior to the breeding season.

If the project sites occur within 0.5 mile of occupied eagle nests, implementation of the National Bald Eagle Management Guidelines would be applied as necessary.

Removal of hazards from streams has the potential to affect federally listed threatened and endangered (T&E) species and their habitat. In order to avoid and minimize potential impacts applicants should implement conservation measures provided by USFWS to the extent possible. Conservation measures include, but are not limited to: locate access routes, staging areas, etc. within previously disturbed areas; avoid disturbing or burying any existing riparian (streamside) habitat; restore any disturbed areas using native riparian plant species to prevent erosion, integrate native vegetation into rip rap slope protection, avoid fragmenting or isolating riparian corridors or wetlands, and identify areas of ground disturbance and conservation measures implemented. Contact U.S. Fish and Wildlife Service immediately by telephone at (303) 236-4773 if any T&E species is found alive, dead, injured, or hibernating within the project area.

4.10 CULTURAL RESOURCES

4.10.1 Affected Environment

To preserve historical and archaeological sites in the United States of America the National Historic Preservation Act (NHPA) was established in 1966. The act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices (SHPO).

The National Register of Historic Places is the Nation's official list of cultural resources worthy of preservation and is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. To be eligible for listing, a property must meet one of four eligibility criteria and have sufficient integrity.

Colorado has a rich cultural history. Throughout the state Native Americans have left petroglyphs, abandoned villages, and many other items from their life and travels through the

state. Spanish explorers, trappers and hunters, and gold miners made their way through the state and settled in Colorado. Westward expansion brought European settlers to the area, for mining, ranching and farming. Colorado has over 1500 listings on the National Register.

4.10.2 Environmental Consequences

Alternative 1: No Action

The No Action Alternative does not include hazard removal, and thus no new impacts to historic resources would occur.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

This alternative has the potential to affect historic or cultural resources. However, immediate rescue and salvage operations conducted to preserve life or property are exempt from the provisions of Section 106; 36 CFR 800.12 (d). Destruction or alteration of any site, structure or object of prehistoric or paleontological importance may occur during hazard removal. Physical change could affect unique cultural values. There could be effects on existing religious or sacred uses of a site or area and archeological resources may be present. For non-tribal lands agencies will determine if a project meets any outlined programmatic allowances from Programmatic Agreements with the Colorado State Historic Preservation Office (SHPO). If so, The Agencies would consider the project to be in compliance with Section 106 of NHPA and no further review would occur. If a project does not fall within an allowance, The Agencies will make a determination of affect and consult with the SHPO. Additional archaeological surveys of ground disturbing activities may be required depending on consultation with Tribal Historic Preservation Office (THPO) and SHPO.

4.11 HAZARDOUS MATERIALS

4.11.1 Affected Environment

Hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), are defined as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may; (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or; (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.”

Hazardous materials and wastes are regulated in Colorado by a combination of federal laws and state laws. Federal regulations governing the assessment and disposal of hazardous wastes include RCRA, the RCRA Hazardous and Solid Waste Amendments, Comprehensive Environmental Response, Compensation and Liability Act, Solid Waste Act, and Toxic Substances Control Act.

Colorado Department of Public Health and Environment (CDPHE) provides guidance and regulatory relief for the management and disposal of damaged or destroyed structures. Small appliance refrigerant recovery is also regulated by the CDPHE as well as the Air Pollution Control Division, and the Indoor Environment Program. A Chlorofluorocarbon HOTLINE is available to leave messages, report violations or to request assistance for either the state or federal chlorofluorocarbon programs. The number for the state Chlorofluorocarbon Hotline is 303-692-3200.

4.11.2 Environmental Consequences

Alternative 1: No Action

The No Action alternative would not disturb any hazardous materials or create any potential hazard to human health.

Alternative 2: Hazards Redistribution and Removal from Stream Corridors

The proposed action would not disturb any known hazardous materials or create any potential hazard to human health. If hazardous constituents are encountered during the proposed construction operations, appropriate measures for the proper assessment, remediation and management of the contamination would be initiated in accordance with applicable federal, state, and local regulations. The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials.

4.12 CUMULATIVE IMPACTS

The CEQ regulations (40 CFR 1500-1508) implementing the procedural provisions of NEPA of 1969, as amended (42 USC 4321) defines cumulative effects as:

“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 local) or person undertakes such other action (40 CFR 1508.7)”. Based on these regulations, if the alternative does not have direct or indirect effects there can be no cumulative effects resulting from the project because there would be no impacts added to past, present, or reasonably foreseeable actions.

CEQ regulations also describe cumulative impacts as impacts that “can result from individually minor but collectively significant actions taking place over a period of time.” On a programmatic level and combined with other actions affecting the streambeds alternatives could lead to cumulative impacts depending on the scale (number of projects) or geography (localized area) in which the actions are performed.

4.12.1 Summary of Cumulative Impacts

Individual projects proposed under this Programmatic Environmental Assessment are not anticipated to cause significant impacts, even when combined with other actions. Other than the “No Action Alternative”, project impacts that are implemented at an individual or cumulative scale, such as to produce significant impacts generally can be reduced below the level of significance by mitigating for individual impacts using the mitigation measures as addressed in Section 5. A Supplemental Project Specific Environmental Assessment will be completed, for any projects that are anticipated to occur at a scale or localized area such that impacts cannot be addressed under Mitigation Measures listed in Section 5.

SECTION FIVE | MITIGATION MEASURES

Project impacts that are implemented at an individual or cumulative scale such as to produce significant impacts can generally be reduced below the level of significance through avoidance, minimization, or by mitigating for individual impacts using mitigation measures as described below. If impact avoidance cannot be achieved, specific mitigation measures including agency consultation will be undertaken by The Agencies to reduce any potentially significant impacts to less than significant levels. **Table 4** lists the specific mitigation measures The Agencies will use if necessary.

Table 4: Mitigation Measures by Resource Area

Resource Area	Mitigation Measure
Physical Resources, Water Resources	If projects extend outside of the previously disturbed road footprint and wetland areas will be impacted, The Agencies will evaluate individual and cumulative impacts and implement avoidance, minimization and/or mitigation measures as necessary to reduce impacts below level of significance.
Physical Resources, Water Resources	For projects in which soil erosion potential is determined to be significant, a project erosion control plan to minimize soil loss, including the use of Best Management Practices, to isolate the construction site and minimize adverse effects of soil loss and sedimentation on soil and water resources will be implemented.
Physical Resources, Water Resources	To mitigate for impacts to floodplain, a hydrology and hydraulics study will be completed to ensure the flow of flood waters. The project must not serve as a dam or otherwise impede water movement thus aggravating flooding upstream of the roadway.
Physical Resources, Water Resources	The Agencies will consult with US Fish and Wildlife Service and/or Natural Resources Conservation Service for any project which extends outside of the road right of way and has the potential to affect land use, including Fish and Wildlife Service easements, prime farmland, or farmland of state/local significance.
Safety and Occupational Health	To minimize any potential to occupation health and safety, construction workers and equipment operators are required to wear appropriate PPE and to be properly trained for the work being performed, including removal and disposal of asbestos and lead-based paint for demolition projects.
Safety and Occupational Health	All waste material associated with the project must be disposed of properly and not placed in identified floodway or wetland areas or in habitat for threatened or endangered species. All hazardous material resulting from demolition activities, including asbestos and lead paint will be disposed of in hazardous waste landfill.
Air Quality	To mitigate for fugitive dust during construction periodic watering of active construction areas, particularly in areas close to sensitive receptors (e.g. hospitals, senior citizen homes, and schools) will be implemented.
Noise	Construction noise levels will be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Impact to noise levels will be minimized by limiting construction activities that occur during early morning or late evening hours.
Biological Resources	The Agencies will grant conditions for Species per consultation with the US Fish and Wildlife Service for any projects that have the potential to affect biological resources, including Threatened and Endangered Species.

Resource Area	Mitigation Measure
Cultural Resources	The absence of cultural properties in the area does not mean they do not exist, but rather may reflect the absence of any previous cultural resource inventory in the area. If during the course of any ground disturbance related to this project, cultural materials are inadvertently discovered, the project would be immediately stopped and the SHPO/THPO and Agency notified.
Cultural Resources	To avoid impacts to cultural resources from material borrow source, borrow material source will be reviewed and approved by SHPO or THPO prior to use.
Cultural Resources	The Agencies will consult with the State/Tribal Historic Preservation Office on project specific activities for any project that has the potential to affect previously undisturbed areas or historic properties.

SECTION SIX | SUMMARY OF IMPACTS

The following table summarizes the potential impacts of each alternative on the resource areas discussed in Section 4. **Table 5** is organized by each resource area for Alternative 1 and 2. Permits and conditions are summarized, as well as best construction practices.

Table 5: Summary of Impacts

Resource Area	Alternative 1: No Action	Alternative 2: Replacement	Permits and Conditions Required	Best Construction Practices	Conditions
Physical Resources	Under the No Action alternative, no federal action would be completed. Alternative 1 has potential to pose safety threats, permanently displace residents, further economic strains on the State of Colorado, and change land use if hazards are not redistributed or removed. Additionally Alternative 1 has the potential to permanently alter drainage and flow rates downstream. Loss in residential, commercial, agricultural, or recreational land use is may occur.	Under this alternative, the hazards within the stream corridor will be removed or redistributed. A hydrologic and hydraulic study will be used to determine the best redistribution for stream channels. Although this will affect the physical environment spring run-off is expected to alter stream corridors at a more significant rate than the proposed actions. Stream corridor footprint is expected to remain within the previous right-of-way (ROW) so no changes in land use are anticipated.	USACE Permit	<ul style="list-style-type: none"> Use vegetative stabilization measures/bioengineered alternatives to rip rap/armoring whenever possible Assess impacts to endangered species, historic buildings or cultural resources as specific projects are identified Consult with individual agencies including USFWS, USACE, EPA, etc. as needed on individual projects Implement USFWS conservation measures: locate access routes, staging areas, etc. within previously disturbed areas; avoid disturbing or burying any existing riparian (streamside) habitat; restore any disturbed areas using native riparian plant species to prevent erosion, integrate native vegetation into rip rap slope protection, avoid fragmenting or isolating riparian corridors or wetlands, and identify areas of ground disturbance 	The applicant is responsible for verifying and compliance with all permit requirements, including permit conditions, pre-construction notification requirements and regional conditions as provided by the US Army Corps of Engineers (USACE). The applicant is responsible for implementing, monitoring, and maintaining all Best Management Practices (BMP's) and Pre-Construction Notification (PCN) conditions of applicable Nation Wide Permits (NWP). This is to include any requirements per the Colorado Department of Public Health and Environment 401 Water Quality Certification for Clean Water Act permits. To the extent possible, keep equipment and construction within previously disturbed area and ROW.
Transportation Facilities	Under the No Action alternative no federal funding would be provided. Hazards would remain within the streambed and immediate threats would persist unless actions to remove or redistribute hazards would be provided by the State and/or local municipalities. This alternative may result in significant adverse impacts due to increased travel times and traffic volumes if hazards cause damage to transportation facilities.	This alternative would remove or redistribute hazards in the streambed. Short term impacts would be expected during construction as traffic delays and alternate routes may be required. No significant adverse long term impacts are expected to the transportation volume, capacity, and time of transit. The transportation facilities would be more resilient and less likely to experience substantial damage from future severe weather events.	none		Applicant shall, to the extent possible, follow best construction practices to minimize impacts to transportation facilities.
Safety and Occupational Health	In the no action alternative, hazards would be left in the stream corridors and would not be redistributed or removed, leaving residents, communities, and properties susceptible to significant spring flow damage. Damaged facilities are a safety concern as they remain	Alternative 2 would have no significant impact to public safety or occupational health. Communities are expected to benefit from the proposed action. Removal or redistribution of materials with painted surfaces or containing Asbestos may be required and construction workers are required to follow OSHA	none		For any "Asbestos Containing Material", lead-based paint and/or other hazardous materials found during remediation or repair activities, the applicant must comply with

Resource Area	Alternative 1: No Action	Alternative 2: Replacement	Permits and Conditions Required	Best Construction Practices	Conditions
	vulnerable to future events. Materials could be washed downstream impacting other structures. These materials may have the potential to cause both lead and asbestos exposure. A No Action Alternative may also result in restricted access for emergency, police and fire services causing the potential for significant delay. The No Action Alternative provides a significant adverse safety affect to residents of the State of Colorado.	regulations to provide appropriate Asbestos abatement and avoid release of lead from paint. Construction workers and equipment operators are required to wear appropriate personal protective equipment (PPE) and be properly trained for the work being performed. All solid or hazardous wastes that might be generated during the removal and redistribution must be removed and disposed of at a permitted facility or designated collection point (e.g., for solid waste, a utility or construction company's own dumpster). Standard construction traffic control measures will be used to protect workers, residents and the travelling public.			all Federal, State, and local abatement and disposal requirements. Applicants are responsible for ensuring contracted removal of hazardous debris also follows these guidelines.
Socioeconomic and Environmental Justice	Under the No-Action alternative hazard removal would proceed. There is no requirement for compliance with Executive Orders (EO) 12898 (Environmental Justice) and 13045 (Protection of Children From Environmental Health Risks and Safety Risks) since there are no federal actions. Alternative 1 has potential to result in significant adverse impact to socioeconomics of a community if buildings and critical infrastructural elements such as utilities are damaged by hazards during the spring run-off. Residents may be isolated from their homes and businesses if hazards cause roadway damages and isolation. The No Action alternative may cause significant damages to property and compromise infrastructure.	During the construction period this alternative may provide some short term benefits by providing construction jobs and a multiple effect of increased expenditures in the local economy. There may be major effects to populations during construction periods due to road detours, to provide access or hazard removal from stream banks. Efforts would be made during any construction to minimize short-term disruption to the local transportation system. Low income and minority populations may benefit during the construction process through the provision of construction jobs and multiplier effects of expenditures in the local economy. Any adverse impacts to low income or minority populations are expected to be short-term and not significant.	none		Applicant shall, to the extent possible, follow best construction practices to minimize impacts to low income and minority populations.
Air Quality	Under the No Action Alternative, affected areas will remain in existing conditions. Vehicle emissions would remain the same.	Removal of hazards will involve heavy construction equipment to properly distribute or remove hazards from streambeds. During construction there may be temporary increases in equipment exhaust emissions and fugitive dust. However, the temporary increase in equipment exhaust is expected to be negligible as long as the equipment is well maintained and idling is minimized. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner. The contractor would be required to keep all equipment in good working order to minimize air pollution. If fugitive dust were to become a problem it can be	none		Applicant shall, to the extent possible, follow best construction practices to minimize impacts to air quality. The contractor should keep all equipment in good working order to minimize air pollution.

Resource Area	Alternative 1: No Action	Alternative 2: Replacement	Permits and Conditions Required	Best Construction Practices	Conditions
		<p>mitigated by periodic watering of active construction areas, particularly areas close to any nearby sensitive receptors (e.g., hospitals, senior citizen homes, schools). Impacts from fugitive dust are anticipated to be short-term and negligible. Where bank stabilization/construction within the stream corridor is required there would be some short term increase in fugitive dust and vehicular emissions. Mitigation of fugitive dust, if necessary can be accomplished by periodic watering of the demolition site.</p> <p>After construction there would be no change in air quality as this alternative would not change roadway length, and therefore would not change the amount of vehicle emissions.</p>			
Noise	Under this alternative, hazards would remain. There is the potential that overall noise levels in the immediate area may increase due to temporary construction. However, noise impacts are not expected to be significant.	Streambed hazard removal is anticipated to carry a similar noise level to that which it had at pre-disaster damage levels. Noise from construction activities may have short term adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise impacts on residences can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours. Noise levels of construction equipment (70 to 72 dBA) at the distance in which affected parties would likely be located (>200 feet/60 meters) will not be of a duration to be significant.	none		Applicant shall, to the extent possible, follow best construction practices to minimize noise impacts.
Public Services and Utilities	This alternative does not include any federal action. Alternative 1 does have the potential to affect public services and utilities because hazardous materials can undermine, damage, or destroy downstream public facilities in subsequent storms if not removed. Fire, emergency, law enforcement, and school services would be delayed as a result of continued inaccessibility of the route due to closed roads or bridges. Depending on the length of detour required these services could be significantly impacted. In addition, utility repair crews may not be able to reach damaged utility lines, resulting in lengthy service outages.	During construction, delays in fire, emergency, law enforcement and school services may continue, but these would be short term impacts. Once completed, public services would be restored to pre-disaster levels. Utilities that cross or run along streams may be temporarily interrupted, but this would be a short-term impact. No long term impacts would occur under this alternative.	none		Applicant shall, to the extent possible, follow best construction practices to minimize any impacts on public services and utilities.
Biological	Under the No Action Alternative, no	The actions under this alternative may have the	Consultation		Applicant shall, to the extent

Resource Area	Alternative 1: No Action	Alternative 2: Replacement	Permits and Conditions Required	Best Construction Practices	Conditions
Resources	<p>localized or regional effects to threatened or endangered species are expected. This alternative does not include any action. Therefore, the applicants would not be required to consult with USFWS to comply with the ESA, Migratory Bird Treaty Act (MBTA), Fish and Wildlife Coordination Act (FWCA), or state laws. Damaged structures left in the stream may cause a flow impediment, potentially causing impacts to species habitats and individuals.</p>	<p>potential to affect sensitive biological resources, wetlands or natural waterways due to construction activities; a review of available information on the potential for species and critical habitat occurrence in the area will be conducted. The proposed action requires the redistribution or removal of hazards, materials, and possibly structures from the waterway, thus reducing impacts to species. Embankment work and in-water work will occur. This type of action may require a Senate Bill (SB) 40 permit from CPW for impacts to riparian areas. Federal Agencies will coordinate with USFWS will review the project and make a determination of affect. If an Agency determines that a project has the potential to affect sensitive biological resources it will initiate the review process under Section 7 of the ESA, MBTA, or FWCA, the results of this consultation with USFWS would be documented in a memorandum to this PEA or in a SEA. Because migratory birds nest on many substrates (e.g., ground, shrubs, trees, bridges, box culverts), proposed work should not occur during the breeding season (May 1st to August 15th) , the Service recommends: the required cutting of trees or shrubs occur between August 16th and April 30th to remove potential nesting surfaces prior to project commencement; the removal of swallow nests as they are built, but prior to egg laying, from the bridge structures that are to be removed; and/or netting of the affected bridge structures to prevent swallow nesting prior to the breeding season. If the project sites occur within 0.5 mile of occupied eagle nests, implementation of the National Bald Eagle Management Guidelines would be applied as necessary. Removal of hazards from streams has the potential to affect federally listed threatened and endangered (T&E) species and their habitat. In order to avoid and minimize potential impacts applicants should implement conservation measures provided by USFWS to the extent possible. Conservation measures include, but are not limited to: locate access routes, staging areas, etc. within previously disturbed areas; avoid disturbing or burying any existing riparian (streamside) habitat; restore any disturbed areas using native riparian plant species to</p>	<p>with USFWS will be necessary to assess permanent and temporary impacts</p>		<p>possible, follow best construction practices to minimize impacts to any species. Should any threatened or endangered species be discovered during construction work in the subject shall be halted and the applicant should contact USFWS for further guidance.</p> <p>Proposed work should not occur during the breeding season (May 1st to August 15th), the Service recommends: the required cutting of trees or shrubs occur between August 16th and April 30th to remove potential nesting surfaces prior to project commencement; the removal of swallow nests as they are built, but prior to egg laying, from the bridge structures that are to be removed; and/or netting of the affected bridge structures to prevent swallow nesting prior to the breeding season.</p>

Resource Area	Alternative 1: No Action	Alternative 2: Replacement	Permits and Conditions Required	Best Construction Practices	Conditions
		<p>prevent erosion, integrate native vegetation into rip rap slope protection, avoid fragmenting or isolating riparian corridors or wetlands, and identify areas of ground disturbance and conservation measures implemented. Contact U.S. Fish and Wildlife Service immediately by telephone at (303) 236-4773 if any T&E species is found alive, dead, injured, or hibernating within the project area.</p>			
Water Resources	<p>In the no action alternative, the stream corridors would not be repaired, leaving the hazards remaining within the waterways. No work would occur in water, thus there would be no direct impact to water resources due to the proposed action. Hazards may cause a flow impediment, potentially causing significant impacts to stream and floodplain hydraulics and function.</p>	<p>The proposed action will be performed within waterways. Excavation, redistribution, and fill materials may be necessary for the proposed project and thus impacting waters of the U.S. Discharge into surface water may provide a temporary alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity.</p> <p>Applicants will perform a hydrologic and hydraulic analysis to determine magnitude and frequency of flows. During construction agencies would mitigate impacts by requiring the applicant to apply BMPs to reduce sediment and fill material from entering the water. The applicant may be required to prepare a storm water pollution prevention plan (SWPPP). The applicant may also be required to obtain a Section 404 permit from the USACE) and a Section 401 Water Quality Certification permit from CDPHE Water Quality Control Division or the Environmental Protection Agency (EPA). Discharges of water encountered during excavation or work in wet areas may require a Construction Dewatering Discharge Permit. The applicant is responsible for complying with any conditions outlined within these permits. Compliance with local floodplain ordinances will also be required. While this alternative is not expected to significantly impact wetlands because actions are within stream corridors, certain sites could result in some materials or fill being placed in a wetland. Wetland boundaries would be determined in accordance with the latest regulatory guidance from the USACE and the United States Fish and Wildlife Service (USFWS). In these situations agency projects would implement the Eight-step Process to evaluate effects.</p> <p>This alternative would have little if any impact on increasing impervious surfaces, reduce groundwater</p>	<p>The applicant must coordinate with USACE as well as the CWCB to obtain and comply with all appropriate permits.</p>		<p>The applicant is responsible for verifying and compliance with all permit requirements, including permit conditions, pre-construction notification requirements and regional conditions as provided by the US Army Corps of Engineers (USACE). The applicant is responsible for implementing, monitoring, and maintaining all Best Management Practices (BMP's) and Pre-Construction Notification (PCN) conditions of applicable Nation Wide Permits (NWP). This is to include any requirements per the Colorado Department of Public Health and Environment 401 Water Quality Certification for Clean Water Act permits. Applicants must coordinate with local floodplain administrator to obtain and comply with the appropriate floodplain management permits.</p>

Resource Area	Alternative 1: No Action	Alternative 2: Replacement	Permits and Conditions Required	Best Construction Practices	Conditions
		<p>recharge, and adversely affect water quality through the transmission of sediment, debris, oils, and hazardous substances into surface waters. During construction, agencies would mitigate these impacts by requiring the applicant to apply BMPs to reduce impacts on wetlands and waterways.</p> <p>For any work completed within the designated section of the Cache La Poudre River that is listed wild and scenic agencies would confer with the regulatory agency overseeing that section.</p> <p>The results of the analyses and consultation discussed above would be documented in a memorandum to this PEA or in a SEA.</p>			
Cultural Resources	The No Action Alternative does not include hazard removal, and thus no new impacts to historic resources would occur.	<p>This alternative has the potential to affect historic or cultural resources. However, immediate rescue and salvage operations conducted to preserve life or property are exempt from the provisions of Section 106; 36 CFR 800.12 (d). Destruction or alteration of any site, structure or object of prehistoric or paleontological importance may occur during hazard removal. Physical change could affect unique cultural values. There could be effects on existing religious or sacred uses of a site or area and archeological resources may be present. For non-tribal lands agencies will determine if a project meets any outlined programmatic allowances from Programmatic Agreements with the Colorado State Historic Preservation Office (SHPO). If so, The Agencies would consider the project to be in compliance with Section 106 of NHPA and no further review would occur. If a project does not fall within an allowance, The Agencies will make a determination of affect and consult with the SHPO. Additional archaeological surveys of ground disturbing activities may be required depending on consultation with Tribal Historic Preservation Office (THPO) and SHPO.</p>	None		Applicant shall, to the extent possible, follow best construction practices to minimize impacts to any cultural resources. Should any historic or archaeological materials be discovered during construction, all activities on the site would be halted immediately and the applicant should contact the SHPO for further guidance.
Hazardous Materials	The No Action alternative would not disturb any hazardous materials or create any potential hazard to human health.	<p>The proposed action would not disturb any known hazardous materials or create any potential hazard to human health. If hazardous constituents are encountered during the proposed construction operations, appropriate measures for the proper assessment, remediation and management of the contamination would be initiated in accordance with applicable federal, state, and local regulations. The contractor would take appropriate measures to</p>	CDPHE permits		Hazardous Materials must be appropriately separated and disposed of in an approved disposal site or landfill. Asphalt must be recycled as a blended base material or appropriately separated and disposed of in an approved disposal site or landfill in

Resource Area	Alternative 1: No Action	Alternative 2: Replacement	Permits and Conditions Required	Best Construction Practices	Conditions
		prevent, minimize, and control the spill of hazardous materials.			accordance with the CDPHE authorized waste management regulations. For any “Asbestos Containing Material”, lead-based paint and/or other hazardous materials found during remediation or repair activities, the Applicant must comply with all Federal, State, and local abatement and disposal requirements. Applicants are responsible for ensuring contracted removal of hazardous debris also follows these guidelines.

SECTION SEVEN | PUBLIC INVOLVEMENT

7.1 PUBLIC NOTICE OF AVAILABILITY FOR DRAFT COMMENTARY

The following Public Notice of Availability was published in the *Denver Post*

March 16th, 2014

PUBLIC NOTICE OF AVAILABILITY OF THE DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT (PEA) FOR REDISTRIBUTION AND REMOVAL OF HAZARDS FROM STREAM CORRIDORS, COLORADO

In the spirit of Unified Federal Review (UFR) as outlined in the congressionally mandated Sandy Recovery Improvement Act (SRIA) the Federal Emergency Management Agency (FEMA), announces the availability of a draft Programmatic Environmental Assessment (PEA) for proposed projects for the removal and redistribution of sediments and hazards from streambeds in the state of Colorado. This analysis would be programmatic in nature and not address site-specific impacts, which would be evaluated prior to project approval. FEMA is inviting comment from the public and interested federal, tribal, state and local agencies on proposed actions and potential impacts to existing resources.

The PEA is intended to address numerous individual sites where large quantities of sediment, rock, trees, and boulders (hazards) along the natural stream channels have diminished the stream channels capacity to convey floodwaters and debris. This diminished capacity could result in additional flooding both downstream and outside the current channel if the deposition is not redistributed or removed to accommodate the stream flows during spring thaw or in another significant rainfall event. It is certain that the existing hazards will cause stream bank erosion which will threaten the integrity of the canyon infrastructure, property and environment. Rapid stream bank erosion will result in the destruction of nearby roads. In addition, the transport of hazards downstream has a substantial likelihood of causing new destruction to communities and their infrastructures which were recently repaired and which are currently undergoing repairs.

Some specific items of work may include, but will not be limited to:

- Operating equipment within the waterway as needed for retrieval of sediment, rock, trees, and boulders to reestablish appropriate hydraulic capacity and the removal of rubble from destroyed structures from the streambed to the extent that the work is necessary to address immediate hazards.
- Channel modifications necessary to facilitate heavy equipment access, reestablish embankments, and accommodate hazard removal.

- Minimal engineering plans which define the appropriate geometry and elevations to reestablish desired hydraulic capacity.

Projects considered under this PEA will involve actions that may be completed and/or funded by multiple federal, tribal, state and local sources. All federally-funded projects will be completed in compliance with applicable federal, tribal, state and local laws, regulations, Executive Orders, etc.

This notice of availability for comment is pursuant to the National Environmental Policy Act (PL 91-190) and associated environmental statutes, as implemented in FEMA's regulations 44 CFR Part 10. This draft PEA addresses the purpose and need of the proposed projects, project alternatives considered, affected environment, environmental consequences, and impact mitigation measures. Notice is also published in accordance with the National Historic Preservation Act, as implemented in 36 CFR Part 800; and Executive Order 11988, Floodplain Management and Executive Order 11990, Wetlands Protection, as implemented in 44 CFR Part 9; since these actions may have the potential to affect historic, cultural and archaeological resources, floodplains and wetlands.

As these actions are deemed emergency in nature an abbreviated public comment period related to the proposed actions described above will remain open for 5 days following publication of this notice. The draft EA will be available for public review on the FEMA Documents site <http://www.fema.gov/media-library/assets/documents>.

Interested persons may obtain more detailed information about the proposed PEA from Steven Hardegen, FEMA Region VIII, Regional Environmental Officer, Denver, CO steven.hardegen@fema.gov.

Comments will be accepted by the affected public; local, state, and federal agencies; and other interested parties in order to consider and evaluate environmental impacts of the proposed projects. Comments should be made in writing to the FEMA point of contact listed above and post-marked within 5 days of publication of this notice.

7.3 PUBLIC COMMENTS

This document is being released for a 5 day public comment period March 16th 2014. Comments will be recorded here.

SECTION EIGHT | REFERENCES

- Colorado Department of Public Health and Environment (CDPHE). [http://www.cdphe.state.co.us/regulations/wqccregs/61_2011\(09\).pdf](http://www.cdphe.state.co.us/regulations/wqccregs/61_2011(09).pdf). Accessed March, 2013.
- Colorado Department of Transportation. Environmental Clearances Information Summary <http://www.coloradodot.info/programs/environmental/resources/guidance-standards/EnvironmentalClearanceInfoSummary-Dec.10.pdf>. Accessed March, 2013.
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