CDOT Environmental Forum

The CDOT Environmental Forum was held on March 9, 2007. Representatives from 16 Federal and State agencies attended to offer ideas from their respective disciplines. The setting was intended to provide an opportunity for dialogue among resource agencies, regulatory agencies and local transportation planning officials. The forum facilitated improving relationships to develop an understanding among individuals of resource/regulatory agencies' responsibilities at the early stages of planning. The intent was also to foster an atmosphere of cooperative recognition for potential conflicts or opportunities at the regional level.

As a result of the forum, environmental issues and concerns were identified for each Transportation Planning Region.

Once the resource issues had been identified, several maps were placed at various locations. The representatives moved from one station to the next and located the areas of concern on the maps. Following the resource list is a map that summarizes the targeted areas of concern for each Transportation Planning Region.

Environmental Discussion
December 12, 2007

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Introduction

The environmental discussion has been developed to assist internal and external users who want an overview of the transportation decision-making process and a better understanding of the environmental considerations contained in that process. Mitigation is generally defined as first avoiding, then minimizing impacts to resources; compensation for unavoidable impacts is the final step in the mitigation process. However, generally people think of mitigation and compensation as interchangeable. Throughout this document, it should be understood that the first and most effective means of mitigating for impacts is to avoid and minimize negative impacts, and to provide compensation only after all avoidance and minimization efforts have been attempted.

SAFETEA-LU 6001 Requirements and the Colorado Long-Range Plan

The Transportation Reauthorization Act of 2005, or the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) included new requirements for identifying environmental resources potentially affected by the State of Colorado's long range transportation plan, as well as develop mitigation activities for natural and historical resources:

> 6001§135(f)(2)(D)
> (D) CONSULTATION, COMPARISON, AND CONSIDERATION.—
> (i) IN GENERAL.—The long-range transportation plan shall be developed, as appropriate, in consultation with State, Tribal, and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation.
> (ii) COMPARISON AND CONSIDERATION.—Consultation under clause (i) shall involve comparison of transportation plans to State and Tribal conservation plans or maps, if available, and comparison of transportation plans to inventories of natural or historic resources, if available.
>
> 6001§135(f)(4)
> (4) MITIGATION ACTIVITIES.—
> (A) IN GENERAL.—A long-range transportation plan shall include a discussion of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan.
> (B) CONSULTATION.—The discussion shall be developed in consultation with Federal, State, and Tribal wildlife, land management, and regulatory agencies.

The 2035 Statewide Transportation Plan does not identify specific projects, project locations, design, or footprints. Instead, it is a strategic document intended to identify specific goals and strategies for meeting transportation needs within defined transportation corridors. These corridors, although represented through the state highway

system, are not intended to represent linear features, or be constrained to any single transportation facility or transportation mode. Furthermore, the long range plan covers every area of the state, but the majority of these areas are not likely to have projects funded or overseen by the Colorado Department of Transportation (CDOT) before 2035.

Within each corridor, CDOT compared the existing and proposed transportation facilities (generally the state highway system) against known inventories of natural and historic resources. Appropriate inventories were identified and developed in consultation with various state and federal agencies responsible for resource management, resource regulation, and land management. For each corridor, a general list of the known resources potentially present within the corridor was developed and can be found within the corridor visions. These lists should not be taken as all inclusive or absolutely accurate. Better, more defined information is necessary to determine what resources are present and must be considered during project development.

The long-range transportation plan does not identify specific projects. Therefore, the degree of impact on environmental resources cannot yet be determined, making mitigation details difficult to establish. As discussed below, proactive mitigation programs may result from further evaluation of transportation corridor needs, and site specific mitigation is developed as part of the project environmental review process conducted under the National Environmental Policy Act (NEPA).

This discussion contains environmental resource considerations that describe the resource, identify mitigation strategies applicable to the resource, and to the degree practicable, identify the locations that have the most potential to enhance and/or restore the environmental resource.

Tribal Sovereignty and Consultation

Consultation with the Native American Tribes recognizes the government-to-government relationship between the United States Government and sovereign Tribal groups. The United States Government and the State of Colorado have unique relationships with American Indian governments as set forth in the Constitution of the United States, treaties, statutes, court decisions, and executive orders and memoranda. These form the basis of cooperative relationships between CDOT and our Tribal partners.

On April 29, 1994, a Presidential Memorandum was issued reaffirming the federal government's commitment to operate within a government-to-government relationship with federally recognized American Indian and Alaska Native tribes, and to advance self-governance for such tribes. The Presidential Memorandum directs each executive department and agency, to the greatest extent practicable and to the extent permitted by law, to consult with tribal governments prior to taking actions that have substantial direct effects on federally recognized tribal governments. In order to ensure that the rights of sovereign tribal governments are fully respected, all such consultations are to be open and candid so that tribal governments may evaluate for themselves the potential impact of relevant proposals.

On May 14, 1998, the President issued Executive Order 13084, "Consultation and Coordination with Indian Tribal Governments," which was revoked and superseded on November 6, 2000, by the identically titled Executive Order 13175, which sets forth guidelines for all federal agencies to (1) establish regular and meaningful consultation and collaboration with Indian tribal officials in the development of federal policies that have tribal implications; (2) strengthen the United States government-to-government relationships with Indian tribes; and (3) reduce the imposition of unfunded mandates upon Indian tribes.

CDOT takes the responsibility for implementing and meeting these requirements seriously and recognizes the need for direct and interactive (i.e., collaborative) involvement of tribes in the development of regulatory policies, transportation plans, and transportation projects that have tribal implications. Recognition of the independent sovereignty of the tribal governments includes the role of the tribes in regulating impacts to resources on sovereign property. Mitigation for impacts to resources under the jurisdiction of the tribal governments must be developed in coordination with the tribal governments as an equal party to federal and state agencies.

Environmental Ethic

Colorado's transportation system is governed by a number of environmental laws and regulations at the federal, state, Tribal, and local level. These laws regulate everything from wildlife to water quality, and archaeology to hazardous materials. CDOT, however, recognizes the value of the environment beyond the requirements of environmental laws and statutes. As such, CDOT adopted the following environmental ethics statement to guide its work and accomplish its mission:
"CDOT will support and enhance efforts to protect the environment and quality of life for all of its citizens in the pursuit of providing the best transportation systems and services possible."

Four principles support and guide CDOT's environmental ethic statement:

- CDOT goes beyond environmental compliance and strives for environmental excellence.

- CDOT promotes a sense of environmental responsibility for all employees in the course of all CDOT activities.

- CDOT ensures that measures are taken to avoid or minimize the environmental impacts of construction and maintenance of the transportation system and that mitigation commitments are implemented and maintained.

- CDOT designs, constructs, maintains, and operates the statewide transportation system in a manner that helps preserve and sustain Colorado's historic and scenic heritage and fits harmoniously into communities and the natural environment.

The Environmental Stewardship Guide describes CDOT's environmental ethic. It describes the process by which social, economic, environmental and engineering considerations are integrated in all aspects of transportation decision-making., The existing version of the Environmental Stewardship Guide demonstrates how CDOT's environmental ethic and policies are applicable to project planning and construction and to maintenance of the statewide transportation system.

Environmental Policies

Two sections of Statewide Transportation Policy Directive 13 address CDOT's commitment to the environment and support CDOT's environmental ethics statement and principles:

ENVIRONMENT

"CDOT will support and enhance efforts to protect the environment and quality of life for all its citizens in the pursuit of providing the best transportation systems and services possible. CDOT will:

- Promote a transportation system that is environmentally responsible and encourages preservation of the natural environment and enhancement of the created environment for current and future generations;

- Incorporate social, economic and environmental concerns into the planning, design, construction, maintenance, and operations of the state's existing and future transportation system;

- Will, through the active participation of the general public, federal, state, tribal and local agencies, objectively consider all reasonable alternatives to avoid or minimize adverse impacts;

- Will ensure that measures are taken to avoid and minimize the environmental impacts of construction and maintenance of the transportation system, all activities are in compliance with all environmental statutes and regulations, and that mitigation commitments are implemented and maintained;

- Will plan, design, construct, maintain and operate the transportation system in a manner which helps preserve Colorado's historic and natural heritage and fits harmoniously into the community, local culture and the natural environment."

BALANCE QUALITY OF LIFE FACTORS

"CDOT recognizes the complex inter-relationship of the environment, economic vitality and mobility, and is committed to balancing these factors in the development and implementation of the statewide transportation plan. By working with local, regional and state interests, CDOT will advocate the development of a coordinated decision-making

process that balances the long-range transportation, land use and quality of life needs in Colorado. It is not the intent of the Colorado Transportation Commission or CDOT to prohibit or interfere with local land use decisions."

National Environmental Policy Act

Title I of the NEPA contains a Declaration of National Environmental Policy that requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. Section 102 requires federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary approach. Specifically, all federal agencies are to prepare detailed statements assessing the environmental impact of and alternatives to major federal actions significantly affecting the environment. Since CDOT receives federal funding for many transportation projects, it is required to follow the requirements of NEPA. In order to ensure flexibility in how federal dollars are spent, CDOT requires all projects, regardless of funding source, to follow NEPA requirements.

The use of context sensitive solutions as part of the project development process is intended to improve project delivery and improve the value of the transportation system to communities. Context sensitive solutions require a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. Alternatives to address the transportation needs are developed that attempt to address stakeholder concerns. The result is a streamlining of the NEPA process that avoids unnecessary delay resulting from re-evaluations of alternatives necessitated by late identification of concerns and constraint.

Most environmental mitigation is developed during the environmental review process at the project level, when the types and degree of unavoidable impacts can be identified. CDOT's NEPA Guidance Manual provides information on the various methods for evaluating the types and severity of environmental impacts at the project level.

Proactive Environmental Mitigation

In areas where there is the potential for a number of projects to impact a particular resource, it may be appropriate to consider developing proactive mitigation programs. These programs are intended to identify and compensate for future impacts to a resource before project impacts occur. CDOT has been involved in the development of several different proactive mitigation programs, including the state's first habitat conservation bank (the East Plum Creek Preble's Meadow Jumping Mouse Bank), the development of watershed level mitigation programs for wetlands and the Shortgrass Prairie Initiative, recognized nationally by multiple agencies for its proactive approach to species conservation.

When evaluating and developing proactive mitigation programs for natural resources, an ecosystem approach should be used. The ecosystem approach is characterized as a method for sustaining or restoring natural systems and their functions and values. It is

goal driven, and is based on a collaboratively developed vision of desired future conditions that integrates ecological, economic, and social factors. It is applied within a geographic framework defined primarily by ecological boundaries. An example of such an ecosystem might be watersheds, the San Luis Valley, the Colorado Central Shortgrass Prairie, or South Park, where geographic boundaries can be drawn around an interacting area of concern. Under the ecosystem approach, the frame of reference and management objectives are much broader than those developed for site specific mitigation.

Local Land Use Regulations and Environmental Requirements

This document focuses on the environmental resources and regulations that apply at the State and Federal level. During project scoping and project development, it is important to contact the local land use and other local regulatory agencies to determine what specific environmental or other requirements are applicable to the project.

Comparison and Consideration

The 2035 Statewide Transportation Plan corridor visions were compared with inventories of natural and historic resources and conservation plans. CDOT has developed a GIS database, compiling data from numerous sources with the cooperation of various resource and regulatory agencies in the state. To meet the SAFETEA-LU consultation requirements, CDOT requested that the resource and regulatory agencies review the datasets that CDOT has collected and indicate whether or not these datasets were appropriate for the comparison, whether there were other datasets that should be used, or if there were other resources that should be included. The resource and regulatory agencies were asked to review the list of conservation plans that CDOT had identified and notify CDOT of any additional conservation plans that should be included in the environmental review of the 2035 Statewide Transportation Plan.

Four environmental resources: water quality, wetlands, migratory birds, and historic resources, did not have reliable or complete inventories that are suitable for comparison against the long-range plan. As a result, CDOT has made the assumption that these resources are present in every corridor.

To demonstrate the comparison against the inventories of natural and historic resources and conservation plans, CDOT amended each of the regional corridor visions in the 2035 plan. By accessing the corridor visions CD, and reviewing the corridor visions for each regional corridor, a reader will now find a list of the various environmental resources and conservation plans identified by the inventories to be present within the corridor.

Hyperlinks within the environmental resources list direct the reader to sections of this mitigation discussion as appropriate. Hyperlinks for conservation plans available on the internet have also been provided to allow the reader to easily access these conservation plans.

Natural Resources

Natural resources can be impacted by direct loss of resources, habitat fragmentation, and indirect or cumulative effects that erode the overall quality of natural resources. As the transportation system is developed, maintained and operated, environmental impacts must be continually evaluated and means to minimize or mitigate impacts to natural resources identified and implemented.

Threatened and Endangered Species and State Species of Concern

Resource Description:

In Colorado, there are currently 31 species of fish, birds, mammals and plants on the federal list of threatened and endangered species**.** The U.S. Fish and Wildlife Service identified another 10 as candidate species. In addition to the federally listed species, there are 16 species listed by the state as threatened or endangered and another 44 listed as state species of concern (Colorado Division of Wildlife, May 2004). Impacts can result from destruction of habitat, animal mortality (including from vehicle-wildlife collisions or construction activity), fragmentation of habitat, or changes in species behavior such as altering foraging or denning patterns.

To comply with the federal Endangered Species Act, CDOT evaluates all possible adverse impacts and takes all necessary measures to avoid harming proposed, candidate and listed species before, during and after construction and maintenance activities. Impacts that are studied and determined to be unavoidable are minimized through highway design and construction techniques. Appropriate compensation is utilized after all reasonable avoidance and minimization techniques have been exhausted.

Senate Bill 40 (SB40) (33-5-101-107, CRS 1973 as amended) was created primarily for the protection of fishing waters, but it does acknowledge the need to protect and preserve fish and wildlife resources associated with streams, banks and riparian areas in Colorado. This is accomplished through erosion control, water contaminate control, discharge conditions, construction procedures, vegetation manipulation and noxious weed control. These measures, when properly used, can ensure that Colorado waters remain conducive to healthy and stable fish and wildlife populations which depend on the rivers and streams of Colorado.

Please go to the following link for specific information on SB40 jurisdiction, certification requests, general and special conditions.
http://www.dot.state.co.us/environmental/Wildlife/sb40gdlns.pdf

Mitigation Strategies:

Species specific mitigation is generally developed during project development. Mitigation should be developed that protects, enhances, or restores ecosystem functions that benefit as many species as possible.

In an effort to pro-actively address conflicts between transportation and wildlife, in 2003, CDOT teamed with the Nature Conservancy, U.S. Fish and Wildlife Service and other federal agencies to provide funding to protect up to 50,000 acres of endangered shortgrass prairie ecosystem on the Eastern Plains. The initiative received the 2003 Environmental Excellence Award from the FHWA and helps protect habitat for the bald eagle as well as the mountain plover, burrowing owl, black-tailed prairie dog, swift fox and others.

Below is a list of federal & state species of concern. The three species detailed in the following sections (Canada lynx, Preble's meadow jumping mouse, and Southwestern Willow Flycatcher) are the species most likely to be impacted by CDOT activities because the species are widely distributed, or located near high growth areas. However, potential impacts to every species on the list must be considered.

List of Federal and State Species of Concern

Designation	Common Name	Scientific Name	Status
Federal	Arkansas Darter	*Etheostoma cragini*	FC
Federal	Bald Eagle	*Haliaeetus leucocephalus*	BGEPA
Federal	Black-footed Ferret	*Mustela nigripes*	FE
Federal	Bonytail Chub	*Gila elegans*	FE
Federal	Canada Lynx	*Lynx canadensis*	FT
Federal	Clay-loving Wild-buckwheat	*Eriogonum pelinophilum*	FE
Federal	Colorado Butterfly Plant	*Gaura neomexicana var. coloradensis*	FT
Federal	Colorado Pikeminnow (squawfish)	*Ptychocheilus lucius*	FE
Federal	De Beque Phacelia	*Phacelia submutica*	FC
Federal	Dudley Bluffs Bladderpod	*Lesquerella congesta*	FT
Federal	Dudley Bluffs Twinpod	*Physaria obcordata*	FT
Federal	Graham Beardtongue	*Penstamon grahamii*	FC
Federal	Gray Wolf (SW Distinct Population Segment)	*Canis lupus*	FE
Federal	Gray Wolf (Western Distinct Population Segment)	*Canis lupus*	FT
Federal	Greenback Cutthroat Trout	*Oncorhynchus clarki stomias*	FT
Federal	Humpback Chub	*Gila cypha*	FE
Federal	Knowlton Cactus	*Pediocactus knowltonii*	FE
Federal	Least Tern (interior pop.)	*Sterna antillarum*	FE
Federal	Lesser Prairie-chicken	*Tympanuchus pallidicinctus*	FC
Federal	Mancos Milk-vetch	*Astragalus humillimus*	FE
Federal	Mesa Verde Cactus	*Sclerocactus mesae-verdae*	FT
Federal	Mexican Spotted Owl	*Strix occidentalis lucida*	FT
Federal	North Park Phacelia	*Phacelia formosula*	FE
Federal	Osterhout Milk-vetch	*Astragalus osterhoutii*	FE
Federal	Pagosa Skyrocket	*Ipomopsis polyantha*	FC
Federal	Pallid Sturgeon	*Scaphirhynchus albus*	FE
Federal	Parachute Beardtongue	*Penstemon penlandii*	FC

Federal	Pawnee Montane Skipper	*Hesperia leonardus montana*	FT
Federal	Penland Alpine Fen Mustard	*Eutrema penlandii*	FT
Federal	Penland Beardtongue	*Penstemon penlandii*	FE
Federal	Piping Plover	*Charadrius melodus*	FT
Federal	Preble's Meadow Jumping Mouse	*Zapus hudsonius preblei*	FT
Federal	Razorback Sucker	*Xyrauchen texanus*	FE
Federal	Sleeping Ute Milk Vetch	*Astragalus tortipes*	FC
Federal	Slender Moonwort	*Botrychium lineare*	FC
Federal	Southwestern Willow Flycatcher	*Empidonax traillii extimus*	FE
Federal	Uinta Basin hookless Cactus	*Sclerocactus glaucus*	FT
Federal	Uncompahgre Fritillary Butterfly	*Boloria acrocnema*	FE
Federal	Ute Ladies'-tresses	*Spiranthes diluvialis*	FT
Federal	White River Beardtongue	*Penstemon scariosus var. albifluvis*	FC
Federal	Whooping Crane	*Grus americana*	FE
Federal	Yellow Billed Cuckoo	*Coccyzus americanus*	FC
State	American White Pelican	*Pelecanus erythrorhynchos*	SC
State	Arkansas Darter	*Etheostoma cragini*	ST
State	Bald Eagle	*Haliaeetus leucocephalus*	ST
State	Barrow's Goldeneye	*Bucephala islandica*	SC
State	Black-footed Ferret	*Mustela nigripes*	SE
State	Bonytail Chub	*Gila elegans*	SE
State	Boreal Toad (Southern Rocky Mountain Population)	*Bufo boreas pop. 1*	SE
State	Boreal Toad (Southern Rocky Mountain Population)	*Bufo boreas pop. 1*	SE
State	Burrowing Owl	*Athene cunicularia*	ST
State	Canada Lynx	*Lynx canadensis*	SE
State	Canyon Treefrog	*Hyla arenicolor*	SC
State	Colorado Pikeminnow	*Ptychocheilus lucius*	ST
State	Colorado River Cutthroat Trout	*Oncorhynchus clarki pleuriticus*	SC
State	Common Kingsnake	*Lampropeltis getula*	SC
State	Couch's Spadefoot	*Scaphiopus couchii*	SC
State	Desert Spiny Lizard	*Sceloporus magister*	SC
State	Ferruginous Hawk	*Buteo regalis*	SC
State	Flannelmouth Sucker	*Catostomus latipinnis*	SC
State	Great Basin Spadefoot	*Spea intermontana*	SC
State	Great Plains Narrowmouth Toad	*Gastrophryne olivacea*	SC
State	Greater Sandhill Crane	*Grus canadensis tabida*	SC
State	Greenback Cutthroat Trout	*Oncorhynchus clarki stomias*	ST
State	Gunnison Sage Grouse	*Centrocercus minimus*	SC

State	Gunnison Sage Grouse	*Centrocercus minimus*	SC
State	Humpback Chub	*Gila cypha*	ST
State	Kit Fox	*Vulpes macrotis*	SE
State	Least Tern	*Sterna antillarum*	SE
State	Lesser Prairie-chicken	*Tympanuchus pallidicinctus*	ST
State	Long-billed Curlew	*Numenius americanus*	SC
State	Longnose Leopard Lizard	*Gambelia wislizenii*	SC
State	Massasauga	*Sistrurus catenatus*	SC
State	Mexican Spotted Owl	*Strix occidentalis lucida*	ST
State	Midget Faded Rattlesnake	*Crotalus viridis concolor*	SC
State	Mountain Plover	*Charadrius montanus*	SC
State	Northern Cricket Frog	*Acris crepitans*	SC
State	Northern Leopard Frog	*Rana pipiens*	SC
State	Northern Redbelly Dace	*Phoxinus eos*	SE
State	Peregrine Falcon	*Falco peregrinus*	SC
State	Piping Plover	*Charadrius melodus*	ST
State	Plains Leopard Frog	*Rana blairi*	SC
State	Plains Sharp-tailed Grouse	*Tympanuchus phasianellus jamesi*	SE
State	Preble's Meadow Jumping Mouse Subsp	*Zapus hudsonius preblei*	ST
State	Rio Grande Chub	*Gila pandora*	SC
State	Rio Grande Cutthroat Trout	*Oncorhynchus clarki virginalis*	SC
State	Rio Grande Sucker	*Catostomus plebeius*	SE
State	Rocky Mountain Capshell	*Acroloxus coloradensis*	SC
State	Roundtail Chub	*Gila robusta*	SC
State	Sage Grouse	*Centrocercus urophasianus*	SC
State	Southern Redbelly Dace	*Phoxinus erythrogaster*	SE
State	Southwestern Willow Flycatcher	*Empidonax traillii extimus*	SE
State	Swift Fox	*Vulpes velox*	SC
State	Texas Blind Snake	*Leptotyphlops dulcis*	SC
State	Texas Horned Lizard	*Phrynosoma cornutum*	SC
State	Western Snowy Plover	*Charadrius alexandrinus nivosus*	SC
State	Whooping Crane	*Grus americana*	SE
State	Wolverine	*Gulo gulo*	SE
State	Yellow Mud Turtle	*Kinosternon flavescens*	SC

FC = Federal Candidate for listing
FE = Federally Endangered
FT = Federally Threatened
SE = State Endangered

ST = State Threatened
SC = State Special Concern (not a statutory category)
BGEPA = In June 2007, bald eagles were removed from the federal list of threatened and endangered species, but are still protected by the Bald and Golden Eagle Protection Act of 1940.

Mitigation Location:

Mitigation location is dependent on the type of species and ecosystem functions trying to be protected, enhanced, or restored. Mitigation should take place in areas that can best compensate for impacted resources.

Canada Lynx

Resource Description:

On March 24, 2000, the lynx was listed as threatened under the Endangered Species Act. Full protection became effective on April 23, 2000.

The lynx is a medium-sized cat with long legs, large, well-furred paws, long tufts on the ears, and a short, black-tipped tail. The winter pelage of the lynx is dense and has a grizzled appearance with grayish-brown mixed with buff or pale brown fur on the back, and grayish-white or buff-white fur on the belly, legs, and feet. Summer pelage of the lynx is more reddish to gray-brown. Adult males average 10 kilograms (22 pounds) in weight and 85 centimeters (33.5 inches) in length (head to tail), and females average 8.5 kilograms (19 pounds) and 82 centimeters (32 inches). The lynx's long legs and large feet make it highly adapted for hunting in deep snow.

Lynx distribution and abundance appear to be closely associated with that of the snowshoe hare (*Lepus americanus*), the primary prey of lynx comprising 35-97 percent of the diet throughout the range of the lynx. Other prey species include red squirrel (*Tamiasciurus hudsonicus*), Grouse (*Bonasa umbellus, Dendragopus spp.*, *Lagopus spp.*), flying squirrel (*Glaucomys sabrinus*), ground squirrel (*Spermophilus parryii, S. Richardsonii*), porcupine (*Erethrizon dorsatum*), beaver (*Castor canadensis*), mice (*Peromyscus spp.*), voles (*Microtus spp.*), shrews (*Sorex spp.*), fish and ungulates as carrion or occasionally as prey.

Like most highly mobile carnivores, lynx select habitat by food availability, but suitability for denning and secure travel are also important habitat elements for lynx. Lynx are believed to benefit most from a landscape mosaic of young, mature, and old-growth forest. An optimal landscape is assumed to include an abundance of young, vigorously regenerating high-density lodgepole pine or spruce-fir forest foraging habitat interspersed with old-growth coniferous forest that provides denning and security habitat, as well as foraging opportunity for snowshoe hare and red squirrel. An effective habitat complex will be interconnected by a network of suitable travel corridors.

During the cycle when hares become scarce, the proportion and importance of other prey species, especially red squirrel, increases in the diet. However, a diet of red squirrels alone might not be adequate to ensure lynx reproduction and survival of kittens.

Most research has focused on the winter diet. Summer diets are poorly understood throughout the range of lynx. It has been discussed in the literature that summer diets have less snowshoe hare and more alternate prey species, possibly because of a greater availability of other species.

Southern populations of lynx may prey on a wider diversity of species than northern populations because of lower than average hare densities and differences in small mammal communities. In areas characterized by patchy distribution of lynx habitat, lynx

may prey opportunistically on other species that occur in adjacent habitat, potentially including white-tailed jackrabbit (Lepus townsendii), black-tailed jackrabbit (Lepus californicus), sage grouse (Centrocercus urophasianus), and Columbian sharp-tailed grouse (Tympanichus phasianellus).

Canada lynx may compete with canids, other felids, mustelids, and raptors for snowshoe hares and other small mammals. Bobcat home ranges often exhibit elevational separation from those of Canada lynx, which are better adapted to deep snow. Bobcats are thought to displace Canada lynx where both felids inhabit the same geographic areas.

Mitigation Strategies:

When avoidance of lynx habitat is not an option, mitigation strategies will often include:
1) Limiting the work to daytime hours when lynx are less active.
2) Limiting the work to the months when lynx are not dispersing.
3) Increasing the size, type and/or number of available roadway crossings.
4) When practicable, installing cable rail instead of w-beam guardrail to minimize barriers.
5) Concentrating work within lynx habitat as much as possible to minimize the distance of disturbance at one time.
6) Allowing traffic to pass through the construction site as few times as possible to allow for a relative quiet, dark crossing opportunity on either side of the construction area.
7) Installing lynx-proof fencing to funnel the animals to a safe highway crossing.
8) Maintain, enhance, or create forested corridors adjacent or within ROW to the extent that they do not pose a safety hazard.

Mitigation Location:

Mitigation areas typically are located in subalpine and upper montane forest zones, 8,000-12,000 feet in elevation and will generally be associated with projects in these geographic areas. Uneven aged stands, relatively open canopies and well-developed understories provide favorable habitat for snowshoe hares, and are ideal for lynx foraging. The common components of denning habitat appears to include large woody debris, either downed logs or root wads within the subalpine or montane forests and adjacent to foraging habitat. Natal den sites may be located within older regenerating stands (>20 years since disturbance) or in mature conifer or mixed conifer-deciduous (typically spruce/fir or spruce/birch) forests. Stand structure appears to be of more importance than forest cover type.

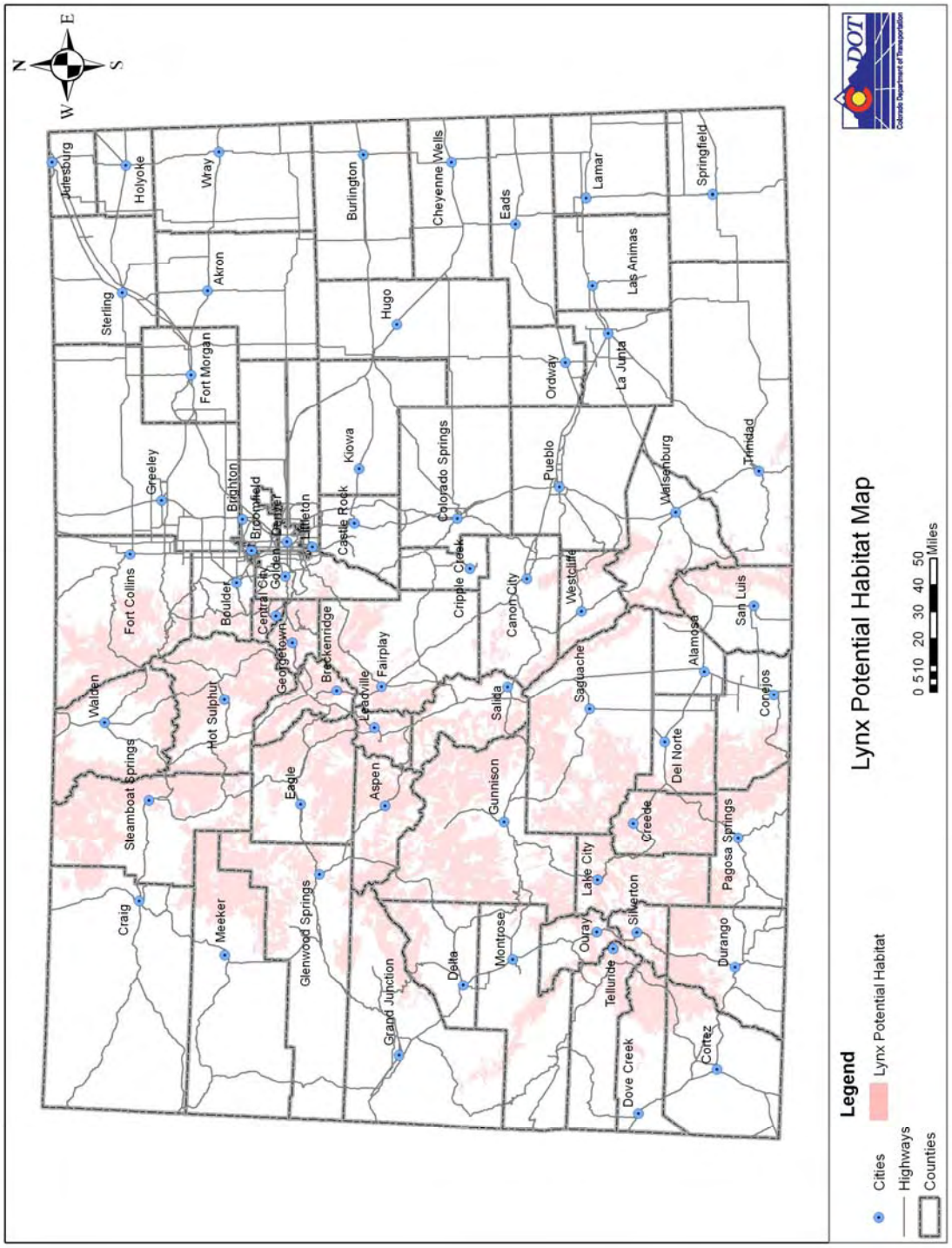

Figure 1: Potential Lynx Habitat in Colorado

Preble's Meadow Jumping Mouse

Resource Description:

On May 13, 1998, the U.S. Fish and Wildlife Service designated the mouse as threatened in its entire range.

On June 23, 2003, designated critical habitat was designated for Preble's.
On May 20, 2004, a permanent a final section 4(d) special rule for the Preble's that provides exemptions from section 9 take prohibitions for certain rodent control activities, ongoing agricultural activities, maintenance and replacement of existing landscaping, existing uses of water, certain noxious weed control and ditch maintenance activities.
On February 2, 2005, a 12-Month Finding was issued on a petition to delist the Preble's and proposed to remove the mouse from the Federal list of threatened and endangered species .

On February 17, 2006, the Service extended the rule-making process an additional six-months due to substantial disagreement regarding the sufficiency or accuracy of the available data.

On November 1, 2007, the Service announced a revised proposal to remove the Preble's populations in Wyoming from the List of Threatened and Endangered Species; and proposing to amend the listing for Preble's to indicate the subspecies remains threatened in the Colorado portion of its range. Additionally, the best commercial and scientific information available demonstrates that the Preble's is a valid subspecies and should not be removed from the List of Threatened and Endangered Species based upon taxonomic revision.

The Preble's meadow jumping mouse (Preble's or PMJM) is a small rodent in the family Zapodidae and is 1 of 12 recognized subspecies of the species *Z. hudsonius*, the meadow jumping mouse. Preble's is native only to the Rocky Mountains-Great Plains interface of eastern Colorado and southeastern Wyoming. This shy, largely nocturnal mouse lives in moist lowlands with dense vegetation. It is 8 to 9 inches long (its tail accounts for 60 percent of its length) with hind feet adapted for jumping. Preble's hibernates underground from September to May.

The U.S. Fish and Wildlife Service (Service) added the Preble's meadow jumping mouse to the List of Endangered and Threatened Wildlife as a threatened species on May 13, 1998. The Service designated critical habitat for Preble's on June 23, 2003.

Typical habitat for Preble's meadow jumping mouse is comprised of well-developed plains riparian vegetation with adjacent, relatively undisturbed grassland communities and a nearby water source. Well-developed plains riparian vegetation typically includes a dense combination of grasses, forbs, and shrubs; a taller shrub and tree canopy may be present. When present, the shrub canopy is often willow (*Salix* spp.), although other shrub species, including snowberry (*Symphoricarpos* spp.), chokecherry (*Prunus*

virginiana), hawthorn (*Crataegus* spp.), Gambel's oak (*Quercus gambelii*), alder (*Alnus incana*), river birch (*Betula fontinalis*), skunkbrush *(Rhus trilobata*), wild plum (*Prunus americana*), lead plant (*Amorpha fruticosa*), dogwood *(Cornus sericea*) and others may also occur.

Preble's is a true hibernator, usually entering hibernation in September or October and emerging the following May, after a potential hibernation period of seven or eight months. Adults are the first age group to enter hibernation because they accumulate the necessary fat stores earlier than young of the year. Apparent hibernacula of Preble's have been located both within and outside of the 100-year floodplain of streams. Those hibernating outside of the 100-year floodplain would likely be less vulnerable to flood-related mortality. Hibernacula have been located under willow, chokecherry, snowberry, skunkbrush, sumac (*Rhus* spp.), clematis (*Clematis* spp.), cottonwoods (*Populus* spp.), Gambel's oak, thistle (*Cirsium* spp.), and alyssum (*Alyssum* spp.). Preble's also constructs day nests composed of grasses, forbs, sedges, rushes, and other available plant material.

Preble's annual survival rate is low. Preble's survival rates appear to be lower over the summer than over the winter. Over-summer survival rates ranged from 22 to 78 percent and over-winter survival rates ranged from 56 to 97 percent.

Transportation and utility corridors frequently bisect Preble's habitat and may adversely affect populations. As new roads are built and old roads are maintained, habitat can be destroyed or fragmented. Roads and bridges also may act as barriers to dispersal. Train and truck accidents within riparian areas may release spills of chemicals, fuels and other substances that may impact the mouse or its habitat. Sewer, water, communications, gas, and electric lines cross Preble's habitat. Their right-of-ways can contribute to habitat disturbance and fragmentation through new construction and periodic maintenance. However, construction-related impacts are often short term when adequate rehabilitation and reclamation actions are implemented.

Mitigation Strategies:

Mitigation strategies include:

1) Developing large areas of Preble's habitat that can be used as a "bank"
2) Creating and/or connecting habitat through plantings and water manipulation.
3) Protecting current habitat from future disturbance.
4) Enhancing current, low quality habitat thorough weed control, water manipulation, and plantings to increase the productivity and value of the area for Preble's
5) Installing shelves within culverts to reconnect habitat that has been fragmented by a highway.
6) Avoiding work during the active season (May 1 – October 31)
7) Maintain or improve water quality within Preble's habitat

Mitigation Location:

Mitigation may be required in Front Range counties such as Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Elbert, Jefferson, Larimer, or Weld counties where riparian vegetation is well-developed with relatively undisturbed grassland and a water source in close proximity or one with a dense herbaceous vegetation consisting of a variety of grasses, forbs and thick shrubs. Because Preble's are known to use upland shrubs for hibernacula and day roosts to a distance of 300' from the 100 year floodplain, these areas are also considered Preble's habitat and can be restored, where practical, to compensate for impacts.

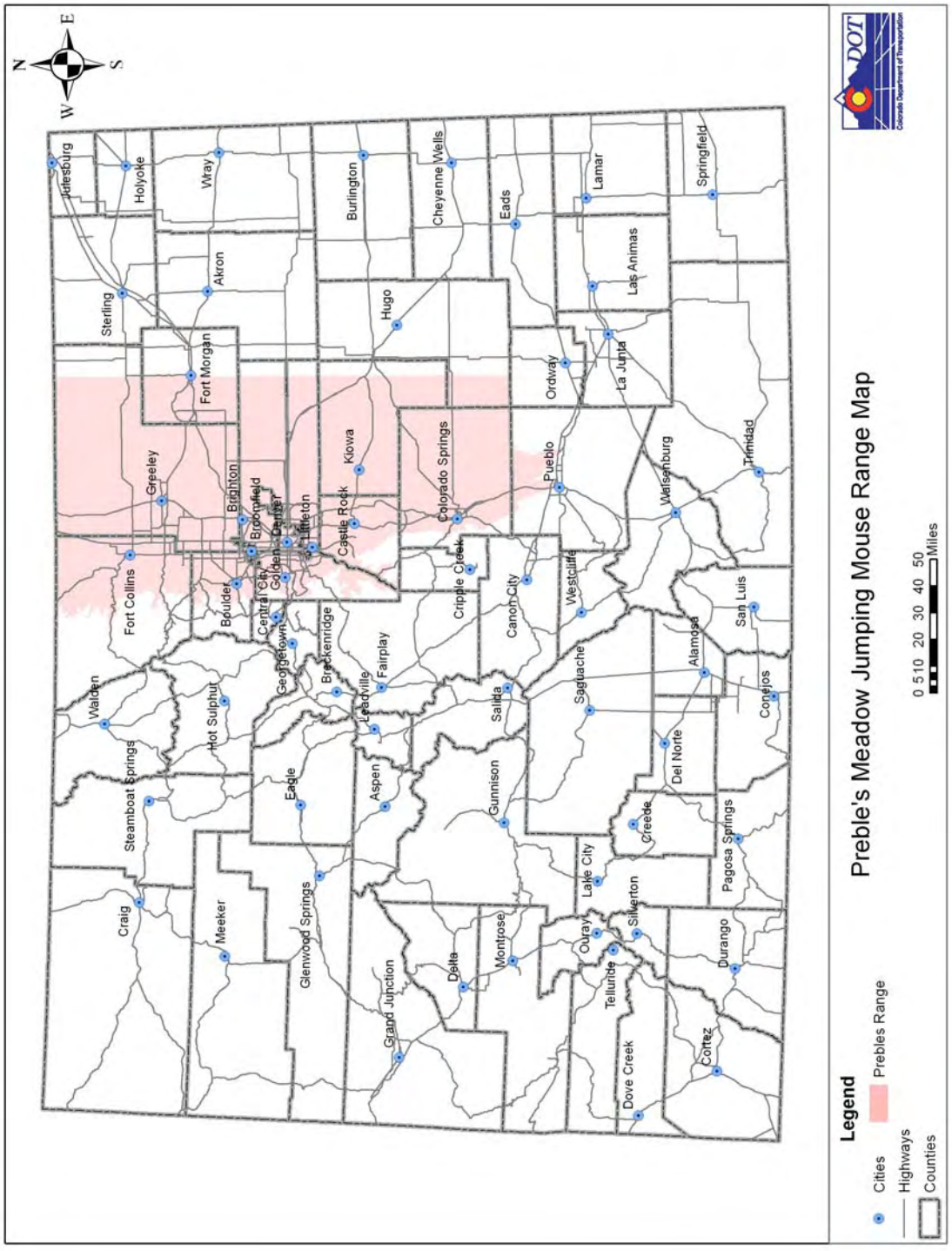

Figure 2: Preble's Meadow Jumping Mouse Range in Colorado

Southwestern Willow Flycatcher

Resource Description:

On February 27, 1995 the Southwestern willow flycatcher was listed as endangered throughout its range.

The southwestern willow flycatcher (Empidonax traillii extimus) was listed as federally endangered in 1995 and is one of four subspecies of the willow flycatcher. It is a small bird, approximately 6 inches long, with a green-gray back and wings, white throat, light olive breast, pale yellow belly, and two white wing bars. It has a light eye ring and a long wide bill. The upper mandible is dark brown to black, and the lower mandible is pale orange. The southwestern willow flycatcher can be differentiated from other subspecies by its distinctive "fitz-bew" song.

Southwestern willow flycatchers inhabit riparian habitats, nesting only in dense willow shrub near surface water or saturated soil. The presence of water around the willows increases the forage basis by producing an abundance of insects. Southwestern willow flycatchers are gleaning and sallying insectivores; their diets consisting of wasps, bees, beetles, butterflies, and caterpillars.

Open-cupped nests are built in a fork of a branch, 4 to 25 feet above ground, and are made from leaves, grass, feathers, and animal hair. Clutch size is typically three eggs that are buff colored with occasional spotting on the blunt end. Southwestern willow flycatchers arrive in breeding territories as early as April but typically between mid-May and June; a bird observed from mid-June to July 20 can be assumed to occupy breeding territory. Juveniles fledge in late June to mid-August, while adults leave breeding territories in mid-August to mid-September.

Mitigation Strategies:

Mitigation Strategies include:

1) Excluding cattle to increase amount of available habitat for nesting
2) Possibly limiting cowbird parasitism by excluding cattle
3) Controlling exotic and/or weedy species
4) Restoring/Creating habitat
5) Avoiding work during the nesting season (April 15 – August 15).

Mitigation Location:

One-quarter acre is the smallest habitat patch found containing a SWWF breeding territory. The minimum patch size requiring a survey is 30'x30'x6', or if a smaller patch is part of a complex of closely associated complexes totaling at least 0.25 acre, surveys are required. Consultation with the USFWS is required. SWWF is found in southwest Colorado in the following counties (Figure 3):

- La Plata
- San Juan
- Hinsdale south of Continental Divide
- Extreme western Dolores

- Extreme southwestern San Miguel
- Mineral
- Saguache South of Continental Divide
- Rio Grande
- Alamosa
- Costilla
- Conejos
- Archuletta
- Montezuma

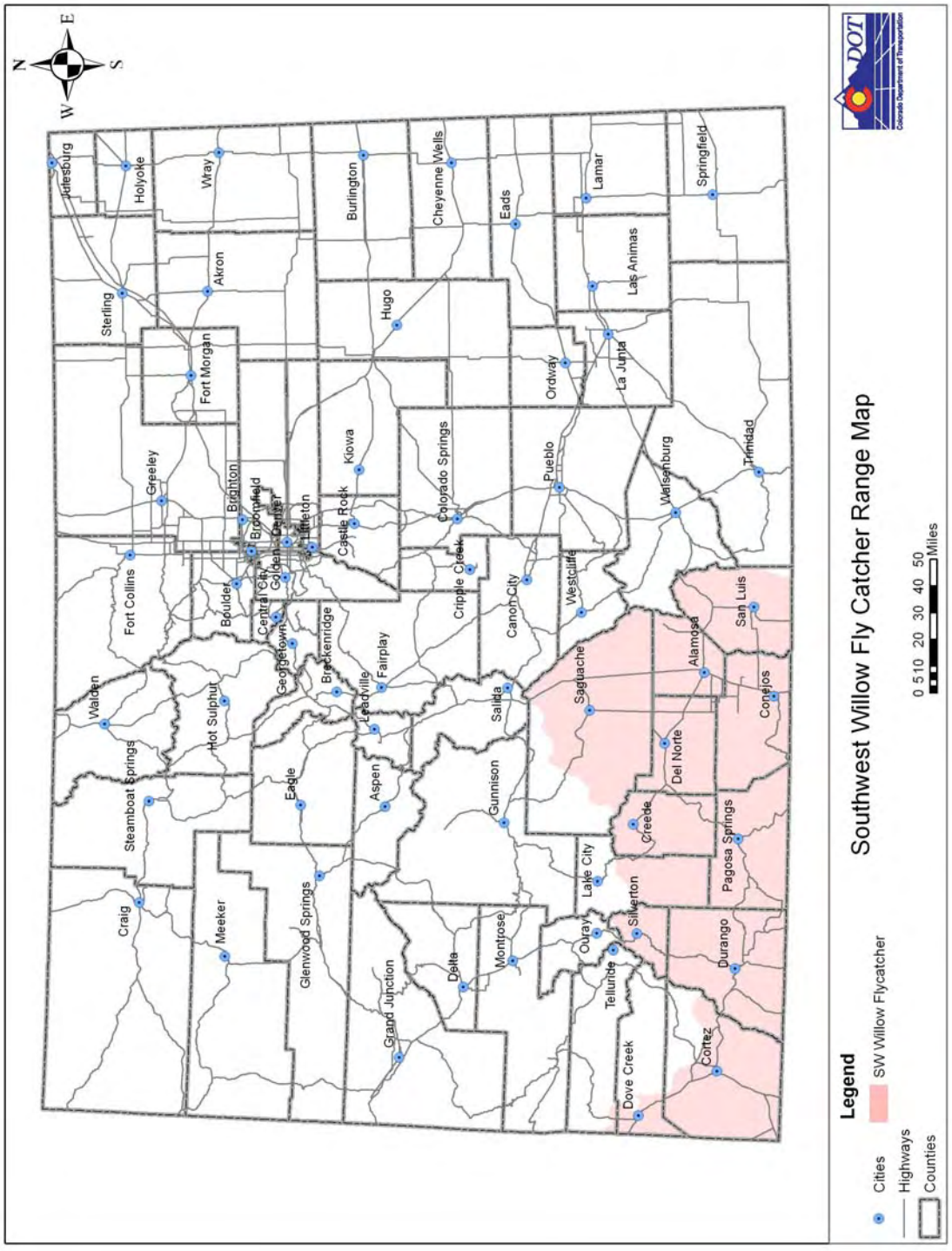

Figure 3: Southwest Willow Flycatcher Range Map for Colorado

Wildlife Crossings

Resource Description:

Wildlife crossings are natural or man made features that provide routes for wildlife that allow or give wildlife an opportunity to more easily cross a road or highway either above or below grade. This is applicable to terrestrial or aquatic wildlife of any size. For many large mammal species, movement barriers caused by right-of-way (ROW) fencing can cause greater long-term population impacts than acute mortality (road kills) associated with unfenced ROWs.

Mitigation Strategies:

1) Using existing data to determine most advantageous locations for crossing placement.
2) Funding phased projects in such a manner that future crossings can be installed if identified in that corridor
3) Providing permeability of highways through increasing culvert (CBC) size, installing bridges/spans in lieu of culverts, or constructing other wildlife crossing structures, such as land bridges
4) Encouraging or discouraging wildlife usage through fences along the ROW or strategic plantings. ROW fencing will be considered as a wildlife mitigation strategy when used in conjunction with adequate crossing structures for those species impacted by the fencing.
5) Using natural bottoms in culverts where practicable
6) Continuing and implementing cooperative research studies to identify opportunities to improve wildlife crossings

Mitigation Location:

Wildlife crossings are most effective when used in areas where wildlife are naturally attempting to cross the transportation system rather than trying to direct wildlife to crossing structures. Specific locations should be developed with an understanding of the project's impact, location and existing wildlife movement patterns within the area

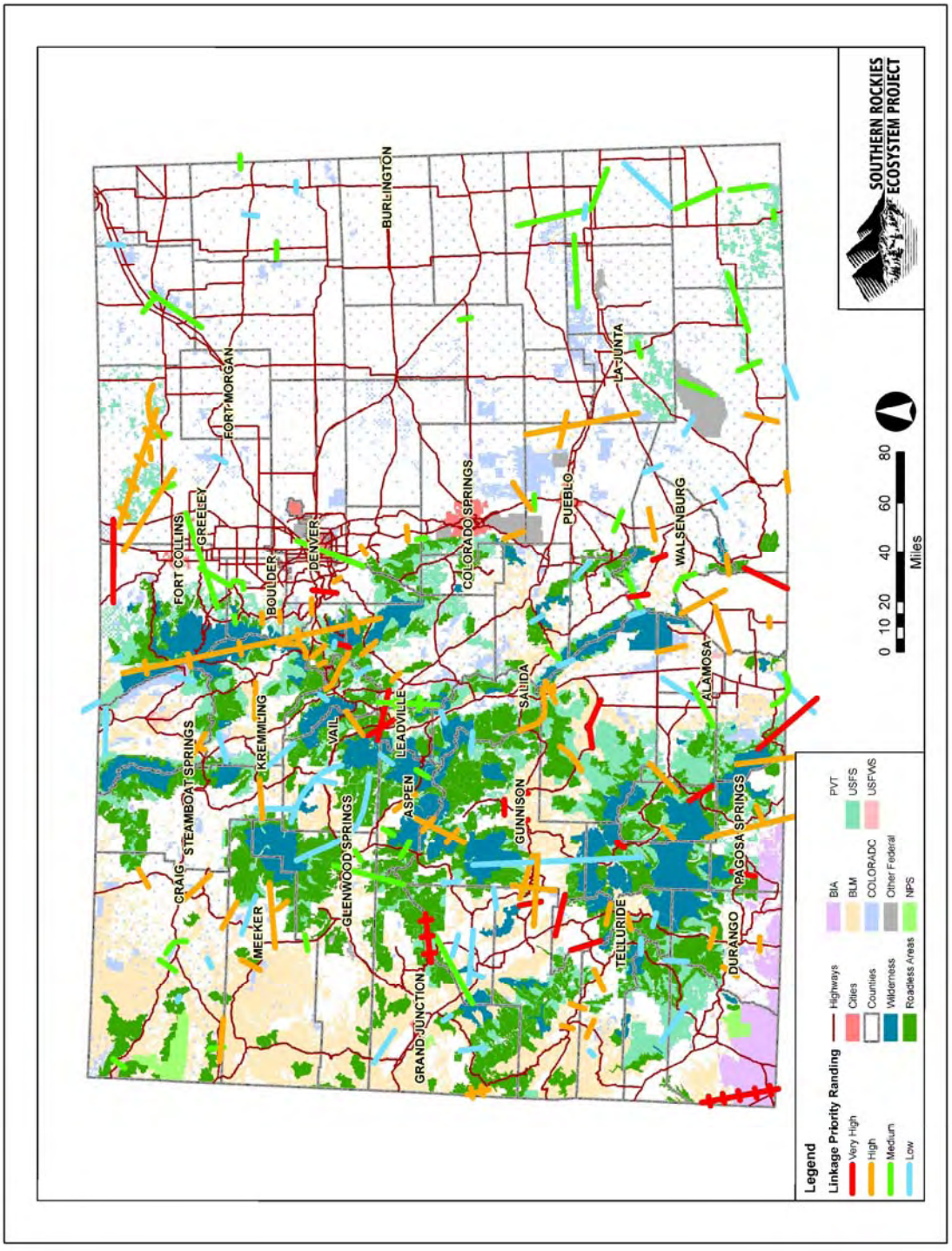

Figure 4: High Priority Wildlife Crossings in Colorado

Migratory Birds

Resource Description:

All birds are protected by the Migratory Bird Treaty Act of 1918 (MBTA). In Colorado this includes all birds except rock doves (feral pigeon), European starlings, and English sparrows. The U.S. Fish and Wildlife Service administers the MBTA which prohibits the take of any active nest. Construction activities in grassland, wetland, stream, and woodland habitats, and those that occur on bridges that would otherwise result in the take of migratory birds, eggs, young, and/or active nests should be avoided. Permits to remove an active nest are issued only under extraordinary circumstances when human health and safety are in jeopardy.

Mitigation Strategies:

1) Seasonally restricting activities during the breeding season
2) Incorporating preventative measures to keep birds from nesting in known work sites
3) Presence/absence surveying prior to ground disturbing activities
4) Creating nesting habitat where appropriate

Mitigation Location:

Statewide: Migratory birds protected under the MBTA occur statewide where structures or existing vegetation are being used by migratory birds for nesting. Mitigation is generally on-site.

Invasive Species

Resource Description:

Invasive species are county, State, or federally listed weed species that successfully invade and become widespread in a natural community. Invasive species often compete with native species, resulting in ecosystem degradation and, if not sufficiently controlled, eventually to the extinction of native plants and animals. Invasive plants can also have profound negative effects on agricultural operations. CDOT's response to invasive species has been to eliminate and control the spread of noxious weeds as required by Colorado Executive Order D 006 99.

Mitigation Strategies:

Environmental consideration in the form of survey and agency coordination facilitates the ability to protect existing sensitive environments and identify non-desirable vegetation in the landscape. CDOT also is committed to following the criteria outlined in the noxious weed management plan. The NWMP defines survey techniques, best management practices and goals of project development and weed management.
CDOT controls the spread of invasive plants by:

- Limiting soil disturbance
- Seeding disturbed areas with native plants as soon as practicable during the construction process
- Identifying and eliminating populations of noxious weeds from the right-of-way as part of maintaining the highway system
- Onsite controls such as washing equipment to remove seeds, etc., should be used before transferring to another site during construction.
- Spreading native plant seeds in distrurbed areas should be used to contain invasive species.

Mitigation Location:

Controlling invasive species is important in all parts of the right-of-way. However, special care should be taken in newly disturbed areas, especially those close to existing intact ecosystems to help reduce the spread of invasive species into healthy ecosystems.

Air Quality

Resource Description:

All air pollutants are toxic at sufficient levels of exposure. "Criteria pollutants' are in a legal category for which there are national ambient air quality standards, hence 'criteria,' set by the EPA. The criteria pollutants are:

Carbon monoxide
Lead and lead compounds (EPA has placed Lead (Pb) in both the toxic and criteria categories)
Nitrogen dioxide
Ozone
PM_{10}
$PM_{2.5}$
Sulfur dioxide

In a separate legal category are 188 listed "air toxics," for which there are no federal ambient standards. Among these are 21 mobile source air toxics listed by EPA. In the future, additional air toxics may be recognized by EPA as being emitted primarily from mobile sources. Air toxics are discussed further below.

Criteria pollutants and air toxics are emitted by a variety of sources—large and small stationary sources as well as mobile sources, both on-road vehicles and off-road (e.g. aircraft, locomotives, and excavation and construction equipment). There are also "non-point" sources of air pollution, including livestock feedlots and fertilizers from agriculture and domestic application. Here the discussion is largely confined to pollutants from on-road mobile sources.

Mobile Source Pollutants – Criteria and Toxics

It is generally recognized that on-road mobile sources and fuels contribute the greater amount of ambient (outdoor) air pollutants, depending on the number of stationary source emitters in an area. Automobiles cause 50-80 percent of all combustion-related pollution, and contribute a significant amount of evaporative emissions of VOC's, many of which are toxic.[1]

Mobile sources were responsible for 44 percent of outdoor toxic emissions, almost 50 percent of the cancer risk, and 74 percent of the non-cancer disease risk, according to EPA's National Air Toxics Assessment for 1999. In addition, 70 percent of benzene emissions were attributed to mobile sources for that year. Benzene is a known carcinogen. In a mobile source air toxics (MSAT) rule finalized in March 2000, EPA listed the following 21 MSAT of greatest concern:

EPA's Listed Mobile Source Air Toxics

[1] Various EPA and APCD fact sheets; regulatory background documents

Acetaldehyde*	Diesel Exhaust	MTBE
Acrolein*	Ethylbenzene	Naphthalene
Arsenic cpds*	Formaldehyde*	Nickel cpds*
Benzene*	N-Hexane	POM (Sum of 7 PAH)*
1,3-Butadiene*	Lead cpds*	Styrene
Chromium cpds*	Manganese cpds*	Toluene
Dioxin/Furans*	Mercury cpds*	Xylene

Those MSAT designated with an asterisk are also on EPA's list of 33 Priority air toxics as denoted in its Integrated Air Toxics Strategy, formerly known as the Urban Air Toxics Strategy. Monitoring nationwide since 1999 indicates that air toxics levels in many 'rural' areas are similar to those found in urban areas, due to mobile sources. This is because substantial vehicular traffic in urban, suburban and even many rural areas creates a large amount of pollution. It is recognized that people living in suburban and ex-urban areas often drive longer distances than city dwellers. They can cause traffic congestion comparable to that in cities at "rural" intersections and parking lots in the smaller towns where they go to shop and socialize. For this reason, EPA's Air Toxics Strategy has evolved to address the "integrated" issues of urban, suburban and rural air toxics. The Strategy is a fluid one, and may evolve further. For Example, because of Colorado and other states' monitoring findings, the toxic compound Crotonaldehyde is one that may be added to EPA's MSAT list.

Ozone

Under the 8-hour ozone standard, EPA has deferred a nonattainment designation for an area that includes the Denver Metropolitan area, portions of Weld and Larimer counties, and an eastern portion of Rocky Mountain National Park. In spite of increasing controls on VOC's from the oil and gas industry, ozone levels the past two years have been high enough that the area may be found in violation of the 8-hour standard, depending on levels recorded during the 2007 ozone season. At the time this document was published, the CDPHE Air Pollution Control Division (APCD), in conjunction with several other agencies, was developing a new Statewide Implementation Plan (SIP) to correspond with the anticipated violation. The new SIP will develop a new ozone budget for the DRCOG, North Front Range MPO, and the Upper Front Range Transportation Planning Region. Additionally, this new SIP will detail specific measures these areas will need to take in order to meet attainment status under the EPA's current guidelines for ozone.

The 8-hour national ambient air quality standard is currently set at 80 ppb, which is twice presumed natural background levels of 30-40 ppb, per EPA. Background levels of ozone are derived from VOC's produced by plants, and NOx from natural combustion sources, such as volcanoes and wildfires.

Lichens and many plant species, including crops, trees and are extremely sensitive to ozone exposure.

Ozone enters leaves through stomata during normal gas exchange. A strong oxidant, ozone *at ambient levels* causes several symptoms, including chlorosis and necrosis (leaf

discoloration from damage, and death), as repeated field studies have shown. Crop yield loss is especially pronounced in dicot species, such as soybean, cotton and peanuts.[2] Fruit trees, willows, Aspen, Ponderosa Pine are among the 106 trees and other plants shown to be especially sensitive to ozone. Another 81 varieties are suspected of being sensitive to ozone.[3]

Summertime ozone levels are elevated at Rocky Mountain National Park, and two exceedances of the 8-hour ozone standard were recorded in the past ozone season (2006), according to National Park Service data.

Nitrogen Deposition at Rocky Mountain National Park

Nitrogen Deposition (derived from Oxides of Nitrogen, or "NOx," and Ammonia) at Rocky Mountain National Park is well studied. Several studies indicate that soils, waters, aquatic life, and plant species in the Park show evidence of changes due to nitrogen deposition.[4] Current deposition levels have increased at a rate of 2% per year for the past 20 years, and are now 40 times 1950 levels. The nitrogen over-fertilizes some plant species and causes toxic effects in others. Among the observations are:

- Increased microbial activity in soil and talus
- Grasses and sedges out-competing native flowering plants, which could reduce habitat for some animals, and may be favoring the larger-than-desired elk population
- Lake and stream fertilization and acidification leading to altered species of diatoms (oxygen-producing algae)
- Old-growth Engelmann spruce on the east side of the Continental Divide (which has more traffic and other anthropogenic activity) show significantly altered chemistry due to nitrogen deposition relative to those west of the Divide.

Future ecosystem effects may include fish die-offs,[5] and subsequent changes in their predator species.

While their contribution is projected to decrease in the future, motor vehicles on the Front Range are now and will remain a significant source of NOx in the Park. About one-third of the NOx inventory (2002) in is attributed to on-road mobile sources. Ammonia from autos and other sources, including agricultural, also contribute to the elevated Nitrogen levels. Nitrate particulate deposition in the Park is dominated by in-State sources, including traffic from I-25. [6] However, not all sources of Nitrate particulate deposition and other air pollutants in the Park are from in-State sources. Significant levels come from pollution generated in other states, as far away as Southern California.

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[2] *Effects of Ozone Air Pollution on Plants*, US Department of Agriculture website, 12/5/06.
[3] *Ozone Sensitive Plant Species on National Park Service and U.S. Fish and Wildlife Service Lands*, NPS Air Resources Division and USF&WS Air Quality Branch, 2003.
[4] *Nitrogen Deposition: Issues and Effects in Rocky Mountain National Park: Technical Background Document*, RMNP Initiative, March 2004.
[5] Ibid, Executive Summary.
[6] Taipale, Curtis, 2007 Presentation of WRAP data and back trajectory analyses.

Aesthetics and View Sheds

Regional Haze is a problem in many areas of the state. Increased particulate levels and other pollutants have a detrimental effect on the visibility in national parks, wilderness areas, along scenic by-ways, and in urbanized areas like the front-range. The Clear Air Act defines a particular class of areas (Class 1 areas) where viewsheds are protected. However, even outside of these areas, viewsheds and aesthetic concerns are important features.

Pollutant Trends

Predicted trends for many pollutants, including NOx, are downward. Tier II standards for vehicles and low-sulfur standards for gasoline and diesel fuels are the main controls. These will address levels of air toxics to some degree, as well as the targeted criteria pollutants. (Regional emissions of Ammonia, a component of Nitrogen deposition, are expected to increase slightly, mainly from agricultural sources. Vehicles will also continue to contribute some ammonia emissions.)

Projections are for significant decreases in emissions and modeled ambient levels of several pollutants of concern. For example, in 2002 mobiles sources contributed 43% of NOx on the Front Range. Projections for 2018 indicate mobile source contribution will decrease to 20%, with NOx emissions decreasing overall by about 31 percent.

Tribal Air Quality Requirements

Per the Tribal Authority Rule (§309) of the Clean Air Act, tribes have the ability to regulate all air emission activity within their respective Reservation boundaries. Therefore, with respect to compliance with air quality regulations or mitigation strategies for air pollution abatement from air pollution emission activities on tribal reservations, CDOT will consult with the appropriate tribal government office regarding their specific environmental and air quality regulations and requirements.

Specifically for the Southern Ute Indian Tribe in SW Colorado, the Tribe is developing a Reservation Air Code that will have Southern Ute Indian Reservation specific air quality regulations applicable to all air emission activities within the Reservation boundaries. All activities within the Southern Ute Reservation boundaries must comply with these specific regulations.

Mitigation Strategies:

- Encourage development of an effective multi-modal system that reduces reliance on single occupancy vehicles
- Identify traffic improvements that reduce automobile standing and/or idling
- Implement use of alternative fuels for CDOT fleet where feasible.
- Develop and implement programmatic strategies for addressing Air quality concerns at the broader level instead of as part of individual projects.

Mitigation Location:

Typically, any mitigation that will be provided in conjunction for a project and its construction activities will usually be within the project limits of that project. Construction air quality BMP's have the potential to improve air quality in and around the project area and will potentially provide a limited benefit on a regional basis as well.

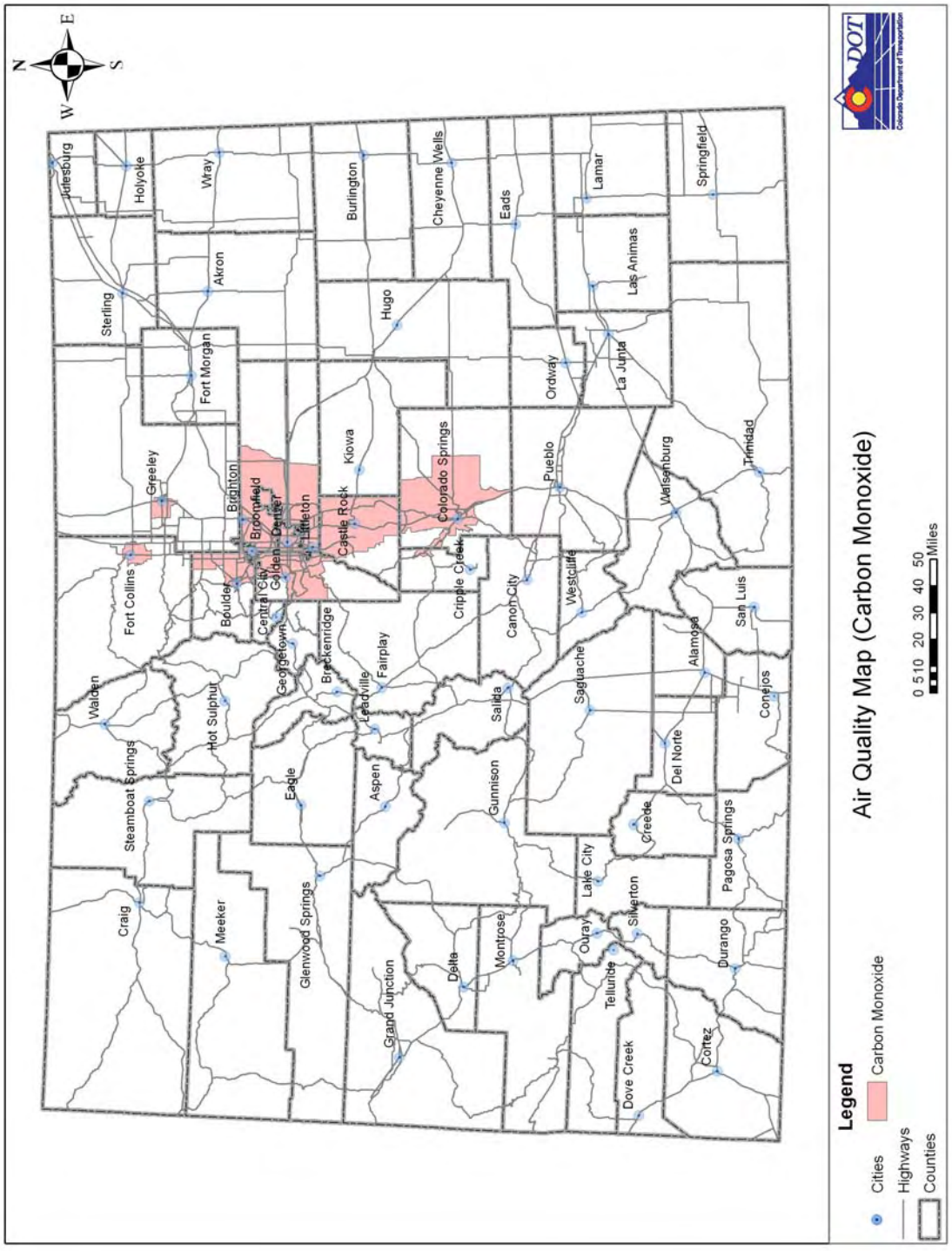

Figure 5: Areas of Air Quality Concern for Carbon Monoxide

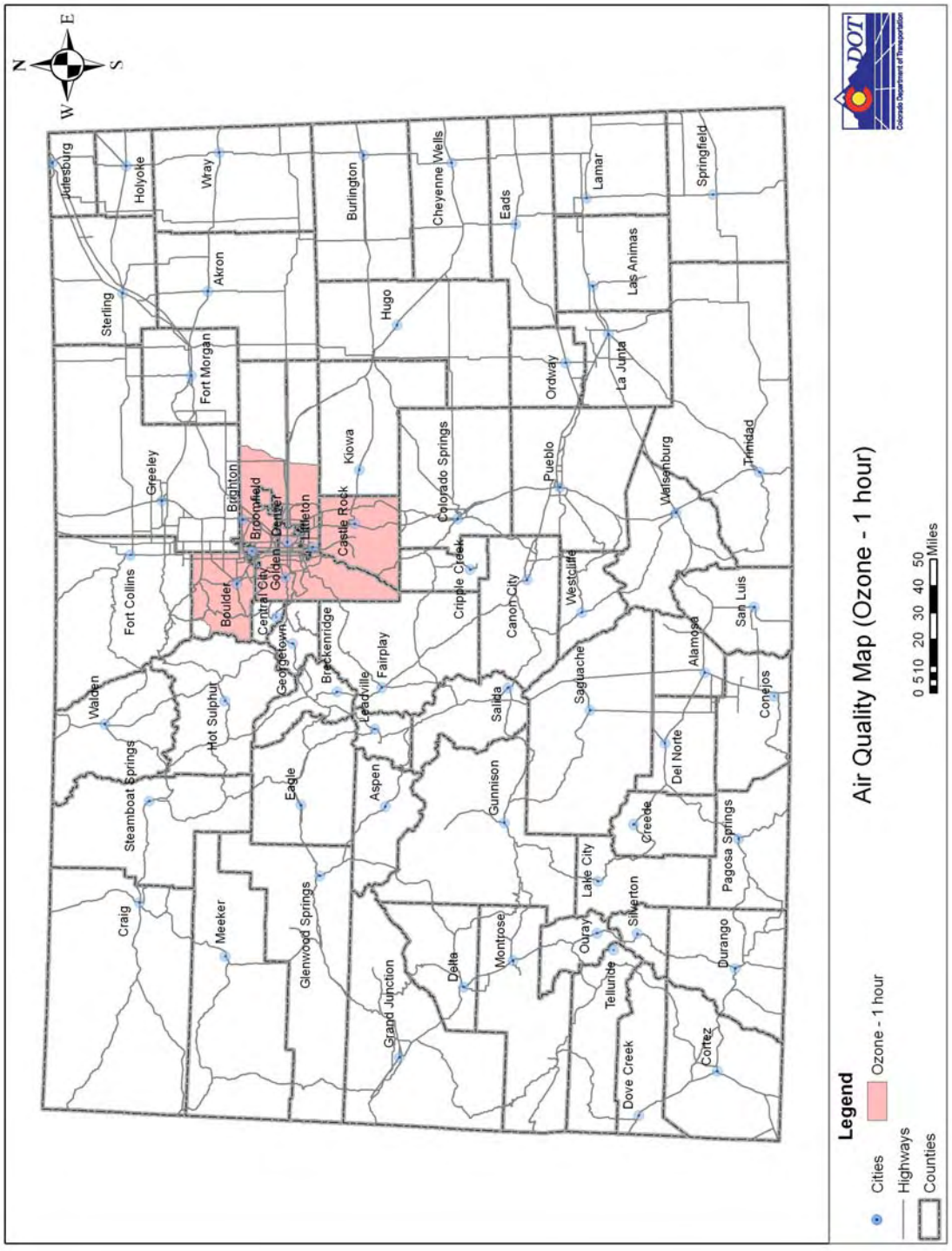

Figure 6: Areas of Air Quality Concern for the 1-hour Ozone Standard

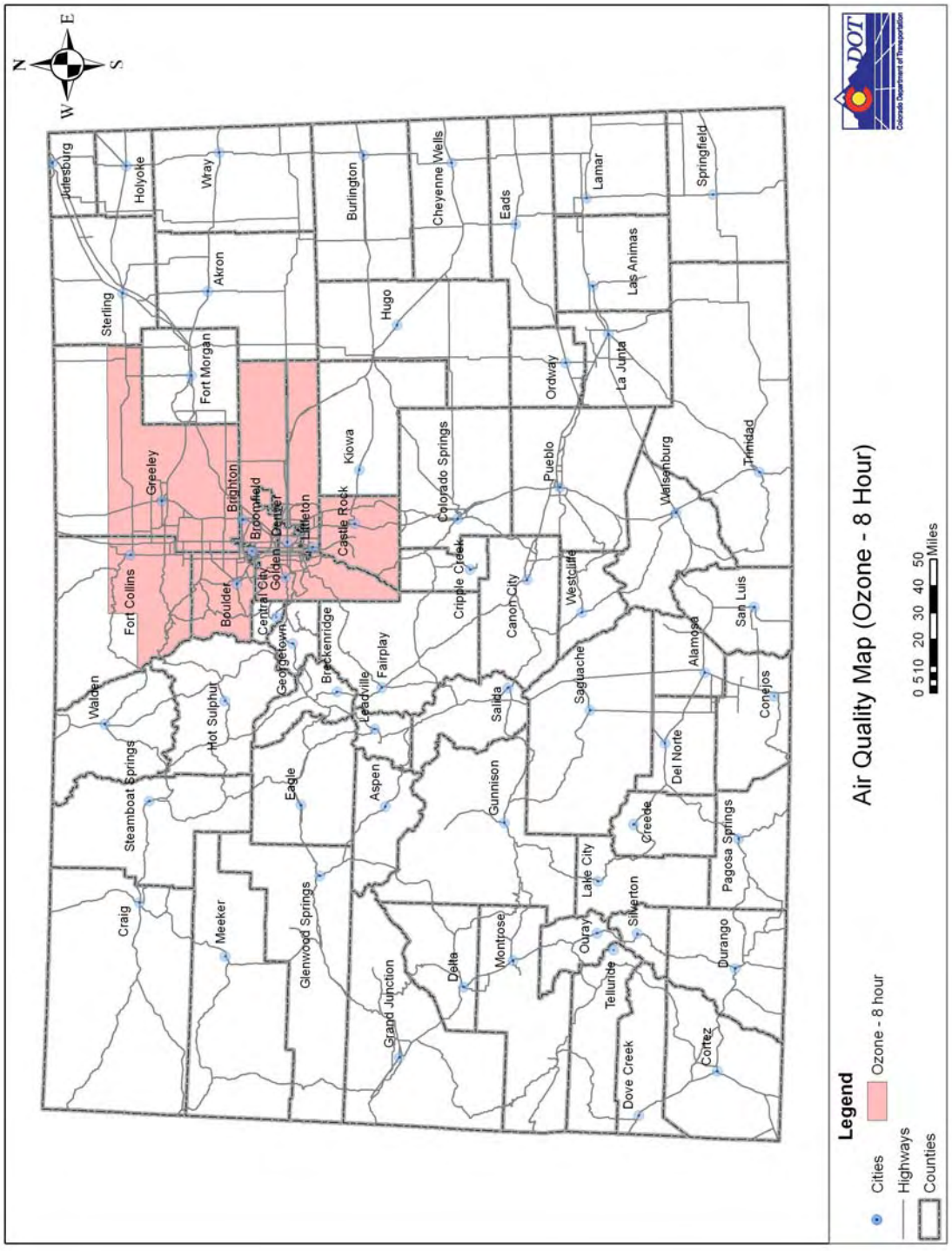

Figure 7: Areas of Air Quality Concern for the 8-hour Ozone Standard

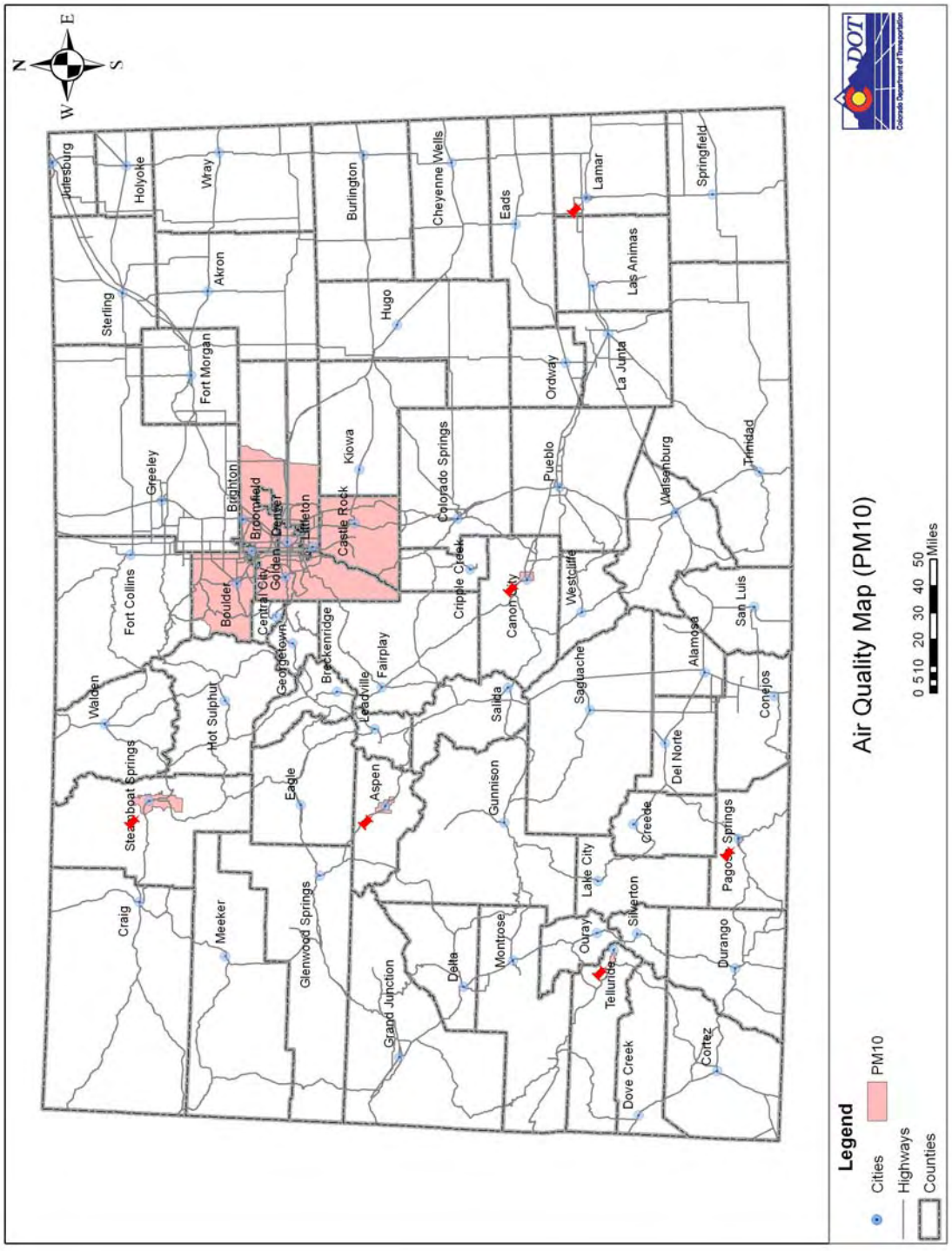

Figure 8: Areas of Air Quality Concern for the PM 10 Standard

Water Resources

Resource Description:

CDOT's activities have the potential to impact groundwater and surface water resources. Changes to hydrology caused by armored and impervious surfaces and the transport of pollutants in stormwater discharges are two of the primary mechanisms for such impacts. Stormwater discharges are generated by runoff from land and impervious areas such as paved streets, parking lots and building rooftops during rain and snow storms. These discharges often contain pollutants in quantities that could adversely affect water quality. CDOT minimizes impacts to water resources by complying with all applicable federal, state, and local laws, regulations, policies, and plans.

Most CDOT activities require some type of water quality permit, e.g., a Section 404 permit for in-water work; a CDPS Stormwater Construction Permit for construction activities; a CDPS MS4 Permit for discharges from CDOT's storm sewer system in Phase I and II areas. On sovereign tribal properties and on federal land, applicable permits must be received from EPA under the National Pollution Discharge Elimination System (NPDES).

SB40 was created primarily for the protection of fishing waters, but does acknowledge the need to protect and preserve fish and wildlife resources associated with streams, banks and riparian areas in Colorado. This is accomplished through erosion control, water contaminate control, discharge conditions, construction procedures, vegetation manipulation and noxious weed control. The measures included in SB40 are intended to be in conformance with guidelines specified in the *Erosion Control and Stormwater quality Guide; Standard specifications for Road and Bridge Construction;* Municipal Separate Storm Sewer System (MS4) permit; and *Drainage Design Manual.* Please go to the following link for specific information on SB40 jurisdiction, certification requests, general and special conditions:
http://www.dot.state.co.us/environmental/Wildlife/sb40gdlns.pdf

Mitigation Strategies:

Best management practices and other pollution prevention measures are used to reduce the amount of pollutants in stormwater discharges. Mitigation measures to restore or replace water resources typically involve the installation of features intended to treat roadway runoff before it enters surface waters. Innovative technologies, stormwater retrofit activities, and off-site mitigation or restoration options/plans may also be considered during strategy development.

Mitigation Location:

The locations of water quality mitigation efforts are project-specific and require an evaluation of localized opportunities to reduce impacts to water resources resulting from transportation construction, maintenance, and operations activities. Such localized evaluations also consider potential cumulative impacts associated with watershed-scale activities.

Wetlands

Resource Description:

Wetlands are areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. In Colorado, wetlands are often found along streams, in areas where the water table is close to the surface and areas where precipitation collects. Wetlands provide many important ecological functions, including water quality improvement, stream bank stabilization, fish and wildlife habitat, and aquatic food chain support. Wetlands also provide several functions important to communities, including flood attenuation and storm water detention, groundwater recharge and discharge, and recreational opportunities.

SB40 was created primarily for the protection of fishing waters, but it does acknowledge the need to protect and preserve fish and wildlife resources associated with streams, banks and riparian areas in Colorado. This is accomplished through erosion control, water contaminant control, discharge conditions, construction procedures, vegetation manipulation and noxious weed control. These measures, when properly used, can ensure that Colorado waters remain conducive to healthy functional wetlands throughout Colorado.

Please go to the following link for specific information on SB40 jurisdiction, certification requests, general and special conditions.
http://www.dot.state.co.us/environmental/Wildlife/sb40gdlns.pdf

Mitigation Strategies:

CDOT projects are required by federal law to first avoid and minimize impacts to wetlands. Where impacts are unavoidable, they must be mitigated. Preference must be given to the use of wetland banks where the project impacts occur within the Service Area of an approved wetland bank. A wetland bank is an organization (public or private) with an agreement with the U.S. Army Corps of Engineers to establish, restore, or otherwise improve wetlands such that others can purchase wetland credits to offset impacts to wetlands. Use of wetland banks is not appropriate where locally important ecological functions should be replaced on-site. Outside of an approved wetland bank's Service Area, mitigation should be on-site or within the same watershed as the impacts.

As Colorado communities continue to grow, mitigating for wetland impacts is becoming increasingly difficult and expensive. Anticipating and planning for future projects and operations in order to avoid and minimize impacts as much as possible is increasingly important, as is proactive identification of methods to mitigate unavoidable impacts.

CDOT is currently involved in the identification and development of proactive mitigation programs for wetlands. Current programs include the development of new wetland banks and cooperative partnerships with state, local, and federal agencies for the development of wetland enhancement and restoration programs.

Mitigation Location:

Wetland impacts are best mitigated within the same watershed. Keeping mitigation within the same watershed increases the potential to enhance and restore those wetland functions that may be impaired by unavoidable project impacts.

Ground Water and Springs

Resource Description:

Groundwater is derived from two sources: precipitation such as rain and snow melt and from magmatic origins (i.e. mineral springs). Groundwater is located in two specific zones with a water table located between the two zones. The "zone of aeration" occupies pore spaces, bedding planes, and joints of rocks and is found nearest the surface. The zone below the water table is the "zone of saturation" where interstitial space is filled with water. As the amount of available water increases or decreases, the water table will react accordingly, rising or falling. When the entire area below the ground is saturated, flooding will occur as a result as all subsequent precipitation is forced to remain on the surface and as available water raises the water table. Groundwater may return to the surface by seepage or through springs and may also be artificially withdrawn through the use of wells for domestic consumptive purposes.

Ground water and springs are primary sources of water for many communities in Colorado and are used for drinking water and for agricultural uses. In many areas groundwater is not treated before use. Contamination of ground water resources is difficult and expensive to remove. Road construction, the creation of impermeable surfaces and maintenance activities can negatively impact groundwater sources through contamination and through changes in hydraulic flows. Precautions should be taken to protect the resource from potential contamination from these activities.

Mitigation Strategies:

.Best Management Practices i.e. coir logs, straw bales, or bladder bags should be utilized as necessary.

Consultation with appropriate Tribal Water Quality Programs, local water management districts, EPA, and/or the CDPHE should be conducted for all projects. Consultations must take place prior to any land disturbances. Strict adherence to federal, state and tribal regulations and ordinances will be enforced.

Mitigation Location:

To the extent possible project BMPs adjacent to groundwater and springs should be installed in impervious locations to prevent the infiltration of contamination into groundwater and springs.

Highly contaminated liquids must be disposed of in a manner consistent with all federal, state and tribal laws and ordinances that will assure appropriate treatment and will not allow the substance to penetrate groundwater sources. Consultation with EPA and Colorado State Patrol will need to be conducted prior to project startup.

Social and Cultural Resources

The protection of social and cultural resources, consisting of features that comprise our shared cultural heritage and social resources is a key element of CDOT's environmental ethic.

Historic and Archaeological Resources

Resource Description:

Section 106 of the National Historic Preservation Act (NHPA) sets forth the process that federal agencies and their designated representatives must follow when planning undertakings that have the potential to affect significant historic and prehistoric properties. Typical historic resources include buildings, residential neighborhoods, commercial districts, agricultural complexes, bridges, canals, ditches, reservoirs and railroad lines. Less obvious resources can include structure foundations, trails, sidewalks and landscapes. Archaeological sites include surface scatters of chipped stone, ground stone or ceramic artifacts, architectural and non-architectural features such as pit houses and fire hearth remains, respectively, and any area exhibiting evidence of intact subsurface materials.

More than 40 Native American tribes have a historic interest in various parts of Colorado, including two resident tribes in portions of Archuleta, La Plata and Montezuma Counties (the Southern Ute Indian Tribe and Ute Mountain Ute Tribe). The NHPA mandates that FHWA and CDOT consult with Native American tribes during the planning of federal-aid transportation projects both on and off Indian reservations. Consultation with a Native American Tribe recognizes the government-to-government relationship between the United States Government and sovereign Tribal groups. In that context agencies must acknowledge that historic properties of religious and cultural significance to one or more tribes may be located on ancestral, aboriginal or ceded lands within and beyond modern reservation boundaries.

In addition to NHPA, a host of laws protect historic properties on public lands and Indian reservations or when federal funding is involved, two of which specific to archaeological remains are paramount: the Archaeological Resources Protection Act (ARPA) and the Native American Graves Protection and Repatriation Act (NAGPRA). ARPA instituted a permit system for the excavation of archaeological remains from federal lands and imposed civil penalties for the unauthorized removal of artifacts. NAGPRA in part defined the protocols to be followed when human remains and other items of cultural patrimony are discovered on federal lands or Indian reservations during federal aid projects. A Colorado law, the Historical, Prehistorical and Archaeological Resources Act of 1973 (as amended), outlines a similar administrative process when human remains are encountered on lands owned by the state of Colorado. Non-Tribal groups and individuals with an interest in historic preservation are also regularly invited to participate in the transportation project development process.

Mitigation Strategies:

For construction projects and many maintenance activities, CDOT conducts on-the-ground surveys to identify, record and evaluate cultural resources for eligibility to the National Register of Historic Places. When significant sites are identified within a proposed project area, an interdisciplinary team determines how best to avoid the localities or minimize adverse effects during construction.

Mitigation Location:

Historic and archaeological resources are fragile and individually unique, and mitigation strategies must therefore be developed independently for each property that will or may be impacted by a project. It is necessary to work with appropriate oversight agencies and interested public stakeholders to identify mitigation opportunities that will avoid, enhance and/or restore important cultural resources.

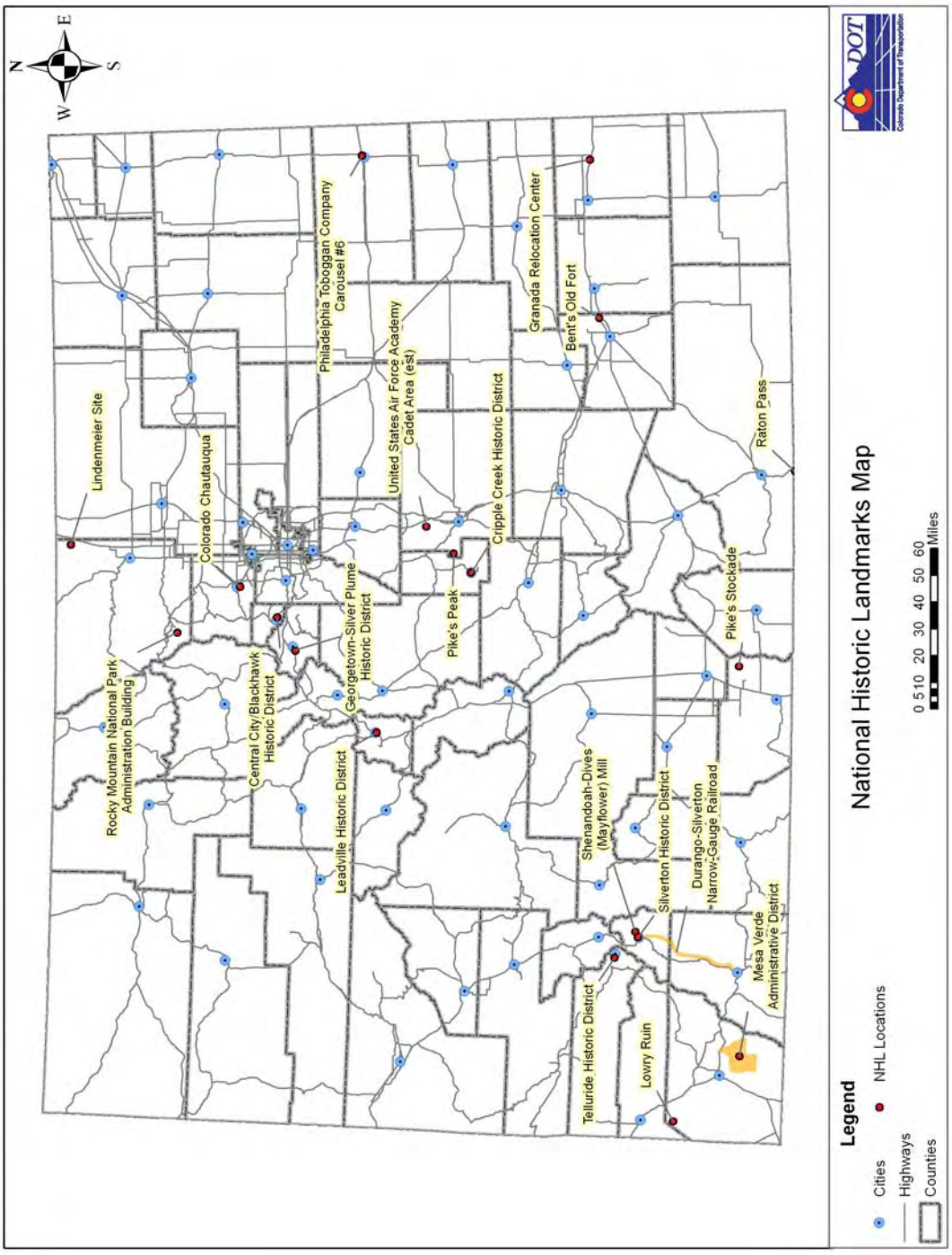

Figure 9: National Historic Landmarks in Colorado

Paleontology

Resource Description:

Paleontological resources are the physical remains of ancient life (fossils) and associated geologic data that, once lost, can never be recovered. Major ground-breaking and earth movement constantly threaten damage to and destruction of scientifically important resources. Conversely, construction excavation often permits the exposure of previously buried paleontological resources that would otherwise not be made available for scientific study and public education.

Mitigation Strategies:

Where construction impacts cannot be feasibly and cost-effectively avoided, mitigation of those construction impacts must be provided by collection of a scientifically representative sample of the resource known or believed to be present in the ground. The future of CDOT paleontological resource protection and impact mitigation relies on increasingly close cooperative efforts with ongoing paleontological resource research programs at Colorado universities and natural history museums.

Mitigation Location:

Any known scientifically significant fossil localities or known scientifically important fossil-bearing bedrock unit outcrops facing construction impacts. These could include existing or proposed road cut excavation, proposed roadway grade separation, proposed retaining wall, and proposed utilities trench sites.

Noise

Resource Description:

Sound can be defined as mechanical energy generated by movement or vibration from a source that can be sensed by the ear. Noise, generally, is defined simply as unwanted sound, and is the description usually given to sound that emanates from highway traffic. Each sound (noise) can be expressed in terms of three characteristics: magnitude, frequency, and time element.

The magnitude of a sound event can be measured in terms of its acoustic pressure. Since the range of absolute pressure values can vary over several orders of magnitude, the unit typically used to describe sound levels is the decibel (dB), which is a relation of the sound pressure level to a standard reference pressure. This ratio is then converted to a more compact logarithmic scale.

In general, noise increases from transportation projects are due to capacity increases or alignment changes. In all cases in which a project is identified as Type I (see CDOT guidance for description), a noise analysis study is required if noise sensitive receivers are present within the project study zone. This study zone is defined as a 500-foot distance in all directions from the proposed edge of traveled way throughout the extents of the project. This 500-foot "halo" defines the extents for the noise analysis and shall include receivers on all sides of the highway.

A traffic noise impact is considered to occur when any noise sensitive receiver is subjected to either 1) existing or future noise levels that approach or exceed the noise abatement criteria (NAC), or 2) future noise levels that substantially exceed the existing noise levels. Both of the above must be analyzed to adequately assess the noise impact of a proposed project.

Mitigation Strategies:

Noise analyses on highway projects are mandatory under FHWA regulations when a Federal-aid project is proposed that consists of the construction of a new highway in a new location or the physical alteration of an existing highway that significantly changes the horizontal or vertical alignment of a highway or increases the number of through traffic lanes. Any impacts that are identified must be mitigated if it is found to be both feasible and reasonable to do so in accordance with CDOT Noise Analysis and Abatement Guidelines. The primary consideration in determining if noise mitigation is to be provided is if a perceivable noise reduction can be achieved through reasonable efforts.

Mitigation Location:

Noise mitigation that meets the applicable criteria will be provided with the project for the areas that are identified in the project noise analysis. Traditional noise mitigation measures, such as noise barriers, are normally provided to benefit the first two to three

rows of homes or other noise sensitive receptors directly adjacent to the project within the general project area, with the first row receiving the highest consideration.

Hazardous Waste

Resource Description:

Hazardous wastes and solid wastes are discarded materials as defined in the Resource Conservation and Recovery Act (RCRA) and other federal statutes. In addition, these terms are defined in various state statutes. This material represents a very real threat to the health and well being of the general public as well as the environment when it is mismanaged. Improperly disposed of wastes can contaminate the air, soil and drinking water and direct exposure to waste chemicals can have both chronic and acute effects on people and environmental receptors. CDOT uses materials in its day-to-day operations that, when discarded, are classified as hazardous or solid waste and must be disposed of properly. In addition, CDOT acquires properties that may contain regulated wastes on-site. These wastes require proper identification, management (storage and treatment) and disposal.

Hazardous and solid wastes are also associated with historic mine sites and other locations where heavy metals or radioactive elements are used or processed.

Mitigation Strategies:

Where possible and practicable it is best to stabilize and contain hazardous waste that is discovered during project development and construction in the location it is found. Disturbing and transportation of hazardous wastes for disposal off-site runs the risk of spreading contamination and/or creating additional health risks. These risks must be balanced against potential long-term liability and responsibility issues.

For CDOT generated hazardous waste or where discovered hazardous waste issues cannot be addressed in-situ, it is best to send the waste materials to an appropriate disposal or treatment facility and remove the possibility of releases and exposure. If the waste materials have already been released into the environment, then remediation and verification should be evaluated. Long term onsite storage and/or disposal of hazardous waste would necessitate obtaining a hazardous waste permit. Similarly, storage, treatment and final disposal of solid waste on site would require obtaining an approved Design and Operations Plan. More information can be found on the EPA's RCRA website: http://www.epa.gov/epaoswer/osw/laws-reg.htm

On tribal lands, additional permitting requirements apply for the transportation of hazardous material and additional coordination is necessary.

Mitigation Location:

New techniques and tools are being developed that can render some hazardous materials inert and disposable at landfills. However, in many cases if a hazardous waste must be disposed of off-site, there are limited locations where these materials can be sent for disposal.

Some hazardous wastes can be treated at the point of generation and rendered non-hazardous. However, this should be left to experts. For solid wastes, the local landfill should be contacted to ensure they are capable of and willing to accept the waste materials. For hazardous wastes, there are facilities that can take the wastes, but they may not be in Colorado. Contact hazardous waste transporters to find an appropriate treatment or disposal facilities.

Parks and Recreational Resources

Resource Description:

Parks and recreational resources are an important part of many communities in Colorado. They provide opportunities for physical and mental relaxation and can also provide focus points for community activities and events. Recreational resources include bike and pedestrian paths as well as publicly owned recreation features. It includes parks and recreational features that may be attached to public schools or other publicly owned buildings. Parks and recreational resources include those operated by local municipalities, State and Federal agencies, and the Tribal governments.

Mitigation Strategies:

Where projects are located within the vicinity of parks and recreational resources, CDOT works closely with the public agency or official with primary responsibility for the park or recreational resource (official with jurisdiction). Working with these agencies, CDOT strives to identify mitigation that will at least replace any features or attributes of the park or recreational resource that are impacted by the project. In many instances CDOT and the official with jurisdiction can identify opportunities to enhance the park or recreational resource features and attributes. Additionally, during construction, to the extent practical access to parks and recreational resources should be maintained, detours for bike and pedestrian paths should also be provided.

Mitigation Location:

To the extent possible, mitigation should take place within the park or recreational resource that is being impacted by the project. If bike and pedestrian paths will have to be re-routed, the new routes should be near the original alignment. However, as specific mitigation is developed with the official with jurisdiction, if it is determined that there are other alternatives for mitigation that would result in increased benefits to the resource and the community, then these should be explored.

Existing Proactive Programs

The Transportation Environmental Resource Council

In furtherance of CDOT's goal to coordinate with the various resource agencies, CDOT has created the Transportation Environmental Resource Council (TERC). The TERC members represent CDOT, the Bureau of Land Management (BLM), U.S. Army Corps of Engineers (Corps), U.S. Environmental Protection Agency (EPA), U.S. Federal Highway Administration (FHWA), FHWA Colorado Federal Lands Highway Division, U.S. Fish and Wildlife Service (FWS), U.S. Forest Service (FS), Colorado Department of Natural Resources (DNR), Colorado Department of Public Health and the Environment (CDPHE), and the Colorado Division of Wildlife (DOW). This Council is designed to provide continuing oversight of CDOT programs and projects to ensure that cooperation is maintained and that internal CDOT policies are consistent with the needs of the various resource agencies. The TERC oversaw the creation of the Environmental Stewardship Guide, and will be taking a leadership role in coordinating the development of future CDOT environmental policies and procedures. The TERC also ensures that early consultation with all interested agencies takes place, that projects are not developed without the necessary and proper input of the resource agencies, and that conflicts are identified and addressed at the earliest possible stage of project development.

Highways to the Skies

"Highways to the Skies: a Context and History of Colorado's Highway System" is the culmination of several years of cooperative effort between CDOT and the Colorado Historical Society to document the historic highways of Colorado and to identify the important historical features of Colorado's highway system. This study help ensure that the significant historical attributes of the highway system are not lost to future generations.

East Plum Creek Conservation Bank

Preble's Meadow Jumping Mouse (PMJM) is a federally listed threatened species found only in riparian habitat along the Front Range of Colorado and Wyoming. The continued existence of the species is in doubt due to pressures from development and the loss of suitable riparian habitat. Individual populations are often isolated which means that as suitable habitat disappears, these populations will be lost. In an effort to not only mitigate for the impacts of highway projects, but also to proactively work towards the recovery of the PMJM, CDOT has undertaken innovative habitat restoration programs in Douglas County, Colorado.

In East Plum Creek, the result of surrounding development has been the increase in significant run off events. Due to the sandy soils, this has caused the creek to become deeply incised. As a result, water tables were dropping and riparian habitat was disappearing. As part of its mitigation plan for projects near East Plum Creek, CDOT has installed a number of check dams designed to halt further incision of the stream channel, increase groundwater elevations, and restore the riparian habitats surrounding the creek.

Mitigation credit was tied to benchmarks representing progress made towards establishing these goals. To date, the groundwater table has risen, riparian habitats are showing significant signs of improvement, and sand bars are forming within the check dam complex. Willows, important PMJM habitat flora, have rebounded in the area and other wildlife, including beaver, is returning to the area. After only a year, the East Plum Creek Conservation Bank is exceeding everyone's expectations.

Because of the need to complete construction activities during the PMJM hibernation cycle, the East Plum Creek Conservation Bank was formalized only after construction had begun. Commitments on the behalf of CDOT, FHWA and FWS were agreed to on a handshake agreement. This project would not have been possible if it were not for the close working relationship between CDOT and FWS, and a commitment to proactive environmental stewardship.

EL Paso County Programmatic Preble's Agreement

In recognition of the importance of linkage corridors to the recovery of PMJM, CDOT proposed to the FWS that as mitigation for impacts resulting from future projects in El Paso County, CDOT would protect and restore habitat linkage between several isolated populations. Unless these linkages are protected and restored, PMJM recovery in El Paso County will be impossible. In recognition of this fact, and based upon the relationship and trust between FWS, and CDOT, a programmatic agreement has recently been reached that will incorporate the protection and restoration of PMJM habitat linkages as a major component of a programmatic mitigation plan. It is hoped that as a result, the PMJM will not only be preserved, but will be taking the first steps towards recovery in Colorado.

CDOT MS4 Permit and Program

One of the most important resources in the State of Colorado is water. To ensure that high standards for water quality are not impaired by CDOT activities, CDOT has entered into a Municipal Separate Stormwater System Discharge Permit (MS4 Permit) with the Colorado Department of Public Health and the Environment. As part of the permit, CDOT has dedicated itself to maintaining stormwater control devices, implementing a series of Best Management Practices, preventing illicit discharges, and implementing a training program that educates both CDOT staff and the public about water quality concerns. Phase I of the permit included only a few communities along the Rocky Mountain Front Range. Phase II, which began in 2003, covers nearly 50 communities across all of Colorado.

CDOT's Winter Conference, the training aspect of the MS4 Permit, just completed its third annual session. Nearly 300 people attended this year; in addition to CDOT environmental, project development, and maintenance staff were representatives from various state and federal agencies, as well as CDOT private sector consultants and contractors. As part of the conference, participants also had the opportunity to complete an 8 – hour certification for "Stormwater Management and Erosion Control During Construction. The Winter Conference was designed to educate participants about different aspects of the water quality program from erosion control to water quality

concerns, but extended even beyond this mandate to include sessions on other environmental programs as they relate to maintenance issues including everything from Paleontology and Archaeology, to Wetlands and Endangered Species.

Linking Colorado's Landscapes

The Linking Colorado Landscapes program was a CDOT/FHWA funded project with the Southern Rockies Ecosystem Project (SREP). Using expert panels involving wildlife professionals around the state, 173 wildlife linkage areas were identified around the state for a wide range of species.

The 173 wildlife linkages identified were areas deemed of primary importance for the movement of wildlife through existing habitats. Transportation facilities in these linkage areas create barriers to wildlife movement which may present safety concerns for motorist.

12 of the most important of these linkages were identified for the second phase of the project. For these 12 linkages, teams including wildlife professionals as well as transportation engineers evaluated the linkage areas for opportunities to reduce the barrier effect of the roadway and identify potential wildlife crossing structure opportunities including underpasses and wildlife overpasses. An evaluation of wildlife crossing options was created for each of the 12 corridors intended to provide information for any future projects within the linkage area.

The Shortgrass Prairie Initiative

The shortgrass prairie ecosystem is one of the most imperiled in the United States and makes up approximately the eastern one third of Colorado. Home for more than forty threatened, endangered, or declining species including the Black-tailed Prairie Dog, the Black-footed Ferret, the Loggerhead Shrike, and the Lark Bunting (Colorado's State Bird), any impacts to this ecosystem must be carefully considered.

In an effort to protect listed threatened and endangered species, as well as proactively attempt to preserve declining species, CDOT entered into an MOA with FHWA, FWS, DOW, and the Nature Conservancy to create the SGPI. The SGPI will result in the creation of a shortgrass prairie preserve designed to protect and manage habitat for over twenty species that are likely to be impacted by highway maintenance and improvement projects over the next twenty years. As impacts from projects within the shortgrass prairie ecosystem occur, credits will be taken from the shortgrass prairie reserve as a way of accounting for mitigated. On-site avoidance and minimization will still be required, as will mitigation for those species which studies showed would not benefit as readily from off-site mitigation as on-site mitigation efforts.

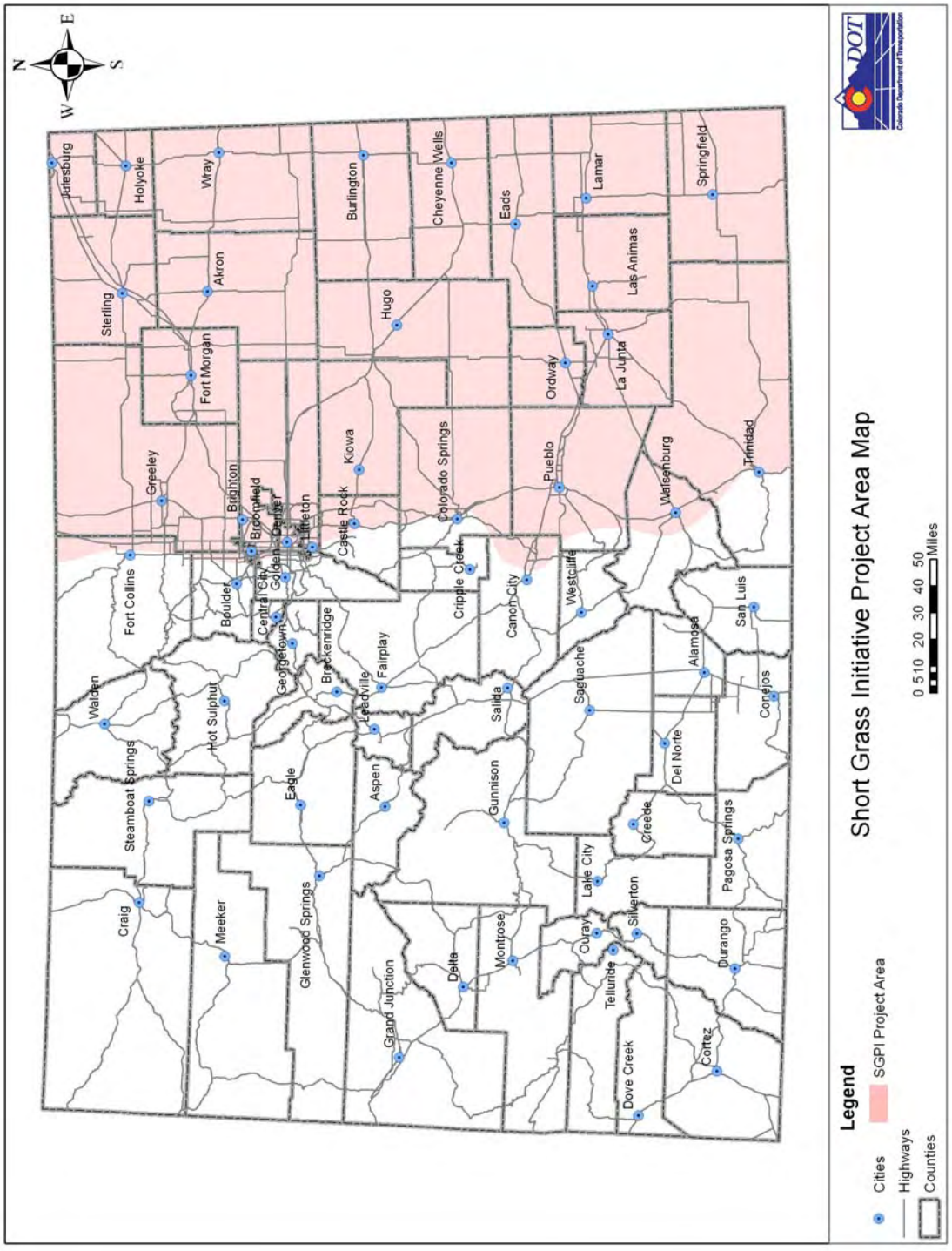

Figure 5: Area of Applicability for the Shortgrass Prairie Initiative

Consultation and Coordination

The SAFETEA-LU requirements related to consultation and coordination with resource and regulatory agencies in the long-range transportation planning process created a mandate for the transportation agencies to consult with resource and regulatory agencies. It did not provide funds or create a reciprocal obligation for non-DOT agencies. In recognition of the fact that CDOT is asking for more work from already overworked and understaffed government offices, CDOT developed a consultation program intended to meet and exceed the requirements of SAFETEA-LU, while simultaneously keeping the time and fiscal resource impacts of consultation on other agencies to a minimum.

To do this, CDOT explained the new requirements to the various resource and regulatory agencies and made a promise that CDOT would do as much work up front, and deliver products for consultation that were as complete as possible and would require as little resource commitment as possible from resource and regulatory agencies.

The intent is to develop a program that effectively and appropriately involves resource and regulatory agencies early in the transportation planning process so that resource and regulatory agency need and requirements can be identified as early as possible, and appropriately incorporated into the transportation plans. Additionally, this provides opportunities for identification of areas where proactive mitigation and partnerships can be developed to reduce and compensate for impacts, well in advance of projects.

CDOT has several on-going consultation activities with resource and regulatory agencies, including:

The Transportation Environmental Resource Council (TERC):

> The TERC is composed of executive management officials from state and federal resource and regulatory agencies as well as CDOT and the Metropolitan Planning Organizations. The TERC provides a venue to increase executive level understanding of the various roles and responsibilities of the various agencies as well as addressing systemic problems and identifying additional cooperative programs.

Quarterly Meetings:

> CDOT has one-on-one quarterly meetings with several different resource and regulatory agencies including the Army Corps of Engineers, the Environmental Protection Agency, and the State Historic Preservation Office. These consultation meetings provide the opportunity to address issues and concerns outside of specific projects. Additionally, these quarterly meetings provide staff the opportunity to identify opportunities to improve consultation processes and develop partnerships.

Agency Liaisons:

CDOT has funded liaison positions with several different agencies. Currently the only liaison is with the U.S. Fish and Wildlife Service, but past liaison positions have included the Colorado Department for Public Health and the Environment, and the U.S. Forest Service. CDOT continues to evaluate potential liaison positions for their potential to improve relationships and streamline consultation needs.

For the 2035 long-range plan, CDOT has engaged in a number of specific consultation and coordination activities.

August 2006: CDOT/FHWA Conservation Planning Workshop

The Conservation Planning Workshop provided an opportunity for resource and regulatory agencies to learn more about the requirements of SAFETEA-LU as well as CDOT's plan for meeting these regulatory requirements. The workshop also included information on conservation planning tools and techniques as well as public participation visualization tools. Final commitments from CDOT to the resource and regulatory agencies regarding consultation for the 2035 plan were developed and committed to at this workshop.

September 2006 – November 2006: Resource Agency Review of Inventories and Conservation Plans

CDOT developed a list of available resource inventories and conservation plans available in the State of Colorado. The draft list of inventories and conservation plans were submitted to the resource and regulatory agencies, as well as the Metropolitan Planning Organizations for review and comment. The U.S. Fish and Wildlife Service asked that some method of identifying migratory birds be identified. Colorado Division of Wildlife developed new resource inventories to replace those that CDOT had available. The new inventory was incorporated into the CDOT datasets. No additional comments were received. These inventories were used to develop an environmental context for each of the corridors in the long range plan. While specific impacts and locations are not identified in the long range plan, this information will provide transportation planners and project managers with early insight into the types of environmental resources that are known to exist in each corridor.

January 2007: Internal and MPO Draft Mitigation Discussion Review

The Draft Environmental Mitigation Discussion was distributed for internal and MPO review and comment. Several comments were received and incorporated into the discussion. The internal review was completed to assure that the information and commitments made in the mitigation discussion are accurate reflection of CDOT knowledge and practices. The mitigation strategies include

those that are in practice or are required by laws and regulations. While several suggestions for strategies not currently practiced were considered, these were not include where CDOT could not make an affirmative commitment that such strategies would be implemented in a reasonable time frame.

February 2007 – May 2007: Resource and Regulatory Agency Review and Comment

The Draft mitigation discussion was distributed to resource agencies for review and comment. CDOT incorporated agency advice and recommendations to the maximum extent possible for the level of information available at the long-range planning stage. Where there were conflicts between agency requests and what CDOT can realistically commit to, or between different agency comments, CDOT cooperatively addressed the conflicts to develop a mitigation discussion acceptable to all parties. Significant changes were made to the wildlife discussion, Lynx and Preble's discussions, and Air Quality discussion.

March 2007: Environmental Forum

The March Environmental Forum was a first time event to improve relations and develop understanding at the planning level of resource/regulatory agency responsibilities and concerns. It provided an opportunity for one-on-one conversations between resource and regulatory agencies and local transportation planning officials. It fostered an atmosphere of cooperation and provided an opportunity for cooperative identification of potential conflicts and opportunities at the regional level and provided the opportunity for resource and regulatory agency needs and concerns to be identified at the earliest planning stages. This event did not seek to address specific project concerns or to develop specific resource information.

June – November 2007: Tribal Review and Comment

The Draft mitigation discussion was distributed to Southern Ute and Ute Mountain Ute tribes for review and comment. Comments and suggestions related to discussion of Tribal sovereignty as well as recommendations and changes to resource discussions and overall document format were made. To the extent possible, these changes were incorporated before the public draft was released.

Resources: Grand Valley

The following information demonstrates specific resources found in the corresponding corridors for the Grand Valley Transportation Planning Region.

GJ -01 006A; (MP 11.21 – 20.24): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

GJ -02 006A; (MP 20.24 – 26): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

GJ -03 006C; (MP 37.5 – 45.82): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

GJ -04 006B; (MP 30.27 – 34.38): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

GJ-05 006M; (MP 65.41 – 66.26): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

GJ -06 050A; (MP 32 – 38.74): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

Designated HAZMAT Route

GJ -07 050A; (MP 38.74 – 70.51): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

Designated HAZMAT Route

GJ -08 065A; (MP 0 – 61.39): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

Lynx, White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

Wildlife Crossings: 1

GJ-09 070A; (MP 0 – 15.08): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Designated HAZMAT Route

GJ -10 070A; (MP 15.08 – 43.91): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

Designated HAZMAT Route

GJ -11 070A; (MP 43.91 – 74): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

Designated HAZMAT Route

GJ -12 070B; (MP 0 – 5.75): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, Small Generator, LUST

Designated HAZMAT Route

GJ -13 070B; (MP 5.75 – 13.36): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:
Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:
Boreal Toad

HAZMAT:
Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST
Designated HAZMAT Route

GJ -14 070Z; (MP 0 – 1.27): Mesa

Reptiles:
Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:
White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:
Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:
Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:
Boreal Toad

HAZMAT:
Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

GJ -15 139A; (MP 0 – 72.7): Mesa

Reptiles:
Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:
Lynx, White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:
Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:
Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:
Boreal Toad

Wildlife Crossings: 1

HAZMAT:
LUST
Designated HAZMAT Route

GJ -16 141A; (MP 0 – 61.39): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

Lynx, White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

Wildlife Crossings: 2

HAZMAT:

Designated HAZMAT Route

GJ -17 141B; (MP 156.75 – 159.44): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, Small Generator, LUST

Designated HAZMAT Route

GJ -18 141B; (MP 159.44 – 162): Mesa

Reptiles:

Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:
Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:
Boreal Toad

HAZMAT:
Corrective Action Site, RCRA Condition Exempt Small Generator
Designated HAZMAT Route

GJ-19 330A; (MP 0 – 11.4): Mesa

Reptiles:
Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:
White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:
Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:
Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:
Boreal Toad

GJ -20 340A; (MP 0 – 6.92): Mesa

Reptiles:
Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:
White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:
Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:
Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:
Boreal Toad

HAZMAT:
Corrective Action Site

GJ -21 340A; (MP 6.92 – 13.34): Mesa

Reptiles:
Midget Faded Rattle Snake, Longnose Leopard Lizard

Mammals:

White Tail Prairie Dog, Gunnison Prairie Dog, Wolverine, Townsend Big Eared Bat, Northern Pocket Gopher, Bottas Pocket Gopher, Black Tail Prairie Dog

Fish:

Razorback Sucker, Mountain Sucker, Humpback Chub, Flathead Chub, Colorado Pike Minnow, Colorado Round Tail Chub, Brassy Minnow

Birds:

Long-billed Curlew, Ferruginous Hawk, Yellow-Billed Cuckoo, Snowy Plover, Mountain Plover

Amphibians:

Boreal Toad

HAZMAT:

Corrective Action Site, RCRA Condition Exempt Small Generator, LUST

Resource Management Plans

The following table shows the resource management plans found within the Grand Valley Transportation Planning Region.

Resource Management Plans	Link
Grand Junction Resource Management Plan	http://www.blm.gov/co/st/en.html
North Fruita Desert Management Plan	http://www.blm.gov/co/st/en.html
Colorado Canyons National Conservation Area Resource Management Plan	http://www.blm.gov/co/st/en.html
Glenwood Springs Resource Mgmt Plan (+ Glenwood Springs Amendments)	http://www.blm.gov/co/st/en.html
San Juan/San Miguel Resource Management Plan (+ Amendments)	http://www.blm.gov/co/st/en.html
Uncompahgre Basin Resource Management Plan (+ Amendments)	http://www.blm.gov/co/st/en.html
Forest Plan for Grand Mesa, Uncompahgre & Gunnison National Forests	http://www.fs.fed.us/r2/gmug/policy/plan_rev/draft/index.shtml
Colorado Preservation 2010. An Update of Colorado Preservation 2005 the Statewide Historic Preservation Plan	http://www.coloradohistory-oahp.org/publications/pubs/1508.pdf
Annual Report 2005	http://www.water.state.co.us/pubs/annualreport/annlrpt_2005.PDF
Conservation Plan for Grassland Species	http://wildlife.state.co.us/WildlifeSpecies/GrasslandSpecies/grasslandsplan.htm
Link to list of **various** species/multi-species recovery & conservation plans	http://wildlife.state.co.us/WildlifeSpecies/
Colorado's Comprehensive Wildlife Conservation Strategy including References to Wildlife Action Plans	http://wildlife.state.co.us/WildlifeSpecies/
Link to map showing locations of state parks	http://parks.state.co.us/ParksSearch/ParksSearch.htm
Colorado State Parks Five-Year Strategic Plan 2005-2009	http://parks.state.co.us/About/StrategicPlan/
Park search database	http://nps.gov/applications/parksearch/state.cfm
Database of mining operations	http://www.cdphe.state.co.us/hm/sf_sites.htm
List of the six wildlife refuge areas in Colorado and their websites	http://www.fws.gov/refuges/profiles/ByState.cfm?state=CO
List of active solid waste facilities in state, sorted by county (70 municipal, 250 industrial)	http://www.cdphe.state.co.us/hm/lflist.pdf
Federal Superfund Sites in Colorado (19 NPL sites - 17 finalized, 2 proposed)	http://www.cdphe.state.co.us/hm/sf_sites.htm
Link to Uranium Mill Tailings Remedial Action (UMTRA) Sites in Colorado. Map & fact sheet for each site.	http://www.cdphe.state.co.us/hm/umsites.htm

Searchable database of hazardous waste handlers (generators, transporters, etc.) (9 commercial, 24 non-commercial TSD facilities)	http://www.epa.gov/enviro/html/rcris/rcris_query_java.html
Linking Colorado's Landscapes	http://restoretherockies.org/linkages.htm
Report to the Public 2004-05	http://www.cdphe.state.co.us