Camp Hale – Eagle River Headwaters Restoration Project: Collaborative Recommendations for Restoration and Management

Acknowledgements

These recommendations are the result of a collaborative process in which a number of individuals, organizations, and agencies participated. It was developed over the course of a year through working group and full stakeholder meetings. A full list of regular participants is below. Special thanks are due to District Ranger Dave Neely, his staff on the Eagle-Holy Cross Ranger District, and other staff from the White River National Forest for the time and energy they invested in this effort. We are also thankful for funding from the Colorado Water Conservation Board and its Colorado Healthy Rivers Fund, the Freeport-McMoRan Copper and Gold Foundation, the Sidney E. Frank Foundation, the Tawani Foundation, and the Newfield Foundation, all of which supported the National Forest Foundation's planning and facilitation efforts.

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Table of Contents

I. Executive Summary

Camp Hale and the Eagle River headwaters area is a high-elevation landscape that supports numerous resources and recreational activities and also has a rich history. The White River National Forest has previously proposed several restoration and management plans for Camp Hale and the upper Eagle River watershed, but none has been fully accepted by the communities and stakeholders invested in the area.

In 2011, the National Forest Foundation (NFF), in partnership with the U.S. Forest Service, identified Camp Hale and the Eagle River headwaters area as one of its *Treasured Landscapes* campaign sites and initiated a multi-year conservation campaign to restore the area and enhance its ability to satisfy a multitude of functions. The goals of this conservation effort are twofold. First, the project brought together local, regional, State, and Federal stakeholders and other interested parties to collaboratively develop a shared vision for future improvements to the site. Second, NFF will partner with local nonprofits, private companies, municipalities, contractors, and the U.S. Forest Service to implement the shared vision.

This Master Plan is the culmination of the first goal of the Camp Hale-Eagle River Headwater *Treasured Landscapes* campaign. This document represents the work of over 40 stakeholders that participated in a year-long collaborative planning effort to develop a shared vision for the project area. The shared vision identifies desired conditions and recommends specific actions for achieving those desired conditions. The following are the overarching desired conditions identified by the group:

- **River and aquatic health** – Return the Eagle River to conditions that are more akin to their Pre-Camp Hale morphology and enhance of the river's aquatic habitat

- **Riparian and wetland areas** – Restore, enhance, and create riparian and wetland areas throughout the valley floor

- **Terrestrial habitat and vegetation** – Remove non-native plants and reestablish native vegetation, as well as more natural, irregular topography throughout the valley floor

- **Recreation opportunities** – Maintain and improve all existing summer and winter recreational opportunities in the Camp Hale and Eagle River headwaters area

- **Historic preservation and interpretation** – Honor the history of the project area by preserving existing structures and relics and developing a comprehensive interpretive plan

II. Purpose of Master Plan

This Master Plan is intended to convey to the U.S. Forest Service the collaborative planning group's desired conditions and recommendations for actions that will help achieve the collaborative's vision for the ecological restoration and continuance of other valued uses in this unique Colorado landscape. The U.S. Forest Service has agreed to honor and accommodate the collaborative's shared vision and recommendations as it enters into the formal planning and environmental evaluation process mandated by the National Environmental Policy Act (NEPA). The agency recognizes that the translation of such agreement into a proposed action for the Camp Hale and Eagle River headwaters area will greatly enhance chances for the project's overall success.

III. Background

A. Historical Setting

Tucked into a high elevation watershed along the west slope of the Continental Divide in central Colorado are the headwaters of the Eagle River, an important tributary of the Upper Colorado River. These waters originate primarily from winter snowpack and sustain human and ecological communities in both western and eastern Colorado, providing important water supplies for cities and towns and valuable habitat for wildlife such as elk, mule deer, bear, mountain lions, lynx, pine marten, marmot, pika, beaver, trout, boreal toad, white-tailed ptarmigan, rosy finches, migratory songbirds and waterfowl. Furthermore, the Camp Hale area is well known for its rich history and its popularity as a high elevation recreation mecca.

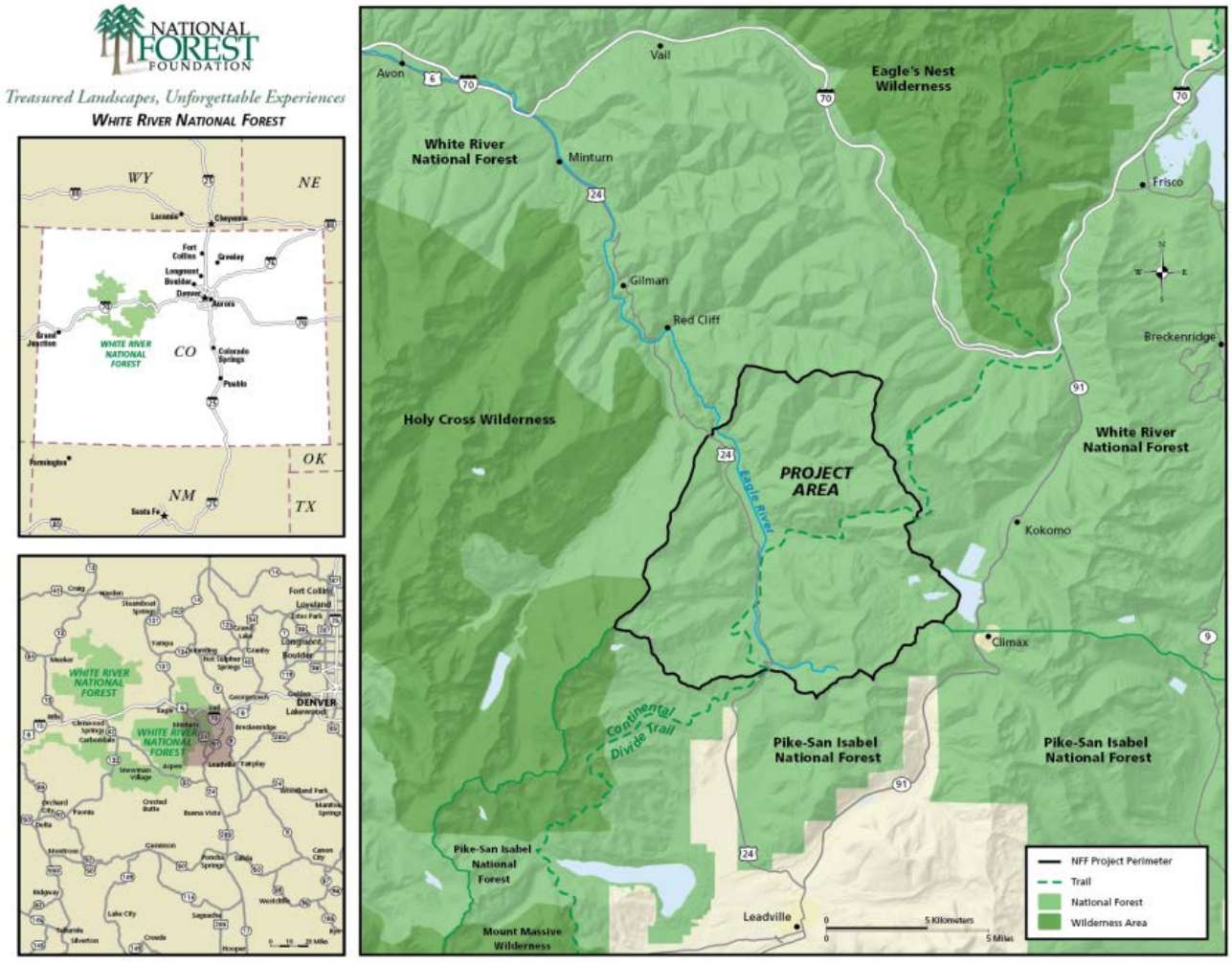


Figure 1. Vicinity map of the Eagle River headwaters and the Camp Hale-Eagle River Headwaters Restoration Project area.

Evidence of prehistoric peoples in this area stretches back 10,000 years. These earliest inhabitants were travelers migrating to new homelands farther south. Beginning about 4,000 years ago the Ute people lived in and frequently traveled through this area. The broad valley nestled between surrounding high mountain ridges offered them an important summer hunting area for mountain bison, elk, and mule deer.

In the mid-19th century, the Fremont expedition, led by Kit Carson, traveled over Tennessee Pass into the Eagle River basin. Fremont claimed to have killed the last bison on the Western Slope in the immediate area of Tennessee Pass. When the Hayden Geographic Survey passed through in 1873, photographer William Henry Jackson captured the first image of the nearby Mount of the Holy Cross on film.

Discovery of gold and silver in the area brought many more people and, by 1879, many mining claims and camps had been established in the area; most of them around the towns of Red Cliff to the north and Mitchell to the southwest of the Tennessee Pass summit. A toll road was built and a stage line carried provisions from the lower Eagle Valley to miners in nearby camps. In 1881, the Rio Grande Railroad laid its first tracks from Leadville through the crescent-shaped valley, known at that time as Eagle Park, where Camp Hale was to be built. A train stop at the northern end of the valley, called Pando, allowed early settlers to transport resources from the valley via rail. Settlers at the site cut and shipped timber, grazed sheep, grew lettuce and spinach, and the Rio Grande railroad owned and operated ice ponds to furnish ice for shipping produce.

Figure 2. Dump Family at their ranch at Pando, circa 1933.

In 1905, Theodore Roosevelt established the Holy Cross Forest Reserve. In 1922, the Reserve became part of what is now known as the White River National Forest. The Pando Ranger Station was located in Pando to oversee timber cuts and grazing.

Figure 3. View of Camp Hale, circa 1943.

In 1942, during World War II, the Eagle River headwaters at Eagle Park and 240,000 surrounding acres were transformed into a winter and mountain warfare training camp, housing up to 17,000 troops. Camp Hale, at an elevation of 9,200 feet, was established because the natural setting included a large, flat wetlands meadow surrounded by steep slopes suitable for training in skiing, rock climbing, and winter survival skills.

Camp Hale was used by the 10th Mountain Division, the 38th Regimental Combat Team, 99th Infantry Battalion, and soldiers from Fort Carson from 1942 to 1965 for mountain and winter warfare training and testing of weapons and equipment. The Army also held nearly 400 prisoners from Hitler's expeditionary *Afrika Korps* there during World War II. In addition, from 1959 through 1965, the Central Intelligence Agency secretly trained Tibetan soldiers at Camp Hale. In July 1965, the Camp Hale facilities were deactivated, with control of the lands returned to the U.S. Forest Service in 1966. Although no longer under control of the U.S. military, the area is still used today for cold weather and mountain warfare training exercises.

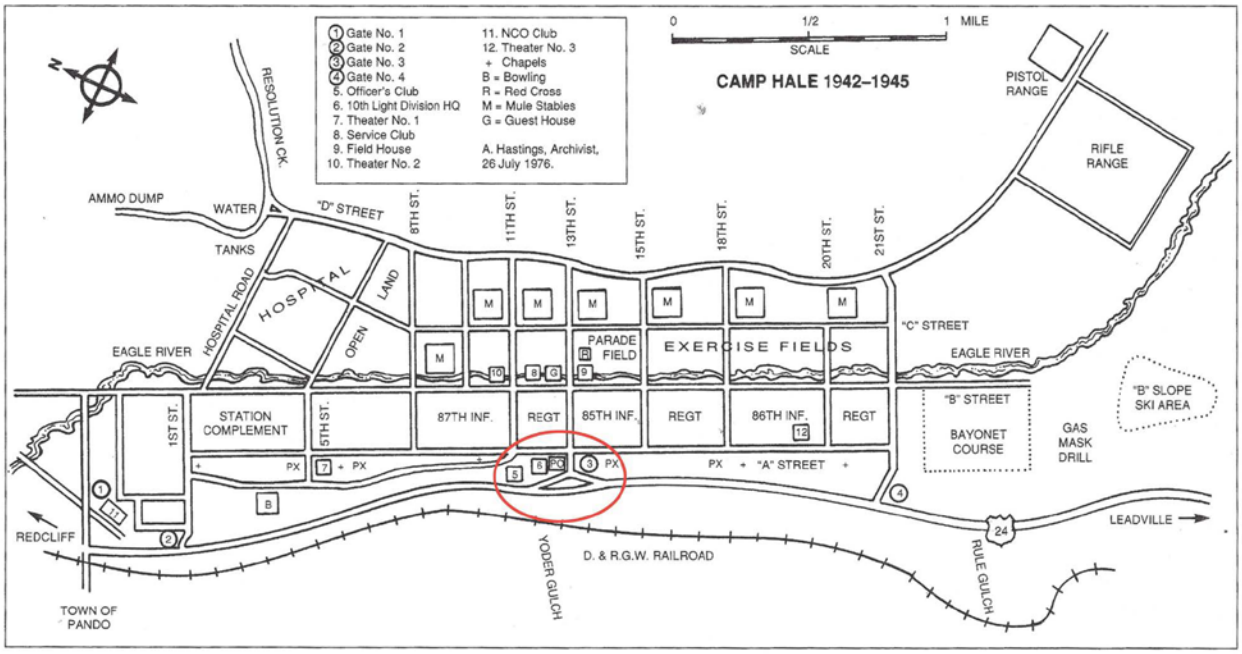


Figure 4. Map of military infrastructure at Camp Hale 1942-45.

The honorable WWII veterans who trained at Camp Hale during 1942-1945 created legacies in warfare victory, and upon return, many played a major role in the establishment of North America's modern winter ski industry, participating in the establishment of at least 17 ski areas, including Vail, Aspen, and Arapahoe Basin. Other notable veterans of Camp Hale include Sierra Club leader David Brower; Paul Petzoldt, founder of the National Outdoor Leadership School and the Wilderness Education Association; and Bill Bowerman, co-founder of Nike.

The site is now listed on the National Register of Historic Places, and in 2011, Colorado Senator Mark Udall introduced the 2011 Camp Hale Study Act to assess the feasibility of designating the site as a National Historic Landmark.

When the Army established Camp Hale, the large wetlands meadow surrounding the East and South Forks of the Eagle River was drained, a sewage system was installed, millions of cubic yards of fill were imported, and the meandering East and South Forks of the Eagle River headwaters were

Figure 5. Soldiers training near Camp Hale in 1943.

channeled into the three-mile linear ditch system that remains today. Although no military facilities remain at the site, the threat of unexploded ordnances remains, and some areas of the valley floor are contaminated with asbestos. In 2003, the US Army Corps of Engineers and other partners began a cleanup effort to remove hazards from the area.

B. Land Uses

Today, the Eagle River headwaters area and Camp Hale is a landscape with many overlapping human values and unfolding stories. The area is used year-round for recreation, including camping, hunting, fishing, rock climbing, mountain biking, hiking, jeeping and off-highway vehicle (OHV) riding, snowmobiling, dog sledding, and backcountry skiing. There are trailheads for the Colorado Trail and Continental Divide Trail and for several of the 10th Mountain Division backcountry huts. Sheep grazing continues during the summer months. Veterans and families of the 10th Mountain Division soldiers who trained here also return each year on Memorial Day to honor and remember their loved ones.

Current recreational uses at Camp Hale are both commercial and non-commercial. Outfitter guides utilize the area commercially for activities like ATV riding, dog sledding, snowmobiling, and other guided activities. Dispersed non-commercial activities are currently free of charge in the summer and part of the Vail Pass Winter Recreation Area fee area in the winter.

Figure 6. Customers of outfitter NOVA Guides enjoy ATV riding through Camp Hale.

Although recreational opportunities abound year round at Camp Hale and in the surrounding National Forest lands, actual public recreational facilities are limited to camping areas, roads and trails, a fishing pier, and a historic climbing area. Camping in the Camp Hale area occurs at dispersed campsites, 21 individual developed campsites at the Camp Hale Memorial Campground, and group developed campsites for up to 150 people at the East Fork Group Campground. The area's many roads are commonly explored by mountain bikers and ATV and motorcycle riders. Most hiking in the Camp Hale vicinity is on the Colorado Trail and Continental Divide Trail, which pass through the site on the southern end in the East Fork area. There is also a trailhead at the southernmost edge of Camp Hale adjacent to Highway 24, and three other trailheads adjacent to Highway 24, which are used primarily in the winter. Visitors also commonly fish from a handicap accessible fishing pier at the Camp Hale Fishing Pond and rock climb at a very popular, easily accessed, natural rock wall that was once used for military rock climbing training exercises.

Figure 7. View of the Camp Hale fishing pier.

C. Water Use

As it flows north and west to the Colorado River, the Eagle River accommodates a variety of water uses, including diversions for human use in the Eagle River basin, and in Front Range communities in the South Platte and Arkansas basins, recreational uses of stream flows, and support for local aquatic and riparian ecosystems. In-basin diversions support agriculture, domestic uses, and snow making, all of which divert in differing amounts at different times of the year, and ultimately return portions of the diversion to the stream system. Water diverted entirely out of the basin (trans-basin diversion) to serve uses east of the continental divide returns no water to the basin after use, and is therefore 100% consumptive.

The health of aquatic and riparian ecosystems in Camp Hale is affected by the amount, timing, and variability of stream flows, which are affected by diversions, as well as by broad climatic events and local weather conditions, and can vary dramatically from day to day, season to season, and year to year.

Three existing reservoirs upstream of Camp Hale store water for various uses, and their operators currently adjust operations as feasible to match releases to desired downstream flows. Expansion of existing up-stream storage or construction of new facilities could assist in efforts to support riparian and aquatic habitats, while also supplying water needed for use out of the stream.

In this regard, in 1998, the cities of Aurora and Colorado Springs, the Eagle Park Reservoir Company (consisting of the Colorado River Water Conservation District, Eagle River Water & Sanitation District, Upper Eagle Regional Water Authority, Vail Associates, Inc., and Eagle County), and Climax Molybdenum Company entered into the Eagle River Memorandum of Understanding (ERMOU) in order to develop a joint use water project to provide critical water supplies to both East and West Slope water users, and for environmental purposes. A copy of the ERMOU is located in Appendix A. The ERMOU allows for the development of a project or projects within and outside the Camp Hale area to help meet East and West Slope water supply needs and provide water to enhance stream flow for environmental and recreation uses.

Other water rights in the upper Eagle River watershed include In-Stream Flow (ISF) water rights held by the Colorado Water Conservation Board, and water rights of the U.S. Forest Service, Nova Guides, and the Board of Water Works of Pueblo. A list of water rights in the area is in Appendix B.

D. Challenges to Developing a Shared Vision

The U.S. Forest Service has previously proposed several restoration and management plans for Camp Hale and the upper Eagle River watershed. Although some small-scale projects have improved stream habitat over the years, numerous challenges, including financial obstacles, to large-scale projects have prevented implementation. With overlapping and sometimes conflicting uses and human values in one area, it is no surprise that previous plans have been unable to reconcile and accommodate the multitude of disparate stakeholder desires.

For example, there are WWII veterans who wish to improve the historical interpretation of the area and who fear that ecological restoration would alter important physical traits that depict the site's history. In addition, local and regional water providers that hold existing absolute and conditional water rights locally want to protect the ability to develop infrastructure required to

ensure adequate water supplies for future consumptive and non-consumptive uses (much of which will require additional analysis and permitting outside of this planning process). Recreational outfitters and guides and an increasing number of outdoor enthusiasts wish to continue established uses and improve facilities for camping, picnicking, and fishing. Active sheep grazing and several undeveloped private inholdings exist in the area. Several energy and communications utility companies hold easements for utility lines, and an unused rail line passes through Camp Hale. Federal, state, and local ecologists and wildlife advocates wish to improve wildlife habitat and restore the Eagle River to a naturally functioning stream and riparian system that supports a diversity of terrestrial and aquatic wildlife. Additionally, unexploded ordinance and recently-identified asbestos contamination from historical military activity continue to pose safety threats in some areas.

E. Description of Collaborative Planning Process

Recognizing the need to develop a shared vision for restoration and management of this area, the NFF, in partnership with the Forest Service, identified Camp Hale and the Eagle River headwaters area as one of its *Treasured Landscapes* campaign sites in 2011 and committed to a multi-year conservation campaign for its restoration. The goals of this conservation effort are twofold: to bring together stakeholders and interested parties to collaboratively develop a shared vision for future improvements to the site, and to partner with local nonprofits, contractors, and the U.S. Forest Service to implement science-based ecological restoration activities, while honoring the area's history and promoting sustainable use of its resources.

In February of 2013, the NFF convened nine key stakeholders to form the steering committee for the Camp Hale-Eagle River Headwaters Collaborative Group. This group of individuals helped the NFF develop a full stakeholder list and a process for a year-long collaborative planning effort. In March 2013, the NFF hosted the first full stakeholder meeting of the Camp Hale-Eagle River Headwaters Collaborative Group. It was soon decided that the planning effort required two working groups -- a land working group and a water working group. These subject area-based working groups were responsible for developing and discussing recommendations, and sharing those recommendations with all participants at roughly bi-monthly full stakeholder meetings. The full stakeholder group discussed the recommendations developed by the working groups and reached consensus on the recommendations set forth in this document.

Figure 8. Members of the Camp Hale-Eagle River Headwaters Restoration Project Stakeholder Group following a stakeholder meeting in Red Cliff, CO.

This Master Plan is the culmination of the Camp Hale-Eagle River Headwaters Collaborative Group's efforts. The document describes the collaborative planning group's shared vision, sets forth those recommendations for actions that enjoy consensus support from the collaborative

group, and attempts to define the scope of disagreements that remain among the participating stakeholders.

F. Site Conditions

The South and East Forks of the Eagle River flow from headwaters near the Continental Divide generally north northwest between the Mosquito Range to the northeast and the Sawatch Mountains to the west into the glaciated valley of Camp Hale. The most prominent geological landform in the area is the 14,009 ft. Mount of the Holy Cross. The terrain surrounding Camp Hale is shaped by glaciation, with many rugged steep valleys, cliffs, and talus slopes interspersed with broader valleys left by retreating glaciers and further shaped by thousands of years of streamflow processes and sediment deposition.

The area encompassing Camp Hale ranges in elevation from approximately 9,000 feet to over 12,500 feet, and includes sub-alpine landscapes and beautiful mountain vistas. Chicago Ridge is a striking above-treeline landform that runs north to south with areas of rolling valleys to very steep slopes and high ridges. Ecological communities in the area include Engelmann spruce and subalpine fir forests, high alpine tundra meadows, aspen forests, lodgepole pine forests, and mountain wetlands and riparian areas.

Figure 9. View of the East Fork of the Eagle River.

Riparian and wetland communities are the most ecologically productive landscapes in this Colorado high country, sustaining a high diversity of plant and wildlife species. They are also the rarest. Up to 80% of the wildlife species in Colorado depend on wetlands and riparian areas for some part of their life cycle, but these areas currently occupy only 1.5% of the land area in the state. Wetlands also help sustain water flows in streams and rivers, recharge groundwater supplies, provide temporary storage for flood waters, and slow the flow of water so that impurities settle out of the supply. Upland forests and alpine tundra communities surrounding wetlands and riparian areas are also important habitats that provide wildlife with shelter and space to move through the landscape.

Figure 10. Photo of Canada lynx.

Wildlife in the Camp Hale-Eagle River headwaters area includes but is not limited to black bear, coyote, elk, mule deer, moose, bobcat, mountain lion, red fox, pine marten, snowshoe hare, weasel, beaver, porcupine, white-tailed ptarmigan, dusky grouse, the federally endangered Canada lynx, trout, and native nongame fish species.

1. Watershed and Riparian Conditions

Prior to WWII, the Eagle River meandered through a wide, flat wetland meadow known as Eagle Park. With the construction of Camp Hale in 1942, the large meadow and wetlands were drained, millions of cubic yards of fill were imported, and the river was straightened into an engineered ditch. The river channel at Camp Hale is now much steeper and 40 percent shorter than before it was dredged, rerouted, and straightened. Over time, the river channel has become ever more incised and the banks have become over-steepened and destabilized. As the channel has deepened, natural flood flows are no longer able to spill onto the floodplain, so that the Eagle River headwaters are largely "disconnected" from the natural floodplain.

Channelization of the river at Camp Hale drained and converted more than 300 acres of wetlands and riparian area along the Eagle River headwaters into dry land areas. This conversion has diminished the availability and complexity of aquatic habitat, wetlands, and beaver pond habitats that support various aquatic wildlife species. Natural stream processes, like flooding and meandering, were altered, and today, stream bank erosion and collapse threaten the water quality and ecological resilience of the Eagle River headwaters. Culverts in the area also fragment aquatic habitat, creating barriers to fish and amphibian migration.

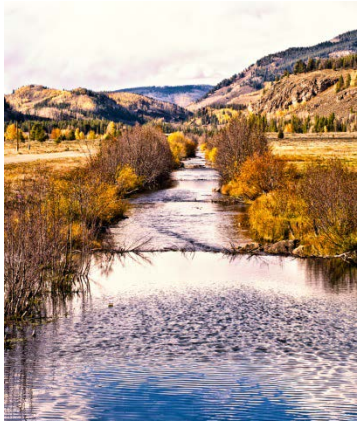


Figure 11. View of the three-mile linear channel of the Eagle River through Camp Hale.

2. Invasive Species and Degraded Wildlife Habitat

Military use, unmanaged recreation, and decades of other land uses at Camp Hale have left a legacy of invasive and noxious weeds that are impediments to the restoration of native plant and wildlife habitats. Due to the infill, compacted soil conditions, and a buried floodplain, the valley bottom area is now virtually overrun with non-native invasive plants. While yellow toadflax is the most abundant, there is also Canada thistle, musk thistle, and common mullein.

Figure 12. Photo of yellow toadflax, an abundant invasive species on the valley floor.

Because many weed species fail to hold the soil as well as native vegetation, erosion tends to increase dramatically where weeds dominate. Sediment from eroded soils enters streams and damages critical spawning and rearing habitat for trout and other species.

Invasive weeds adversely affect wildlife habitat and ultimately diminish the biodiversity within an ecosystem. Invasive weed species are of lower nutritional value than native plants and some may even be poisonous. This reduces the forage capacity of an area for large wildlife species such as deer and elk, and potentially harms every species up and down the food chain. Accordingly, displacement of native grasses and forbs by invasive weeds can adversely affect all creatures that depend upon the

ecosystem for food, cover, and nesting, from grazing ungulates to small underground mammals like voles and chipmunks, and weasels, coyotes, and hawks that eat them.

3. Recreation, Safety Hazards and Historical Interpretation

The valley floor of Camp Hale is on the National Register of Historic Places and is being evaluated as a National Historic Landmark due to its historic military use and the significant influence of Camp Hale veterans on the US ski industry.

The natural beauty of the area and the ease of public access from a *National Scenic and Historic Byway* draw many visitors to the site. Recreational opportunities abound year-round with summer activities including camping, hiking and mountain biking on a variety of routes including the Colorado Trail and Continental Divide Trail, driving/riding for pleasure in full-size or off-highway vehicles, staying at one of the 10th Mountain Hut Association huts, fishing, and hunting. Camp Hale is also managed as part of the Vail Pass Winter Recreation Area, with activities including snowmobiling, backcountry skiing and snowboarding, snowshoeing, and cross-country skiing on a network of groomed trails. There is extensive commercial and non-commercial jeep and OHV use on many of the roads that are part of the Vail Pass Winter Recreation Area, including access roads to the 10th Mountain Division Huts. Current public recreation facilities and interpretive displays within the valley floor are outdated and may be incompatible with the area's ecological needs.

A variety of safety and ecological hazards exist at Camp Hale and are in need of attention. Munitions training exercises were conducted throughout the time that Camp Hale was operational, with one area of known heavy use in the East Fork valley. The following munitions have been confirmed to have been used in the valley: anti-tank rockets, recoilless rifles, rifle grenades, hand grenades, high explosive and illumination mortars, artillery, practice antitank landmines, and small arms. Additionally, many parts of the valley floor are contaminated with asbestos. Despite careful deconstruction of Camp Hale's facilities and buildings following WWII, non-friable and friable asbestos has been discovered on soil surfaces in the valley. In order to make the area safe for its many visitors, hazards related to unexploded ordnances and asbestos must be mitigated.

Figure 13. Photo of the type of unexploded ordnance found at Camp Hale.

IV. Shared Vision and Recommendations

The Camp Hale-Eagle River Headwaters Collaborative Group has developed a shared vision for the future of the project area that includes recommended activities to restore and enhance river and aquatic health, riparian and wetland areas, and terrestrial habitat and vegetation, while maintaining or enhancing recreational opportunities, and historical interpretation, and allowing East Slope and West Slope water providers to exercise and develop water rights and associated water infrastructure.

A. River and Aquatic Health

1. Desired Conditions

The Camp Hale-Eagle River Headwaters Collaborative Group has an overall desire to return the Eagle River to conditions that are more akin to their pre-Camp Hale morphology, with meanders in the East Fork, South Fork, and mainstem of the Eagle River that flows through Camp Hale. In addition to reestablishing sinuosity in the river channel, the Group would like to enhance the river's aquatic habitat, enriching fish and macro invertebrate communities. Returning stream channels to more natural conditions is expected to increase the overall ecological function of the headwaters, enhance the development of adjacent riparian habitat, and provide opportunities for cutthroat conservation efforts.

2. Specific Recommendations

The Group recommends restoring river morphology by using an inset floodplain approach that involves excavation of imported fill material to create a wide topographical depression through which the stream channel could meander (see Figure 14). The inset floodplain would follow a path through the valley floor that generally aligns with the meanders of the Eagle River's 1939 course. Within the inset floodplain, the Eagle River would follow a sinuous course that balances contemporary supplies of water and sediment. Any excavation for the inset floodplain will likely require asbestos mitigation and coordination relating to the potential for unexploded ordnance.

Work on the East Fork and South Fork should require the least amount of excavation, but will likely require the most significant coordination relating to the potential for unexploded ordnances. Indeed, since fill was not imported into this area, it might be possible to reestablish channel meanders without creating an inset floodplain. River sinuosity in the area should generally follow the River's pre-Camp Hale sinuosity, without disturbing any of the berms of the historic rifle range. Refer to Figure 15 to see the recommended general location of the restored stream channel. The Group expects that these activities would create an additional 1.5 to 1.9 miles of stream channel; however, with lower contemporary flows, necessarily shorter meander wavelengths and lower amplitude may reduce total increases in stream channel length. Further design work will be necessary to determine proper sinuosity.

Work on the main stem of the Eagle River will require significant excavation to develop a roughly 300' wide inset floodplain that generally follows the River's pre-Camp Hale flow path. See Figure15 to see the recommended location of the inset floodplain. The inset floodplain may be adjusted (widened or narrowed) for a variety of reasons, including operational efficiency and transportation needs. The stream channel should meander within the inset floodplain and it should be possible for water to spill from the stream channel onto the floodplain during spring runoff, allowing for establishment of riparian and wetland ecosystems. The Group estimates that these activities would create approximately 3.3 miles of additional stream channel.

Although stream channel sinuosity and desirable stream bank characteristics and in-stream structures are expected to develop naturally over time within the established inset floodplain, the Group recommends that features also be proactively designed and established to improve aquatic habitat in the project area. It is recommended that such features be incorporated into the design and implementation of activities along the entirety of the Eagle River's East Fork, South Fork, and mainstem.

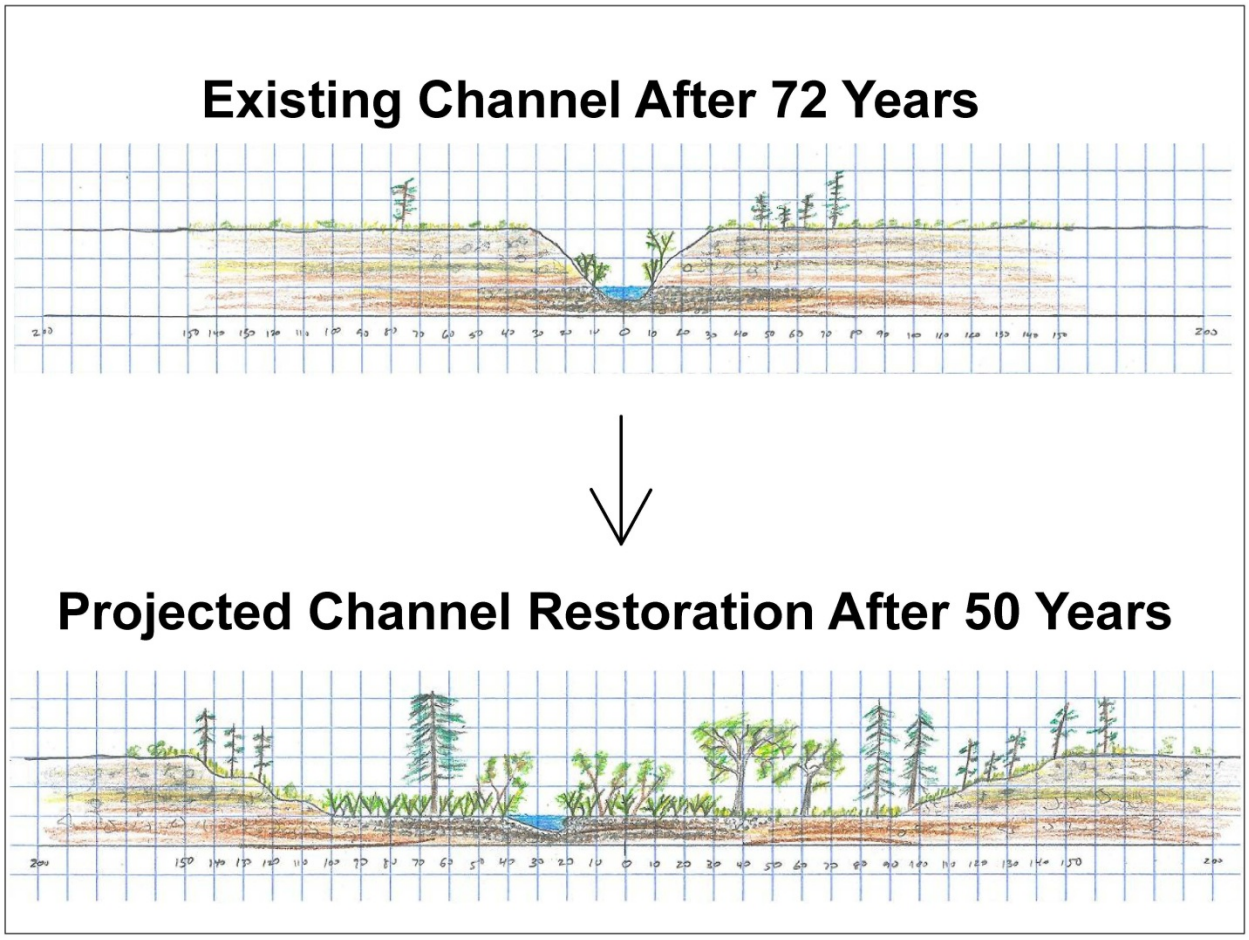


Figure 14. Cross-sectional diagram of the recommended inset floodplain approach for creating a meandering stream channel and developing wetlands**.**

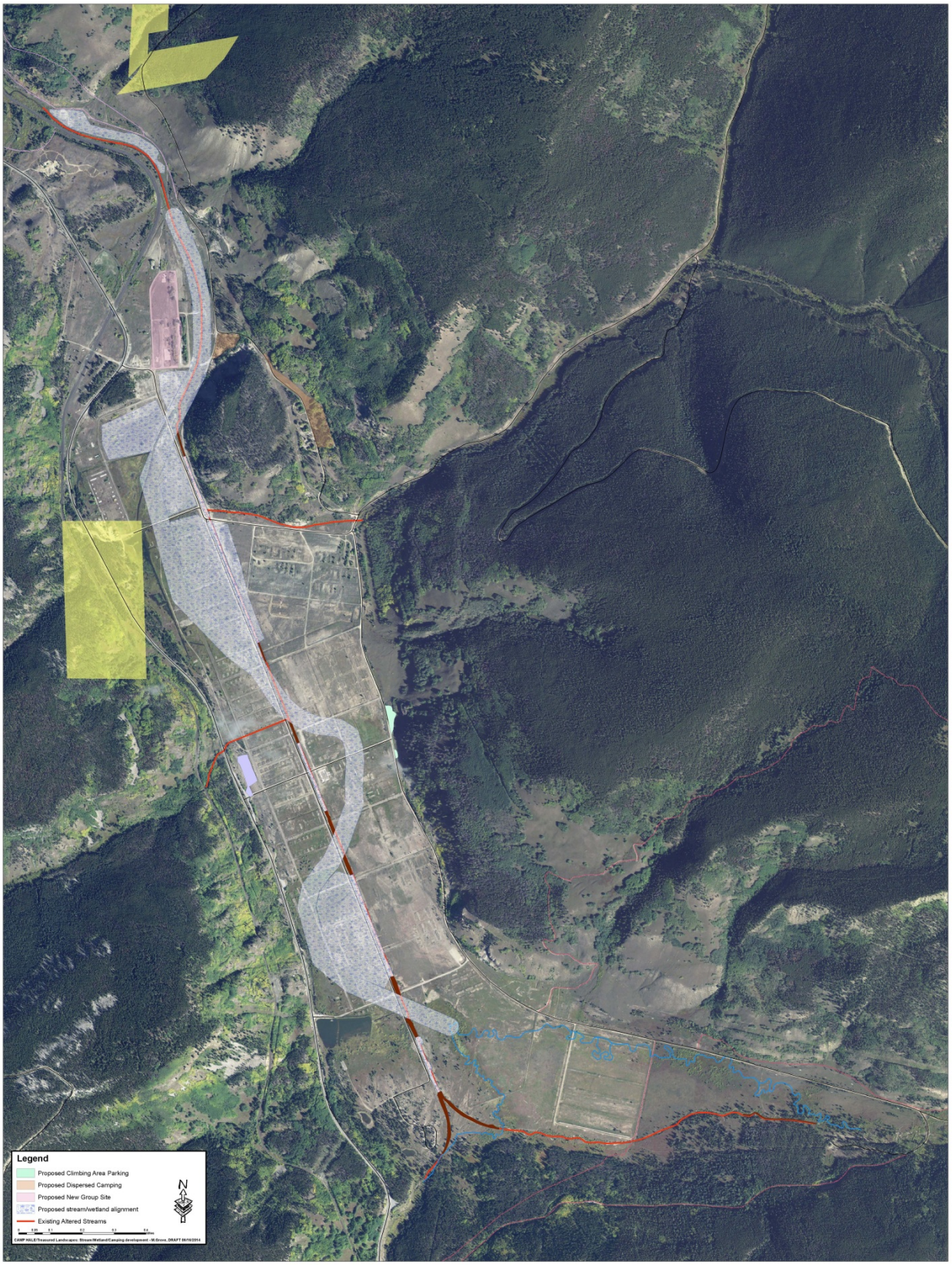


Figure 15. Map of recommended locations of inset flood plain and other recommended improvements at the Camp Hale project site.

B. Riparian and Wetland Areas

1. Desired Conditions

The Camp Hale-Eagle River Headwaters Collaborative Group wishes to restore, enhance, and create riparian and wetland areas throughout the valley floor. Currently, the stream channel is largely disconnected from its floodplain in the Camp Hale area, as the River's altered cut-channel morphology creates an abrupt or non-existent transition to an upland ecosystem. The Group recommends that the river be realigned and the topography be altered to reconnect the river to a new floodplain, providing an opportunity for the natural and engineered development of wetlands and more expansive riparian areas. Specifically, the Group envisions a more natural riparian area with a transitioning ecosystem gradient (wet to dry) that contains native vegetation and fertile, hydric soils.

Additionally, the Group would like to expand high-elevation wetlands in the project area. When Camp Hale was developed, hundreds of acres of wetlands were filled. The valley floor and this project now present a unique opportunity to reestablish these expansive wetlands, improving the area's hydrologic function and restoring ecological conditions of the wetland complex and its associated ecosystem and organisms. The bank storage of runoff flows resulting from the increased presence of wetlands could also have positive impacts on late summer/early fall and winter base flows, providing significant benefits to aquatic wildlife during critical life cycle periods. As an ancillary benefit, these efforts are also likely to improve water quality for downstream users and potentially create significant compensatory wetland mitigation opportunities or credits for project participants.

2. Specific Recommendations

The creation of an inset floodplain throughout the valley floor provides a tremendous opportunity to create additional riparian areas and wetlands within the floodplain. See Figure 15 for the recommended location of the new floodplain where riparian and wetland areas could be developed. As the stream channel meanders through the inset floodplain, it will have the opportunity to exceed bank-full dimensions and spill onto the floodplain during spring runoff, allowing for establishment of riparian and wetland ecosystems across the floodplain. See Figure 14, which demonstrates the floodplain's natural riparian area establishment potential after approximately 50 years of recovery. In addition to this type of passive (natural) riparian and wetland ecosystem establishment, the Group also wishes to take proactive steps to design and install riparian and wetland ecosystem enhancements. This can be accomplished through excavation within the inset floodplain and through the planting and seeding of native vegetation in wet mesic and hydric soils. Care should be taken during excavation to uncover, but retain, the organic/hydric soils buried beneath the imported fill. Retaining these valuable soils and their potentially viable seed bank will maximize the likelihood of successful wetland establishment.

Additionally, the Group recommends that additional wetland areas be created by excavating areas outside of the inset floodplain or by expanding the width of the inset floodplain in certain areas. Wetlands could also be developed in plugged sections of the current linear stream channel of the Eagle River (the "ditch"). The locations for these potential wetland areas are also depicted on Figure 15.

In total, the recommended project has the potential to establish 180 to 270 acres of new wetlands. Not only will these new wetland areas provide significant ecological value to the Eagle River watershed, but they also could provide water users and developers with compensatory mitigation credits that are expected to be required for development of Upper Eagle River water resources for future in-basin and out-of-basin uses. The ERMOU partners have long anticipated mitigating wetland impacts in the Camp Hale area and have adjudicated conditional water rights that may be used for wetland creation and restoration in the Camp Hale area. Since the water operations and ecological nature of the valley cannot be separated, the only way to move forward with a riparian and wetland area restoration plan is to work collaboratively and cooperatively with the water rights holders.

The ERMOU partners have expressed the desire to pay in advance for credits that may in the future be applied to either ERMOU projects or partners' projects. Therefore, the Group recommends that the Forest Service work with the NFF and U.S. Army Corps of Engineers to develop a compensatory wetlands mitigation program, using the Camp Hale-Eagle River Watershed Restoration Project as the program's initial mitigation project. In turn, the NFF should develop the Camp Hale mitigation project plan with the Group and, pursuant to permit instruments available through the U.S. Army Corps of Engineers, make the potential Camp Hale area wetland credits/mitigation project available first to the ERMOU partners and other land or water rights holders that need or will likely need to mitigate wetland impacts of projects within the Eagle River watershed.

C. Terrestrial Habitat and Vegetation

1. Desired Conditions

The Camp Hale-Eagle River Headwaters Collaborative Group wishes to remove non-native plants and reestablish native vegetation throughout the valley floor. The establishment of Camp Hale and decades of land disturbances at Camp Hale have left a legacy of invasive and noxious weeds that are outcompeting native plants. The Group recognizes that the reestablishment of native vegetation may necessitate more fertile soil, since much of the imported fill in the valley floor is sandy and nutrient deficient, and supports the targeted use of soil amendments, such as biochar, and fertilization.

Additionally, the Group would like to develop more natural, irregular topography throughout the valley floor. Although the Camp Hale area was historically a relatively flat valley, the Camp's establishment required intensive grading, filling, and engineered flattening of the valley floor. Now, the Group wishes to create a more diverse topography that more closely aligns with the range of historical topographic variability in the valley.

2. Specific Recommendations

To remove noxious weeds and establish native vegetation, the Group recommends a targeted, strategic approach across the valley floor that kills undesired vegetation and allows for timely establishment of desired plant species. This approach would use targeted herbicide treatments suitable for use near water, followed by temporally and spatially staggered plantings and seeding of native vegetation in fenced exclosures that prevent wildlife and sheep browsing. Vegetative plantings and other habitat improvement activities should focus on creating habitat for birds,

small mammals, and, where possible, boreal toads. Importantly, the placement of all herbicide treatments, plantings, seeding, and fenced exclosures should be compatible with permitted grazing activities in the valley floor and with the health of aquatic and riparian ecosystems.

D. Recreation Opportunities

1. Desired Conditions

The Camp Hale-Eagle River Headwaters Collaborative Group wishes to maintain and improve all existing summer and winter recreational opportunities in the Camp Hale and Eagle River headwaters area. With an ever expanding user base, current public recreational infrastructure and facilities are quickly becoming outdated and overused. Furthermore, the Group's desired ecological restoration activities in the valley floor will likely necessitate development of additional recreation and travel infrastructure to ensure that adequate access is maintained.

Specifically, the Group wishes to increase camping opportunities in and around the valley floor by providing a mix of group sites, improved or developed campsites, and designated dispersed camping areas, with all camping on the valley floor restricted to designated camping areas. The Group also wishes to maintain and enhance all existing trailheads in the area, and to ensure access to trailheads through the construction of hiking and skiing bridges over the Eagle River. Furthermore, the Group supports the White River National Forest Travel Management Plan and wants to maintain, enhance, or decommission travel corridors in accordance with the Travel Management Plan. All existing winter uses in the area should be maintained, consistent with the Travel Management Plan.

The Group recognizes that there exists significant commercial and non-commercial winter and summer motorized use of the adjacent National Forest lands using over-snow, on-highway and off-highway vehicles. Some members of the Group have an interest in a small expansion of opportunities for motorized recreation activities in the valley floor. Other members of the group, however, have expressed some concerns with this vision.

2. Specific Recommendations

The Group recommends that all existing campgrounds be maintained and renovated to repair deteriorating infrastructure, and that new camping opportunities be added within the valley floor. Specifically, the group recommends that a new designated dispersed camping area be identified off of McCallister Rd., just north of Resolution Creek and the sharp corner in McCallister Rd., at the edge of the valley floor. See Figure 15 for the location. The increased camping opportunities along McCallister Rd. will likely require significant improvements to the road. The Group also recommends that an additional group campsite be developed at the old Camp Hale warehouse site. See Figure 15 for the location. Campsite development along McCallister Rd. and at the Camp Hale warehouse would likely require some asbestos mitigation activities. Lastly, the Group recommends the development of new designated primitive tent sites for Colorado Trial and Continental Divide Trail thru-hikers. The sites should be located between Slope B and Cataract Creek and identified by signage at the trailheads near the rifle range.

Access should be improved for trails, trailheads, and certain other recreational sites. Specifically, the Group recommends that parking and signage be improved at the Colorado Trail

and Continental Divide Trail trailheads near the rifle range. Additionally, bridge improvements are needed where these trails cross the East Fork of the Eagle River near the rifle range. The Group recommends that the bridge improvements be sufficient to accommodate snowmobile crossings. Two additional bridges over the main stem of the Eagle River – one at Pando and another at South Camp Hale – will be needed to allow for skier and hiker access to the Fowler Hilliard and Jackal Huts and for Camp Hale loop opportunities for hikers, mountain bikers, and day skiers.

Members of the Group recommend that family-oriented motorized recreation opportunities be expanded in the valley floor. The goal is to keep juvenile motorized traffic off of the Transportation System, and to keep the impact of valley floor motorized use localized, while maintaining aquatic, wetland, terrestrial, and historic values. Options include a loop trail which would be used for Nordic skiing in the winter, and / or reinstating motorized use of the existing Gravel Pit, north of the railroad right-of-way, including a potential access trail from the valley floor. Modifications would be needed to the existing Gravel Pit area, due to US Forest Service liability issues. Implementation of these features should not necessarily be linked to implementation of other features in the valley floor recommended by this Master Plan.

Although all members of the Group recommend maintaining existing motorized uses in the valley floor, some members of the Group have expressed concern with expanding motorized use in the valley floor. Those members have noted concerns that increased motorized activity could have negative impacts on wildlife, be disruptive to other recreational users in the valley floor (i.e., noise and dust), be inconsistent with the White River National Forest's Travel Management Plan, and be inconsistent with this project's goals of preserving cultural and recreational resources, while expanding ecological restoration.

The Group recommends that parking areas be expanded near the climbing wall and at the main entrance to Camp Hale. The Group also recommends that restroom facilities be constructed at the main entrance to Camp Hale.

The Group recognizes that improvements to recreation infrastructure and ecological restoration activities will necessitate modifications to the area's existing transportation infrastructure. Therefore, the Group recommends that the area's transportation infrastructure be modified in accordance with the Figure 16.

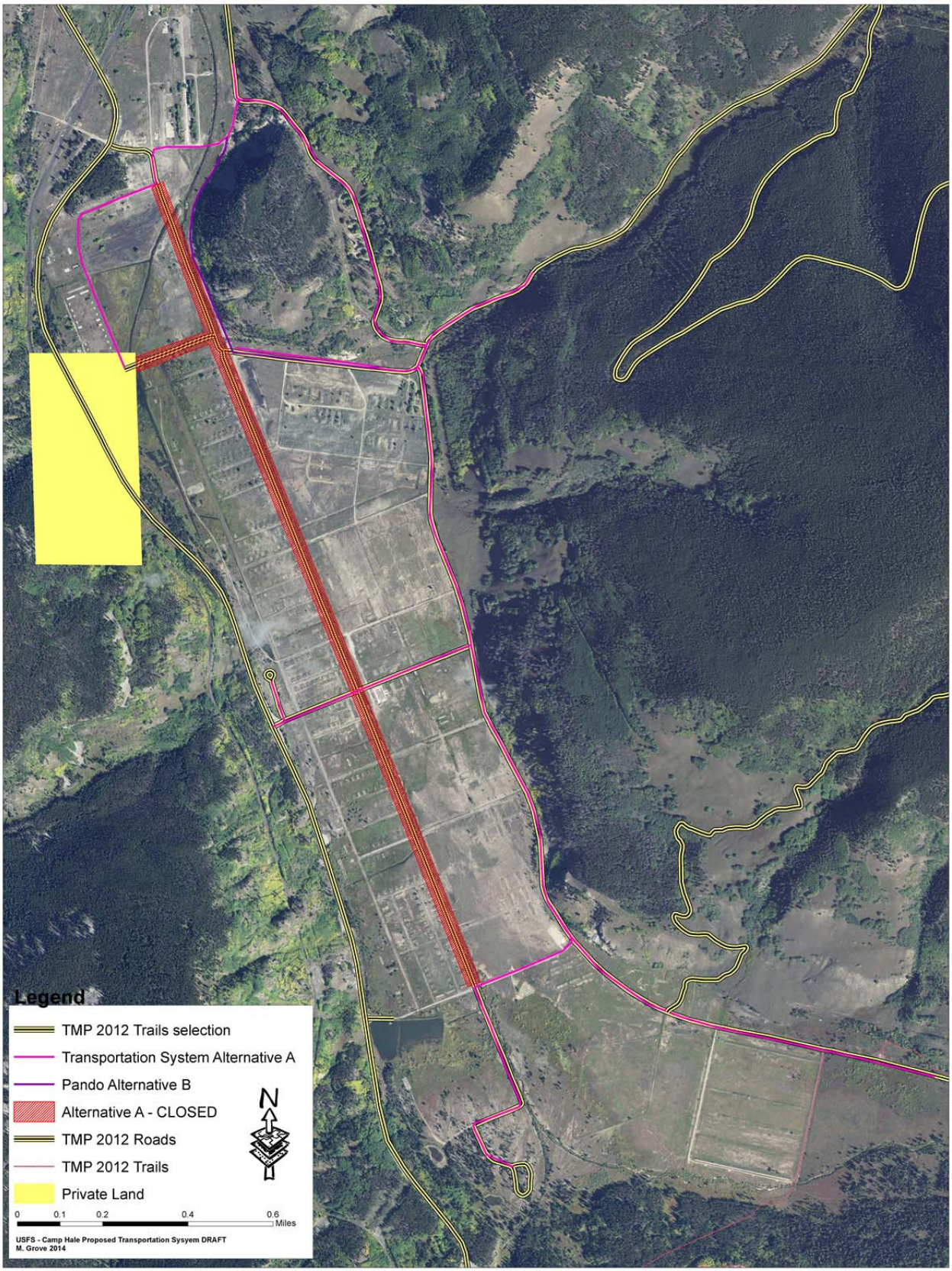


Figure 16. Recommended changes to the Camp Hale project site's transportation infrastructure.

E. Historic Preservation and Interpretation

1. Desired Conditions

The Camp Hale-Eagle River Headwaters Collaborative Group has a strong desire to honor the history of the project area by preserving existing structures and relics and developing a comprehensive interpretive plan that will highlight the rich history of the area, including its geologic formation and natural ecosystems, use by native people and early settlers, and of course its military use.

To ensure that future generations are able to develop an understanding of the area's significance a number of historic structures and relics should be retained and not disturbed by ecological restoration activities.

2. Specific Recommendations

Although the Group does not have the expertise or capacity to develop the actual design for an interpretive plan, they have identified a number of recommendations and guideposts for developing an interpretive tour of the area. The Group believes such a tour should discuss the area's geologic formation, its native ecosystems, its use by native people and early settlers, its military use, the legacy created by the soldiers that trained at Camp Hale, and the story of this Group's restoration efforts.

Figure 17. Photo of rifle range ammo depot in its current condition.

The Group has identified specific relics and structures throughout the valley floor that should be retained. Specifically, the Group has identified the fixed-distance berms and ammo depots of the rifle range, any remnants of the Nazi Village or infiltration course, and the Field House as structures to be retained. Additionally, the Group would like to retain a recognizable portion of the existing linear stream channel (the "ditch"); however, it is not necessary that the river continue to flow through the retained portion of the ditch. The Group would also like to ensure that a filled, flat portion of the central valley floor (primarily in the central area of the Camp surrounding the former Camp Hale headquarters) be left undisturbed, allowing visitors to reflect upon the footprint and scale of the historic military installation.

Figure 18. Photo of field house remnants in their current condition.

When the interpretive plan is developed for the project area, all of the above-identified relics and structures should be highlighted when discussing the area's military history. Additionally, the interpretive plan should highlight the climbing wall and the many avenues and housing structure remnants remaining in the central area of the Camp.

F. Consistency with Existing Rights and Uses

The Group strongly states its belief that the design and implementation of the aforementioned recommendations should take all measures to minimize negative impacts to any resource uses in the Camp Hale area, such as grazing activities or the activities of permitted outfitter guides, and shall in no way negatively impact private lands or existing rights, such as exercise or development of decreed absolute or conditional water rights.

Recognizing that the Eagle River in the Camp Hale area is an essential water supply source for a broad and diverse range of water users, the Group recommends that a collaborative stakeholder approach be utilized in the design and implementation of any river and aquatic health improvements or wetland and riparian area developments, and that planned activities be compatible with current and planned future water operations and the further development of the water resource for both consumptive and non-consumptive purposes.

For instance, project designs must accommodate the potential development of storage and diversion facilities in the Camp Hale area and delivery of water from existing and future upstream water storage facilities through the Camp Hale area to the downstream places of use. In addition, all planned activities must consider and not foreclose potential collection, storage, and transmission facilities that would be located in the Camp Hale area. Finally, the design and construction of river and aquatic health projects or wetland and riparian area developments must take account of existing water diversions and expected future depletions. Indeed, expected future flows must be taken into account when designing ecological restoration activities to ensure that flows will be sufficient to maintain desired stream morphology and wetland expansions.

The Group also recognizes that even with the best designs and implementation, the reestablishment of the river's historical morphology and the expansion of riparian and wetland ecosystems could affect downstream flows and seasonal flows through Camp Hale (e.g., the increased sinuosity could lead to an increased presence of ice dams). Members of the Group wish to ensure that water providers retain the ability to access the floodplain and stream channel with appropriate equipment to ensure that downstream flows are not impeded by ice dams or other obstructions, and that all entry into the floodplain be done in close consultation with the U.S. Forest Service.

The Group believes that there are opportunities for water diversion operations and facilities to be compatible with and even support a sustainable riparian and wetland habitat if properly planned. Furthermore, the Group expects that, to the maximum extent possible, all facilities associated with future trans-basin and in-basin diversions in the area will be designed and operated in a manner consistent with the intents and purposes of this Master Plan, and the ERMOU.

APPENDIX A

MEMORANDUM OF UNDERSTANDING AMONG THE CITIES OF AURORA AND COLORADO SPRINGS, COLORADO RIVER WATER CONSERVATION DISTRICT, CLIMAX MOLYBDENUM COMPANY, AND THE VAIL CONSORTIUM

This Memorandum of Understanding ("MOU") is between the cities of Aurora and Colorado Springs ("Cities"), the Colorado River Water Conservation District ("River District"), Climax Molybdenum Company ("Climax"), and the Vail Consortium consisting of the Eagle River Water and Sanitation District, Upper Regional Water Authority, and Vail Associates, Inc. ("Consortium").

I. PARTIES.

A Cities of Aurora and Colorado Springs ("Cities").

B. Colorado River Water Conservation District ("River District")

C. Climax Molybdenum Company ("Climax")

D. Vail Consortium consisting of Eagle River Water & Sanitation District, Upper Eagle Regional Water Authority, Vail Associates, Inc. ("Consortium").

The Consortium and the River District are collectively referred to as the "Reservoir Company."

II. OBJECTIVE.

A. Develop a joint use water project in Upper Eagle River basin that minimizes environmental impacts, is cost effective, technically feasible, can be permitted by local, state and federal agencies, and provides sufficient yield to meet the water requirements of project participants as hereinafter defined.

III. PROCESS.

A. Study four joint use project alternatives.

1. Climax based alternative (Exhibit 1).

2. Homestake Creek based alternative (Exhibit 2).

3. Climax reservoir with Camp Hale groundwater recharge reservoir (Exhibit 3).

4. Mixed Climax and Lower Homestake reservoirs (Exhibit 4).

B. Ruedi Reservoir Alternative

In addition to the four alternatives identified above, interest has been expressed by certain parties in undertaking a preliminary analysis of the feasibility of an alternative that utilizes a pump back from Ruedi Reservoir to the Boustead Tunnel. That analysis will be performed. The parties agree to further discuss not only the feasibility of such an alternative, but whether it can appropriately serve as a substitute for the remaining alternatives.

C. Scope of Study.

1. Hydrology (yield). The parties have prepared a spreadsheet model of the upper Eagle River basin to simulate operations of selected project components. The model uses daily streamflow records from key gages to estimate divertible streamflows at numerous points in the basin. The "Study Period" is 1945 through 1994 (50 years).

Specifically, the hydrological investigations will include:

a. Defining desirable projects and demand patterns for the parties and identifying project yields.

b. Modifying the operations model to reflect various demand patterns by the parties and to reflect the project configurations.

c. Estimating the yield of various project configurations. The yields will be used to compare project costs.

d. Preparing a memorandum which defines project yield and the demands by the project

participants, describes the operations model, presents the results of the model runs, and presents the alternative configurations, including delivery options and potential delivery limitations.

2. Technical feasibility and cost. In general, this portion of the study will include construction cost estimates of project components and various configurations at a reconnaissance grade level. This means that the studies would be conducted using available information and site reconnaissance. Drilling, materials testing and other more intensive efforts are not included at this level.

   Specifically, the technical feasibility/cost estimate will include:

   a. Compiling geological maps, reports and other documents with information relevant to the site selection of storage and diversion dams, pumping plants and pipeline corridors.

   b. Reconnoitering the project area, the reservoir sites and pipeline corridors identified to date by a geologist or geotechnical engineer and design engineer.

   c. Preparing reconnaissance level designs and construction cost estimates of the project components and configurations. Multiple estimates for a given component may be needed depending on the capacity of a given configuration.

   d. Recognizing and describing any fatal flaws or structural conditions that would inhibit the construction of a project component.

   e. Preparing a memorandum which describes the investigations and presents the cost estimates for the project components and configurations. Yield estimates developed by the hydrologic model will be developed for

each configuration so that the construction costs can be compared on a dollars per acre-foot basis for both dry and average year yields.

3. Environmental impacts and permitting. The environmental investigations will include identifying wetlands and the costs of mitigating the damage to wetlands for each alternative. Additionally, other possible environmental impacts will be identified qualitatively unless costs for mitigating such impacts can be estimated.

   Specifically, the environmental investigations will include:

   a. Compiling reports and other documents with information relevant to existing wetlands, threatened and endangered species and water quality in the vicinity of the project components.

   b. Identifying and quantifying wetlands areas from field reconnaissance and aerial photography for each project component.

   c. Estimating the cost of mitigating wetland areas using the Camp Hale area as a mitigation site. The costs will consider a unit rate in dollars per acre.

   d. Identifying other environmental issues associated with each component, some of which may not be easily converted to a cost, such as visual impacts.

   e. Identifying potential benefits for recreation, fish and wildlife in a qualitative sense.

   f. Preparing a memorandum which describes the investigation and presents the impacts for each component as well as for each configuration.

4. Report. The information and conclusions developed by the hydrological, engineering and environmental investigations described above will be summarized in a

report and presented to the participating entities. The report will contain comparisons of the alternatives in graphical and tabular form so that the alternatives can be compared. Additionally, permitting and technical review requirements will be identified and summarized as a section in the report. This will allow the participating entities and the public to be informed about all of the federal, state and local requirements for developing the proposed joint use project.

A preliminary environmental analysis for those alternatives depicted on Exhibits 2 and 4 as referenced in Section III has identified potentially significant environmental concerns associated with wetland inundation along Homestake Creek and encroachment upon wilderness lands. If it is found that there are less environmentally damaging practicable alternatives, either of these two alternatives may prove difficult to permit. Hence, though these alternatives will be evaluated, they will not be considered, in view of current knowledge and based upon the current configurations therefore, the leading or preferred alternatives for purposes of this MOU.

D. Study Parts and Time Frame.

1. Part 1 of the study will identify and rank the feasibility of the alternatives -- to be completed by July 1, 1997.

2. a. Part 2 of the study will develop the requisite level of engineering and environmental detail required to initiate the permit applications for Phase 1 of the Project as identified in Section IV.C.1 below, and support the issuance thereof. The target date for completion of this part will be determined by Climax and the Reservoir Company in consultation with the Cities.

b. Part 3 of the study will develop the requisite level of engineering and environmental detail required to initiate the permit applications for subsequent project

phases as identified in Section IV.C.2 and support the issuance thereof. Subject to the terms of Section III.C.4 below, the target date for completion of this part will be determined by the parties after identification of the feasibility of the alternatives under Part 1 of the study.

c. Part 3 of the study will also identify any water right applications that may be necessary to support the desired alternatives.

3. Part 4 of the study will develop the requisite level of engineering to prepare detailed design specifications for the issuance of construction contracts. This part will be completed following permitting and necessary water rights adjudication.

4. The parties acknowledge that there may exist differences in the schedules under which each of the respective entities may desire to develop the subsequent phases of the project and bring the yield therefrom into their water systems. The parties further acknowledge their inability to guarantee that the requested shelf life of permits for the project phases will be obtained. The parties, therefore, agree that at such time as one party desires to proceed with the permitting and construction of a project beyond phase I, such party shall seek, in writing, the participation of the remaining parties in such undertaking, all in accordance with the provisions of this MOU. The parties shall have 90 days in which to respond to any such request to participate. To the extent any remaining party does not elect to proceed at that time, the party requesting such participation may proceed independently of the others with regard to the identified subsequent phase; provided, however, that the remaining parties shall be under no obligation to contribute money, land, completed infrastructure, water or water rights to such subsequent project phase or participate in the ditch and reservoir company

identified in Section VII with respect to such subsequent project phase. Notwithstanding the foregoing, the remaining provisions of this MOU shall remain in effect.

E. Study Cost Sharing

1. Part 1 -- Cost of outside engineering consultants jointly retained by the parties will be split 25% by the Cities, 25% by Climax, 25% by the Consortium, and 25% by the River District up to a maximum of $10,000 each. Each party to pay for the costs of their own consultants.

2. Parts 2 and 3 -- Cost of outside engineering consultants jointly retained by the parties to be split according to percentage of project yield to be acquired by the parties.

IV. YIELD.

A. Definition.

1. Firm dry year yield -- available in the 25% driest of years during the Study Period.

2. Average yield -- available for diversion on a 25 year rolling average.

B. Requirements.

1. Reservoir Company -- up to 10,000 acre feet of firm dry year yield.

2. Cities -- up to an average of 20,000 acre feet of yield that is available and diverted for use on a 25 year rolling average, plus such additional increment as allowed under Paragraph IV.C.3.d.

3. Climax -- up to 3,000 acre feet of storage space.

C. Project Phasing.

1. Project Phase 1 -- Reclaimed existing 3,148 acre Foot Dam 4 that is anticipated to provide 2,013

acre feet of firm dry year yield. Water from the East Fork of the Eagle River will be delivered to Dam 4 by a pump and pipeline located within or upstream of Section 32, T. 7S., R. 75W. of the 6th P.M., with a capacity no greater than 6 cubic feet per second. This phase will be purchased by, and all yield will be available to, the Reservoir Company.

2. Phase 2 -- The Reservoir Company and the cities shall jointly have the right to develop, on a 50/50 basis, the next increment of firm dry year yield up to 2000 acre feet. The timing and construction of such increment shall be subject to the provisions of Paragraph III.D.4. The cities agree to subordinate their water rights to the Reservoir Company share of this phase. Should Phase 2 be in excess of 2000 acre feet of firm dry year yield, but less than 4000 acre feet, the cities shall have the right of first refusal to the entire increment of yield above 2000 acre feet. Any project which yields in excess of 4000 acre feet shall be considered a "subsequent project phase" as further identified in Paragraph IV.C.3.

3. Subsequent Project Phases

   a. At the time of the development of subsequent project phases, defined herein as any project following the completion of phase I which has a firm dry year yield in excess of 4000 acre feet, the Reservoir Company shall have a right of first refusal to purchase any additional project yield over and above that realized under phases I and II up to the maximum Reservoir Company yield as identified in paragraph IV.B.1 in direct proportion to its share of the total yield contemplated hereunder. The cities shall have a right of first refusal to the remaining yield up to the maximum cities' yield as identified in Paragraph IV.B.2. In making the calculation of entitlement to additional project yield under this subparagraph, the yield realized

by the parties in Project Phases 1 and 2 shall be taken into account in determining the proportion of additional yield to which each party is entitled.

b. Subject to the limits of section IV.B.1 and 2 above, any unexercised first refusal rights shall be made available to the other project participants. The foregoing rights of first refusal shall only be applicable to the initial subscription of an increment of project yield as it becomes available. Thereafter, any parties' share of project yield shall be freely assignable.
If Climax reclaims Robinson Reservoir and such facility is a component of the joint use project, Climax shall retain up to 3000 acre feet of storage space in any enlargement of Dam 4.

c. At the time of the completion of construction and the commencement of operation of the subsequent phases, the Reservoir Company shall also have the option to purchase from the cities the cities' portion of yield from Phase 2 of the project, assuming such has been constructed, up to a maximum of 1000 acre feet at the price per acre foot of yield paid by the parties for such phase. The price shall be based upon the total planning, engineering, permitting and construction costs for Phase 2 of the project as adjusted at the date of purchase for inflation based on the ENR Index for water resource projects or the most nearly identical index then published.

d. To the extent that the Reservoir Company chooses not to exercise its option to acquire water in an amount over and above that realized under Phases 1 and 2, the cities may utilize such yield to the extent that they release for the Reservoir Company (or other West Slope entities or uses identified by the Company) one acre foot of water for each acre

foot delivered to the cities in excess of the 20,000 a/f rolling average referenced in Paragraph IV.B.2.

D. Interim Supply.

In the event the construction of the subsequent phases of the Project prevents the use of water from Phase 1 by the Reservoir Company, then during such construction the Cities shall make available to the Reservoir Company an amount of water equal to the displaced use. Such interim supply shall be made available from Homestake Reservoir or other facility acceptable to the Reservoir Company up to a maximum amount of 2,013 acre feet annually.

V. PERMITTING.

A. Phase 1 Permits. Climax and the Reservoir Company shall make application for the necessary federal, state and local permits required to develop phase 1 of the project. Such applications shall proceed independent of any applications for the subsequent phases of the project, and may be initiated at any time desired by Climax and the Reservoir Company. However, in connection with such application, a copy of this MOU shall be submitted to any permitting authorities. The Cities agree not to oppose land use applications for phase 1.

B. Subsequent Phase Permits. Subject to the provisions of Sections III.C.3 and IV.C.2 and 3 above, the parties shall make application as co-applicants for the following permits required to construct any subsequent phases of the project.

1. Federal permits which may be sought for individual project phases.

a. Army Corps of Engineers Section 404 Permit.

b. Forest Service Special Use Permit which shall include a section 7 consultation with the U.S. Fish and Wildlife Services.

In any event, the parties shall cooperate in the federal permitting and review process in an effort to ensure that each party realizes the project yield contemplated hereunder.

2. State permits which may be sought for individual project phases.

   a. Section 401 Certification.

   b. State Engineer design approvals.

3. Eagle County Land Use Permit which shall be sought for the entire project in one application. In connection with the application for such land use permit the parties shall seek the following:

   a. A permit with a shelf life of no less than 25 years with acknowledgment that work on one project phase constitutes work on the entire project. If constructed within the term, then the permit would be granted in perpetuity.

   b. The waiver of any financial security or filing fee.

   c. Limited cross enforcement of any state or federal permit requirements such that local requirements will be met by satisfaction of any overlapping state and federal requirements.

   d. Agreement by the County that:

      (1) the parties' analysis of the project alternatives under this Memorandum of Understanding satisfies the need to explore additional alternatives;

      (2) the work of the Eagle River Assembly shall satisfy the requirement to determine the parties' water needs;

(3) the regulation of groundwater levels and the parties' water rights shall remain within the exclusive jurisdiction of the State Engineer and Water Court; and

(4) the joint use project need only meet existing decreed instream flow levels in affected stream reaches.

e. Meetings with the County and all parties to identify concerns and mitigation requirements.

4. The parties, as co-applicants, shall diligently pursue such permit approvals, including cooperation in the preparation of supporting written materials and the presentation of oral testimony.

5. The parties acknowledge that all alternative scenarios cannot be foreseen in detail at this time, and therefore agree that the coordination and cooperation contemplated hereunder shall apply to any project configuration or feature which the parties subsequently agree to substitute for one of the alternatives (or components thereof) set forth herein.

6. To the extent any party exercises its right not to participate in a subsequent phase as referenced in Paragraph III.D.4, such party shall nevertheless support any application that is consistent with the terms of this MOU. Such support shall consist of providing favorable testimony and letters of support in any permit proceedings, but shall not require any financial contribution.

7. Should the Reservoir Company fail to meet its obligations hereunder to support the applications for permit approvals, the cities shall have no obligation to subordinate their water rights as referenced in Paragraphs IV.C.2 and VIII.A.3, or to continue the exchange referenced in Paragraph VIII.B.3. If contested by the Reservoir Company, such determination of failure shall be made

through the filing of an action in the Denver District Court, Denver, Colorado.

The dates of filing the foregoing applications under this Section V B. shall be the subject of future negotiations among the parties.

VI. CLIMAX FACILITIES.

In the event the enlargement of Dam 4 is identified in phase 1 of the study as one of the 2 most feasible alternatives, then during the Part 2 study outlined above the parties shall seek to reach an agreement with Climax regarding the enlargement of Dam 4 and the use of water therefrom.

VII. DITCH AND RESERVOIR COMPANY.

A. Formation. In the event the parties pursue development of a joint use water project in the Upper Eagle River basin, then the parties will form a nonprofit mutual ditch and reservoir company pursuant to § 7-42-101 et seq., C.R.S. (Project Company), or such other legal entity as mutually agreeable to the parties, that shall hold record title to all water rights, land, facilities, easements or any other appurtenances or personalty comprising the joint use water project. If the Project Company is formed, the Project Company will issue shares of stock which will represent the yield of the joint use water project. Shares of stock will be issued to Project Company shareholders in direct portion to the amount of such yield acquired by any shareholder. Separate classes of stock will be created to the extent necessary to recognize Vail Associates' preferential rights to the yield of phase 1 and the rights of the Reservoir Company to the yield realized under Paragraphs IV.C.2 and 3. Moreover, separate series of stock may also be created to the extent necessary to differentiate between dry year and average year yield.

B. Structure.

1. The precise structure of the Project Company or other legal entity shall be the subject of future

negotiations among the parties. If a ditch and reservoir company is the chosen vehicle to carry out the objectives of this MOU, the articles of incorporation and/or bylaws shall, at a minimum, contain provisions which address amendment of the articles, the sale of company assets, establishment of the board of directors, the levy of assessments, and the voting of shares in such a manner as will ensure the equitable treatment of minority shareholders and the continued delivery of water to such shareholders in proportion to their shares in the company.

2. Regardless of the legal entity chosen, the formation agreement shall provide that no party shall object in Water Court to another party's use of water from the project by direct use, augmentation, exchange, replacement or substitution; provided, however, that this provision shall not prevent a party hereto from filing a statement of opposition in Water Court to any other aspect of an application. Likewise, this provision shall not limit any party in the exercise of its governmental functions. Moreover, there shall be no restriction on the place of use within Colorado.

VIII. WATER RIGHTS.

A. No Opposition. Subject to the Replacement Water Requirement defined in VIII.B below, the parties agree to either withdraw their statements of opposition to or not oppose the following water rights applications.

1. Climax/Consortium application as amended in Division No. 5 Case No. 92CW340 for the Eagle Park Reservoir storage right and East Fork Pump Back Facility.

2. Consortium application in Division No. 5 Case No. 95CW348 regarding the exchange of water rights to Eagle Park Reservoir.

3. Reservoir Company application to be filed in Division No. 5 to change 80 c.f.s. of the Pando

Feeder Canal water right to storage in Eagle Park Reservoir, up to a maximum of 3,148 acre feet per year. By virtue of this application and the exchange in Case No. 95CW348, the Cities recognize that up to 3,148 acre feet of water can be stored annually in Eagle Park Reservoir (sufficient to produce a firm annual yield of 2013 acre feet) senior to the priority of the Cities' Camp Hale and Homestake II project water rights. The Cities (Colo. Springs) also agree to subordinate the Eagle Arkansas project water rights at the East Fork diversion site to the foregoing use of the Pando Feeder Canal. The agreements of this paragraph are contingent upon the acquisition of phase 1 of the project by the Reservoir Company.

4. Climax application in Division No. 5, Case Nos. 92CW233 and 92CW336 regarding the readjudication and quantification of its senior water rights.

5. The Cities' applications in Division No. 5 Cases No. 88CW449 and 95CW272, provided that the River District may continue participation as a technical resource and consultant to Western Slope Opposers in those cases regarding issues of groundwater availability; stream/aquifer relationship, including steam depletions from well pumping and aquifer recharge; and project water rights administration and accounting.

B. Replacement Water Requirement which shall be contingent upon the Reservoir Company's acquisition of phase 1 of the project.

1. In the event a joint use project is not developed by the parties and the Cities develop their Eagle Arkansas Project, the Reservoir Company will provide up to 150 acre feet of water per year from Green Mountain, Ruedi or Wolford Mountain Reservoirs (or another source acceptable to the Cities) to replace the reduction in yield to the Eagle Arkansas Project from the operation of phase 1 of the project.

2. In the event a joint use project is not developed by the parties and the Cities proceed to independently develop the Camp Hale Project (Case No. 88CW449), the Reservoir Company will provide up to 225 acre feet of water per year from Green Mountain, Ruedi or Wolford Mountain Reservoirs (or another source acceptable to the Cities) to replace the reduction in yield to the Camp Hale Project from the operation of phase 1 of the project.

3. The parties will extend the existing three year agreement between the City of Aurora and the Consortium for a period of 25 years. The Reservoir Company and the City of Colorado Springs will be parties to the agreement, and during that period the Reservoir Company will annually provide a minimum of 800 af of water from Green Mountain, Ruedi or Wolford Reservoir water, or another source acceptable to the cities, for 500 af of annual Homestake Reservoir releases. The cities and the Reservoir Company will jointly seek to exchange the 800 af of water to the Homestake Project or to other acceptable diversion facilities including the Twin Lakes project and the Blue River project. The 800 acre feet of water will be available for exchange from June through October of each year. The Reservoir Company will provide the cities with a tentative schedule for the release of Homestake Reservoir water by June 30th of each year. Though this schedule may be adjusted at a subsequent date, it will inform the cities of the general pattern of intended reservoir releases. The rate of reservoir releases may be varied no more often than once per week. The maximum rate of release will not exceed 8 cubic feet per second during the period extending from October 1st through April 30th. If the parties, acting jointly, are unable to obtain water court approval for the long term operation of such an exchange, the cities may, in their discretion, terminate the agreement referenced in this paragraph.

4. There shall be an annual accounting of the amount of water exchanged to the cities and of the amount of Homestake Reservoir water released to the Reservoir Company. If during any 10 year rolling average period, the cumulative amount of water released to the Reservoir Company exceeds the amount of water exchanged to the cities, the parties agree to examine various means by which the cities can be made whole, i.e., arrangements through which the cities receive an amount of water equal to that which has been released for the benefit of the Reservoir Company. Such examination will include, but not necessarily be limited to, an assessment of the feasibility of annual releases from Wolford Mountain Reservoir in excess of 800 acre feet, or the release of less than 500 acre feet to the Reservoir Company in years where such releases are not found necessary to meet water demands.

5. Should a court of competent jurisdiction determine that the Reservoir Company has breached the provisions of this MOU, such breach shall constitute just cause for the termination of the above-referenced exchange. Should there be no breach of this MOU and the water court approves the long term operation of the exchange contemplated hereunder, the Reservoir Company shall have, subject to the following conditions the perpetual right to extend the exchange referenced in paragraph VIII.B.3 for an additional 25 years, and at the end of each twenty-five year period thereafter. The Reservoir Company agrees that at the end of the 25 year period commencing with the first release of water for the benefit of the Reservoir Company under the provisions of this MOU, it shall make any modifications in the arrangements referenced in paragraph VIII.B.4 as are determined necessary to ensure that the cities will receive the full amount of replacement water in the future based upon a ten year rolling average.

6. In the event a joint use project is developed by the parties, there shall be no replacement water requirement.

C. Water Quality. Any water delivered or released from the Dam 4 facility, including any expansion thereof, shall be of a quality which will not interfere with the beneficial uses made of waters developed by the cities under the provisions of this MOU. Such determination of interference shall be based upon compliance, at the point of diversion, storage or exchange by the cities, with the then existing water quality standards for designated or classified uses as established by federal, state or local statute or regulation.

D. Joint Use Project. In the event the parties pursue development of a joint use project, then the parties shall cooperate to utilize the following water rights to maximize the yield of the subsequent phases of the project:

1. Division No. 5 Case No. 93CW301 regarding the enlargement of Eagle Park Reservoir.

2. Division No. 5 Case No. 88CW449 regarding the Camp Hale Project.

3. River District's remaining Red Cliff Project water rights not previously committed to the Bolts Lake Project.

4. Division No. 5 Case No. 95CW272 regarding the Cities' Eagle River conjunctive use project.

5. The water rights set forth in VIII A.1,2,3 and 5 above.

6. The remaining conditional rights held by the cities pursuant to Case No. 1193, Eagle County District Court, and Case Nos. 85CW151, 85CW582, and 85CW583, Water Division No. 5.

7. Such other applications as may be necessary to effect the chosen alternative.

Such cooperation shall include participation as co-applicants in any required water court applications; provided, however, that this provision shall not constitute an encumbrance or obligate a party to continue the existence of the foregoing water rights.

D. Excess Water Rights.

Upon the development of the full project for the Cities provided for in Section IV.B.2. above, the Cities shall dedicate to the joint use project all of its remaining Eagle River conditional water rights or dedicate such rights for nonconsumptive uses, such as environmental mitigation. There shall be no additional diversions to the cities under these rights and no transfer of the rights for use out of the basin.

IX. PROJECT COST SHARING.

During Phase 2 of the study, the parties shall seek to reach an agreement regarding the sharing of costs for the construction, operation and maintenance of the subsequent phases of the project.

X. MUTUAL COOPERATION.

The parties agree to discuss on an annual basis means to utilize Eagle Park Reservoir or other Reservoir Company facilities in conjunction with the then existing Homestake Project or other facilities owned by the Cities, through exchange or otherwise, for the mutual benefit of the parties.

XI. SUCCESSORS AND ASSIGNS.

The provisions of this MOU shall apply to, and be binding upon, the successors and assigns of the parties hereto. Any assignments of interest hereunder shall be in writing, with notification thereof promptly provided to all parties.

XII. EXECUTED COUNTERPARTS

This MOU may be signed in separate original counterparts, all of which shall be consolidated to make a single contract.

City of Colorado Springs

By Maryann Makepeace

Date October 19th, 1998

City of Aurora

By_____

Date _____

Colorado River Water Conservation District

By_____

Date _____

Climax Molybdenum Company

By_____

Date _____

XII. EXECUTED COUNTERPARTS

This MOU may be signed in separate original counterparts, all of which shall be consolidated to make a single contract.

City of Colorado Springs

By _____

Date _____

City of Aurora

By _____
Paul E. Tauer, Mayor

Date 8-20-98

ATTEST:

_____

Approved as to Form:

_____

Colorado River Water Conservation District

By _____

Date _____

Cypress Climax Metals Company

By _____

Date _____

XII. EXECUTED COUNTERPARTS

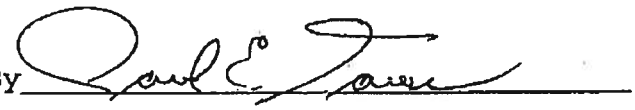
This MOU may be signed in separate original counterparts, all of which shall be consolidated to make a single contract.

City of Colorado Springs

By_____

Date _____

City of Aurora

By 

Date 11-30-98

Colorado River Water Conservation District

By_____

Date _____

Climax Molybdenum Company

By_____

Date _____

XII. EXECUTED COUNTERPARTS

This MOU may be signed in separate original counterparts, all of which shall be consolidated to make a single contract.

City of Colorado Springs

By_____

Date _____

City of Aurora

By_____

Date _____

Colorado River Water Conservation District

By Wesley E Segner

Date 8-31-98

ATTEST:

Richard Eric Kuhn

RICHARD ERIC KUHN
SECRETARY / GENERAL MANAGER

Climax Molybdenum Company

By_____

Date _____

XII. EXECUTED COUNTERPARTS

This MOU may be signed in separate original counterparts, all of which shall be consolidated to make a single contract.

City of Colorado Springs

By_____

Date _____

City of Aurora

By_____

Date _____

Colorado River Water Conservation District

By_____

Date _____

Climax Molybdenum Company

By Christopher G. James

Date Vice Pres. and Gen. Mgr

Eagle River Water and Sanitation District

By Frederick P. Sackbauer
President

Date April 21, 1998

Upper Eagle Regional Water Authority

By Ken MacMillan, President

Date April 21, 1998

Vail Associates, Inc.

By

Date April 21, 1998

This Memorandum of Understanding is dated effective as of April 21, 1998.

APPENDIX B

TABLE 1

DRAFT **SUMMARY OF PRIMARY CAMP HALE AREA WATER RIGHTS**

(Absolute and Conditional)

Key Absolute Water Rights

Stream Name	Owner	Adjud. Date	Approp. Date	Amount (AF)	Amount (CFS)
Robinson Reservoir	Climax	7/26/1937	8/15/1935	2,494.0	-
Robinson Reservoir	Climax	7/23/1958	1/9/1943	642.0	-
Robinson Reservoir	Climax	12/31/1995	5/18/1993	4,010.7	-
Eagle Park Reservoir	Eagle Park Reservoir Company	12/31/1992	3/16/1991	3,148.0	-
Columbine Ditch	Aurora Water & Climax	10/3/1936	6/21/1930	-	60.0
Ewing Ditch	Pueblo Board of Water Works	11/13/1911	6/1/1906	-	18.5
Wurts Ditch	Pueblo Board of Water Works	10/3/1936	6/8/1929	-	85.0
Wurts Ditch Extension	Pueblo Board of Water Works	7/23/1958	10/26/1953	-	44.0

CWCB Instream Flow Water Rights (Absolute)

Stream Name	Reach Segment	Case No.	Approp. Date	Amount (CFS)	Duration
Cataract Creek	HW to confl EF Eagle River	78W3804	5/12/1978	1.0	1/1-12/31
Pearl Creek	HW to confl Resolution Ck	78W3809	5/12/1978	1.0	1/1-12/31
Resolution Creek	HW to confl Pearl Ck	78W3808	5/12/1978	2.0	1/1-12/31
Resolution Creek	confl Pearl Ck to confl Eagle River	78W3810	5/12/1978	3.0	1/1-12/31
South Fork Eagle River	HW to confl EF Eagle River	78W3801	5/12/1978	3.0	1/1-12/31
East Fork Eagle River	HW to confl Cataract Ck	85CW262	5/3/1985	1.5	1/1-12/31
East Fork Eagle River	confl Cataract Ck to confl SF Eagle River	85CW263	5/3/1985	2.0	1/1-12/31
Rule Creek	HW to confl Eagle River	78W3806	5/12/1978	0.5	1/1-12/31
Yoder Creek	hdgt Wurtz to confl Eagle River	78W3807	5/12/1978	1.0	1/1-12/31
Eagle River	confl EF & SF Eagle River to confl Resolution Ck	78W3805	5/12/1978	6.0 (W); 12.0 (S)	10/1-4/3; 5/1-9/30
Eagle River	confl Resolution Ck to Homestake Ck	78W3811	5/12/1978	7.0 (W); 15.0 (S)	10/1-4/3; 5/1-9/30

Other Absolute Water Rights

- USFS (campground wells/old irrigation water rights/others)
- Nova Guides (wells, pond)
- Well permits for homes up Tennessee Pass

Conditional Water Rights

Structure Name	Owner	Adjud. Date	Approp. Date	Amount (AF)	Amount (CFS)
Eagle Park Reservoir	Eagle Park Reservoir Company	12/31/1992	3/16/1991	2,152.0	-
		12/31/1993	5/18/1993	22,300.0	-
			Total:	24,452.0	-
Eagle-Arkansas Ditch	Homestake Project (Aurora & Colo Spgs)	7/23/1958	9/22/1952	-	530.0
Eagle Park Aquifer Well Field	Homestake Project (Aurora & Colo Spgs)	7/16/2002	12/19/1988	5,000.0	-
Eagle Park Wetland Irrigation System	Homestake Project (Aurora & Colo Spgs)	7/16/2002	12/19/1988	-	60.0
Eagle Park Reservoir	Homestake Project (Aurora & Colo Spgs)	7/16/2002	12/19/1988	3,500.0	-
Lower East Fork Reservoir	Homestake Project (Aurora & Colo Spgs)	7/16/2002	12/19/1988	2,500.0	-
Resolution Creek Reservoir	Homestake Project (Aurora & Colo Spgs)	7/16/2002	12/19/1988	5,000.0	-
Wurtz Ditch Extension	Pueblo Board of Water Works	7/23/1958	10/26/1953	-	56.0
Columbine Ditch (pending)	Aurora Water & Climax	12/31/2009	12/17/2009	-	60.0
Cross Creek extension of the Fall & Peterson Creek Conduits	Red Cliff Project (CO River District)	7/6/1979	7/1/1976	-	20.0
Iron Mountain Reservoir	Red Cliff Project (CO River District)	12/13/1965	8/10/1956	30,000.0	-
Iron Mountain Reservoir 2nd Filling	Red Cliff Project (CO River District)	6/18/1986	7/29/1981	30,000.0	-
Pando Feeder Canal	Red Cliff Project (CO River District)	12/13/1965	8/10/1956	-	320.0
Pando Feeder Canal	Eagle Park Reservoir Company	12/13/1965	8/10/1956	-	80.0