

APPENDIX D – Environmental Update

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Environmental considerations play a key role in southwest Colorado's economic development activities. Residents of our communities' value the high quality of life provided here, including clean air and water and scenic views. A healthy environment can be a selling point for a region's economic development efforts. Businesses - and their employees - like to live in a safe and healthy environment. This is increasingly true in the information technology era when businesses and jobs can relocate almost anywhere, they wish. Increasingly, areas that offer the best environmental resources are often the most attractive to business interests that have the ability to move. A healthy environment can also be a draw to tourists and outdoor enthusiasts of all kinds, from fishermen and hunters to hikers or bird watchers. Unfettered or unplanned development, by contrast, can fragment natural areas and/or deplete them of their wildlife, their pollution mitigating qualities, or their natural beauty.

Federal agencies are required to integrate environmental values into their decision-making processes by considering the environmental alternatives for their proposed actions, and reasonable alternatives to those actions pursuant to the National Environmental Policy Act (NEPA). NEPA requires agencies to first avoid and minimize negative environmental impacts and to provide compensation only after all avoidance and/or minimization efforts have been attempted. Some of the environmental factors addressed by NEPA are described in sections below.

Climate

Region 9 is located at the juncture of four states (Colorado, Arizona, New Mexico and Utah – the Four Corners); and three distinct physiographic regions; the Rocky Mountains, the Colorado Plateau and the San Juan Basin. The topography includes high mountain peaks and valleys, towering mesas, deep canyons and deserts. Southwest Colorado is intensely seasonal. Snow begins falling in the high country in late September or early October, and by Halloween, seasonal closures turn many unpaved roads into routes for snowmobiles.

The San Juan Mountains are the snowiest region of the Colorado Rockies, with average annual snowfalls approaching 400 inches in some spots. Skiers and snowboarders treasure this abundance of white gold. Winter lingers well into the season that is called spring on the calendar. In fact, the greatest snowfalls generally occur in March and April. Winter sports usually wind down in early to mid-April. At about the same time skiers are packing up their poles, the snow in the higher elevations begins to melt. Cresting streams offer thrilling, if chilling, white-water rafting and kayaking.

Summer in the mountains, is brilliant sunshine in cobalt blue skies, although even in the warmer valleys the growing season is marginal in length. Spring's last frost often occurs in June; the first frosts of fall might begin in late August. Late summer brings brief and often intense showers on many August afternoons, sometimes accompanied by dramatic thunder and lightning. In the harsh, dry climate of the mesa-and-canyon country around the Four Corners, summers are hot, winters can be windy and cold, and spring and fall are mild.

Air Quality

Air quality is important from an economic standpoint, not only because of the human health implications, but also because it affects the view sheds in a five-county area where attracting businesses and tourists is contingent on a high quality of life. Pollution sources within the Four Corners include coal-fired power plants, motorized vehicles, oil and gas operations, wildfires and intentional burning, road dust, and other sources. Under the Clean Air Act, the US Environmental Protection Agency (EPA) sets limits on certain air pollutants, using science-based standards to protect human health and the environment. A geographic area that does not meet a primary standard is called a non-attainment area. States and tribes develop State Implementation Plans that outline how they will control air pollution. Some of the air pollutants that are presenting challenges in the Four Corners area are ozone, mercury, nitrogen and sulfur oxides, and particulate matter.

Ozone is normally considered a big city issue, but it is of growing concern in the Four Corners area. In this region, ozone is mainly caused by power plants and oil and gas development (CIRA). Ground-level ozone can cause chest pain, coughing, throat irritation, and congestion and can worsen bronchitis, emphysema, and asthma. Many plant species, including crops, such as soybeans, and Ponderosa pines and Aspen trees are extremely sensitive to ozone exposure.

Historically, air quality in the San Juan Mountains has been among the cleanest in the United States. However, concerns about mercury, ground-level ozone, nitrogen, and other pollutants are growing. Mercury concentrations in precipitation are alarmingly high and several water bodies have mercury fish consumption advisories. Ozone is approaching the limit for public health, and nitrogen levels in rain and snow are increasing.¹ Mercury is a naturally occurring element found in air, water, and soil. It can also be a toxic air pollutant. Coal-fired power plants are the largest man-made source of mercury to the air in the United States. Mercury in the air eventually settles to the ground, where it can be washed into aquatic ecosystems, such as lakes, streams, and wetlands. Bacteria in wetlands and lake bottoms can change mercury into a highly-toxic form, called methyl mercury, which affects functioning of nerve cells. The methyl mercury bio-accumulates, increasing in concentrations up the food chain. Fish consumption advisories for mercury contamination are in effect for five lakes and reservoirs within Region 9 in Archuleta, La Plata, and Montezuma counties. Mesa Verde National Park recorded some of the highest mercury concentrations in the nation in 2010, and continues to monitor mercury, nitrogen, sulfur, ozone, fine particles, haze and dust. The Park is working with the Four Corners Air Quality Group, a group of state, federal and local agencies, and tribes, to develop strategies to reduce regional air pollution.²

Regional haze is caused by a collection of fine particles, smoke, dust, and moisture, suspended in the air. Emissions from power plants, burning of fossil fuels, soot from natural and manmade fires, and airborne dust from disturbed soils all contribute to this pollution, which respects no borders and can travel great distances. Haze affects wide geographical areas, often far away from the original emission point, and is therefore called “regional haze”. The EPA has established a visibility protection program to protect Class 1 areas “of great scenic importance”, including Mesa Verde National Park and the Weeminuche Wilderness Area, from impairment due to manmade air pollution. Visibility at both Mesa Verde National Park and the Weeminuche Wilderness Area are impaired due to haze. When the air is clean, natural visibility conditions in most of the western United States are in the range of approximately 110 to 140 miles. However, when regional haze is present, visibility is reduced to about 33-90 miles. Poor visibility is often an indicator that there are other impacts that we cannot directly observe, such as human health effects.³

Colorado adopted a [Regional Haze Plan](#) in 2010 and 2011 that specifies long-term strategies to restore visibility in Class I areas to natural conditions. The EPA approved the state’s plan on December 31, 2012.⁴ The plan includes reduction of emissions and new controls for oxides of nitrogen at power and cement plants. These nitrogen oxide controls will also benefit ozone reduction efforts.⁵ Particles in the air less than ten microns in diameter (PM10) can become lodged deep in the lungs and are not easily expelled. This can cause negative health effects, particularly for people with heart or lung disease, respiratory problems, the elderly, and children whose lungs are still developing and who are more likely to have asthma and are more active outdoors.

¹ <http://www.mountainstudies.org/air-quality>

² <https://www.env.nm.gov/air-quality/fcaqg/>

³ <https://cdphe.colorado.gov/environment/air-pollution-control>

⁴ <https://www.regulations.gov/document?D=EPA-R08-OAR-2011-0770-0050>

⁵ <https://cdphe.colorado.gov/environment/air-pollution-control>

The Pagosa Springs area was classified in 1987 as non-attainment for PM10. Strategies in the State Implementation Plan for reducing PM10 included paving unpaved roads, street sanding with a reduced amount of fine sand, and motor vehicle emission control. The area was re-designated as “maintenance”, rather than non-attainment, in 2001. Pagosa Springs receives federal Congestion Mitigation and Air Quality funding each year for activities such as paving dirt streets and purchasing street sweepers to reduce air emissions of particulate matter. The funding varies, but about \$200,000 per year is distributed between several communities in southwest Colorado (Pagosa Springs, Telluride and Mountain Village). The air shed will be monitored for PM10 until at least 2021.⁶

Another source of air pollution is nitrogen and sulfur oxides from burning fossil fuels in power plants, vehicles, and other types of engines, such as those associated with oil and gas wells. Both sulfur and nitrogen oxides form acid rain. Mountain and desert ecosystems are more vulnerable than other types of ecosystems to nitrogen deposition. In addition, hydrogen sulfide occurs in natural gas and can be emitted at harmful levels from some seeps and natural gas drilling operations in the San Juan Basin. The EPA released a proposal to reduce smog-producing nitrogen oxides at the Four Corners Power Plant in Farmington, New Mexico from 45,000 tons per year to 5,800 tons per year, an 87% reduction of emissions. The plant is the nation’s largest source of nitrogen oxides.

To date, the sale of the Navajo Coal Mine from BHP Billiton to the Navajo Nation is of concern to local environmentalists.⁷ For years, BHP owned and operated the Navajo Mine outside of Farmington. The mine, which sits on Navajo Nation land, is the sole source of coal for the adjacent Four Corners Power Plant. Crippled by poverty and unemployment rates that top 40 percent, the Navajo Nation derives a significant portion of its operating income from mining proceeds. The Navajo Nation ultimately borrowed the money to purchase the mine from BHP. San Juan Citizens Alliance, with a host of partners, including Navajo tribal members, announced a controversial lawsuit in 2016 against last year’s federal decision to permit the Navajo Mine and Four Corners Power Plant to operate another 25 years. To date the controversy is ongoing.

In La Plata County, concerns about the Durango and Silverton Narrow Gauge Railroad’s coal emissions, resulted in an Air Quality Advisory Council, formed in 1998. This group was working collaboratively on finding solutions to this air quality threat and others such as oil and gas wells and rapid development. They published “*A Comprehensive Summary of Air Quality in La Plata County*” in August 2005 complete with data, studies, results from a citizen survey and recommendations for improvement. A Train Smoke Task Force was formed to help reduce emissions and several changes were implemented. Though the mitigation task force is dormant at this writing, monitoring of pollution levels continues. The next step is to secure funding for air “scrubbers” to be installed in the railroad roundhouse in Durango.

Colorado operates its own air quality program, and the Southern Ute Indian Tribe/State of Colorado Environmental Commission has been formed to oversee the development and implementation of a comprehensive program to protect air quality on the reservation. This is being accomplished through ambient monitoring, permitting of pollution sources, emissions inventories and continued research of pollution sources. The program is growing to include a permitting section that will regulate all air pollution sources within the exterior boundaries of the reservation.

⁶ <https://www.federalregister.gov/articles/2014/03/10/2014-05009/approval-and-promulgation-of-air-quality-implementation-plans-state-of-colorado-second-ten-year-pm10>

⁷ Durango Herald, April 20, 2016.

Cultural Resources

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 Indian Tribe). The National Historic Preservation Act (NHPA) mandates that governmental agencies consult with Native American tribes during the planning of federal-aid projects both on and off Indian reservations.

The discovery of the Ancestral Puebloan (formerly known as Anasazi) ruins at Mesa Verde National Park strongly influenced the passage of the Federal Antiquities Act in 1906. The region contains thousands of important archaeological resources that are now protected, and which have become a valuable economic resource as visitors from across the globe visit the region to learn more about our prehistoric and historic past. Various federal land management agencies, such as the United States Forest Service and the Bureau of Land Management (BLM), have implemented a permit system for archaeological studies on their jurisdictional properties (including historic and prehistoric sites).

Specific guidelines have also been developed to direct the treatment of human remains found at archaeological sites. Both State and Federal legislation protects Colorado's cultural resources. The Colorado Historical Society (CHS) recognizes thousands of cultural resources in Region 9 as being eligible to the Register of Historic Places, though they are not yet listed. Region 9 also has various cultural resources that are included on the *State and/or Federal Register of Historic Places*, which is maintained by the National Park Service (established in 1966).

In 2000, the Canyon of the Ancients National Monument was established. It is administered by the Bureau of Land Management and covers over 164,000 acres with over 6,000 archeological resources recorded. A management plan for the Monument provides strategies for allowing some historic extractive uses to continue, including grazing and gas development while also managing cultural resources and recreational visits (which are increasing in great numbers each year).

On September 21, 2012, Chimney Rock, an archaeological site located 17 miles west of Pagosa Springs in southwestern Colorado, was proclaimed a National Monument by President Barack Obama. According to the literature, the site incorporates "spiritual, historic, and scientific resources of great value and significance." The San Juan National Forest is proposing changes to the management, operations, and fee structure associated with Chimney Rock National Monument. Significant capital improvements, coupled with increased visitation and other changed conditions, point to the need for the Forest to assume greater responsibility for site management. The changes are in line with agency guidance, Recreation Enhancement Act parameters for fee collections, and management practices at comparable parks and monuments. Under this proposal, the San Juan National Forest would assume responsibility for most site operations by hiring a dedicated workforce devoted to providing visitor information, facility maintenance, resource protection, shuttle transportation, and other visitor services. Fees would be changed, and revenue would be retained by the Forest to fund operation and maintenance costs.⁸

Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. In response to allegations by the Congressional Black Caucus in 1990 that environmental risk was higher for minority and low income populations and a subsequent study that supported the allegations, a 1994 presidential executive order directed every federal agency to make environmental justice part of its mission.

⁸ <https://www.fs.usda.gov/detail/sanjuan/specialplaces/?cid=stelprdb5390324>

There are three fundamental environmental justice principles: 1) to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, in minority and low-income populations; 2) to ensure full and fair participation by all potentially-affected communities in the project decision-making process; and 3) to prevent denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations. Region 9 is fully-aware of and in agreement with the need to address environmental justice requirements in all federally-funded projects.

Farmland Protection

The National Agricultural Land Study of 1980 -81 found that millions of acres of farmland were being converted each year due to sprawling development. Much of the sprawl was the result of programs funded by the federal government. With this in mind, Congress passed the Farmland Protection Policy Act (FPPA) in 1981. A project for which farmland is acquired, such as State highway construction projects and airport expansions, or those which will indirectly lead to the conversion of farmland, are subject to the provisions of the FPPA.⁹

Floodplains

Floodplains are another critical environmental feature that can have significant impacts on land development. Floodplains are the margins of land adjacent to streams and rivers that accommodate excess water during periods of flooding. Streams and rivers are subject to periodic flooding that can damage or destroy whatever is contained in the floodplain. The presence of a floodplain in a development corridor is important as it may affect the alignment, design, construction and long-term maintenance aspects of the project. Floodplain information is readily available from local, state, and federal government agencies along with guidelines pertaining to the development or modifications of floodplain.

Hazardous Waste Sites

Identifying a community's potential for hazardous waste early in the development planning process can help avoid unexpected time delays, increased costs, and potential danger to both employees and public health and safety. Construction typically involves subsurface activities that may disturb contaminated soils, groundwater, parcels of land and businesses that are sometimes contaminated by hazardous waste. An evaluation will help reduce the possibility of encountering hazardous waste, purchasing contaminated property, and minimize liability. The evaluation should include a review of current and historic land use activities, a review of regulatory agency lists, an inventory of documented hazardous waste generators, and a field survey to assess various physical features on the property that may indicate presence of hazardous waste. In addition to evaluating the property to be acquired, adjacent properties and the surrounding area should be surveyed because contamination can come from off site. An investigation should include the identification of nearby businesses that store or use potentially hazardous materials. Region 9 is helping with Brownfield cleanup across the region

Noise

Development-related noise is regulated by federal agencies in response to the Noise Control Act of 1972 (86 U.S.C. 1234-1250). Both the US Department of Transportation and the EPA are involved in noise regulation. All federal projects must assess highway-generated noise in compliance with Federal Highway Administration (FHWA) noise abatement criteria. In most cases, the noise from vehicles is not be an issue if the speed limits are less than 30 mph or less, unless large truck traffic is extremely heavy or steep grades are associated with the roadway. Rural highways, roads, non-urban and small urban municipal streets usually have a maximum noise influence area that does not exceed 200 feet on either side of the roadway centerline. Rural Interstate highways usually have a noise influence limit of 300 feet or less on either side of the centerline.

In general, noise increases from completed transportation projects are due to capacity increases or alignment changes. For these types of projects, a noise analysis study is required if noise sensitive receivers (examples are residences, hotels, and schools) are present within a 500-foot radius from the proposed edge

⁹ <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/>

of traveled way throughout the extents of the project. Mitigation, such as noise barriers, might be required.

Each military or joint-use airfield is required by military regulations to have an Air Installation Compatibility Use Zone study which shows the noise “footprint” associated with its operations. Airports with regularly scheduled commercial airline service have a similar study required by the Federal Aviation Administration. These studies can be used by planners to assess airport noise impacts on the surrounding community.

Open Space

The environmental issue that has received the greatest public input was about the impact of growth on open space. Population increases are driving development particularly in the unincorporated areas of each county. Two non-profit conservancy organizations are active in the region and are members of the Colorado Coalition of Land Trusts (CCLT). These conservancy organizations have assisted landowners in voluntarily preserving land in Region 9 via conservation easements.

Though it is difficult to pin down the exact number of acres within these easements, a consortium of organizations called COMap have tabulated 70,795 acres within the region as “private protected” lands.¹⁰ While this protected open space represents only 2% of all land in the region, the effort is important because parcels are placed under easement based on values such as view sheds, public lands access points, wildlife corridors, and farmland preservation. The practice of conservation easements was made more attractive by State of Colorado tax credits granted in the early 2000s that allows the landowner to sell the value of the easement for cash rather than a tax write off.

Paleontology

The State Antiquities Act (24-80-401) seeks to protect all fossils on state-owned lands and lands controlled by any subdivision of state government. Protection is provided by requiring a permit to collect, damage or destroy fossils on state-owned lands. Similar laws and regulations protect fossils on federally owned lands. The majority of Colorado remains un-surveyed for fossil remains. Areas not requiring examination for fossils of scientific importance are those areas where the rocks are older than 600 million years or younger than 7,000 - 8,000 years. The remaining areas could potentially contain fossils of scientific significance.

Parklands

Parks and recreational resources play an important role in southwest Colorado. They provide opportunities for physical exercise and mental relaxation, gathering sites for community activities and events, and they draw tourists and recreationists to the area. Parks and recreational resources may be operated by local governments, state and federal agencies, and tribal governments. Federal regulations protect publicly owned parks and recreation areas from federal actions, such as transportation or other infrastructure projects, wherever prudent and feasible alternatives exist. If publicly owned parklands or recreation areas will be impacted by a transportation improvement, a mitigation plan is required.

Public Lands

Region 9 is home to a plethora of state and federal lands, including (but most definitely not limited to) the San Juan National Forest, Mesa Verde National Park, Chimney Rock National Monument, Canyons of the Ancients National Monument, Weeminuche Wilderness, Hovenweep National Monument, South San Juan Wilderness, and Lizardhead Wilderness. Public lands play a decisive role in southwest Colorado’s economies. For example, the San Juan National Forest averages 1.7 million visitor days per year, significantly contributing to the tourism industry in the Four Corners. The region is characterized by vast public lands including the following acres: 1,584,592 - United States Forest Service; 342,901 - Bureau of Land Management; 61,069 - State of Colorado; and 53,720 - National Park Service. The breakdown of public land acreage per county can be found in the county sections of this report.

¹⁰ <https://comap.cnhp.colostate.edu/>

The prosperity of rural western communities is directly tied to designated wilderness areas, national parks, and other public lands. A report, *Prosperity in the 21st Century West*, published by the Sonoran Institute, analyzed economic statistics from 400 western counties and found that new businesses, investments, and residents tend to locate near public lands.¹¹ The better managed and protected those lands are, the more they contribute to the economic well-being of local families, communities, and businesses.

The San Juan National Forest and Bureau of Land Management's Resource Management Plan Revision has been completed.¹² The plan outlines the types of uses that will occur, locations, and other land management decisions such as: identifying where commercial timber will be harvested, where grazing will occur, and locations where motorized recreation will be allowed. A unique aspect of this planning process is that it combines the BLM and USFS into one document. With the traditional land uses such as mining, grazing and logging declining in the region, the stewardship, management, and protection of our public lands is a complex topic deserving of ongoing public, community and governmental involvement and action.

Threatened and Endangered Species

Development can be harmful to plant and animal species. Impacts can result from destruction of habitat, animal mortality (including vehicle-wildlife collisions and construction activity), fragmentation of habitat, or changes in species behavior such as altering foraging or denning patterns. Extinction of a species represents an irretrievable loss of a biological resource and biodiversity. In addition to its other inherent value, this resource may have yielded powerful medicines, new genetic stock for agriculture, or provided new scientific insights.

The loss of a species reduces the resilience of the environment to respond to climatic or environmental crises. Consequently, the protection of threatened or endangered species is an essential component in any long range planning effort, and a review should be made prior to the undertaking of any economic development project to identify these species. A list of threatened and endangered species in Colorado is maintained and updated by Colorado Parks and Wildlife.¹³

To comply with the federal Endangered Species Act, agencies that might impact threatened and endangered species evaluate all possible adverse impacts and take necessary measures to avoid harming proposed, candidate and listed species before, during and after construction and maintenance activities. 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 state's rivers and streams.

¹¹ <https://sonoraninstitute.org/resource/prosperity-in-the-21st-century-west-the-role-of-protected-public-lands-executive-summary-07-10-2004/>

¹² <http://www.fs.usda.gov/main/sanjuan/landmanagement/planning>

¹³ <http://cpw.state.co.us/learn/Pages/SOC-ThreatenedEndangeredList.aspx>

Wildlife

From 2001 to 2014 the number one cause of highway accidents in Archuleta, La Plata and Montezuma Counties was wildlife. In September of 2008, as a pilot project, CDOT installed a \$1.2 million electromagnetic wildlife detection system along a one-mile stretch of US 160, in an important deer and elk migration corridor east of Durango. Then CDOT constructed a wildlife underpass at US 160 at Dry Creek, about five miles east of the junction with SH 172 (between MM 97 and MM 98). The total cost of the project—from design through construction—was \$6.5 million. The project was completed in summer of 2016.

US 160/SH 151 Wildlife Crossing Project- 22024

This project is located on US 160, between approximate MP 126.4 & 128.2, in Archuleta County. The location is roughly centered around the US 160 & SH 151 intersection. Work will include extending an existing passing lane for westbound motorists and the installation of two large game crossing structures, made of pre-cast concrete arches, to reduce wildlife-vehicle collisions in the project corridor. The structure west of the US 160/SH 151 intersection will be placed beneath the highway grade and perform as an underpass for wildlife, while the arch structure east of the intersection will be placed over US 160 to perform as an overpass for wildlife. Erecting the wildlife overpass will take place in phase two, anticipated for later this summer (2021). Other work will include installing 8 ft. exclusion fence along both sides of US 160 throughout the project limits, along with earthen escape ramps and a large deer guard on SH 151 to prevent wildlife entry into the fenced corridor. This project began in March 2021 and has an estimated completion date of fall 2021. Budget: \$11.3 million; Funding Type: SUR, CDOT/SUIT/CPW partnership.

The Colorado Division of Wildlife – Southwest Region began a five-year study in the summer of 2011 regarding bear/human conflicts, a growing concern in urban interface areas such as Durango. Results of the study are now available to the public as the research period came to an end in 2016. It is expected that the study results will be applicable statewide.¹⁴

Water Quality

The Federal Clean Water Act established programs aimed to control non-point sources of pollution, and to supplement programs addressing pollution from discharge at specific identified sites (point sources). The quality of water in primary rivers and streams are tested for point source pollutants such as metals, bacteria, sediments, nutrients, and salinity. There are several categories of non-point source activities, including: agriculture, forestry, construction runoff, urban runoff, resource extraction, land disposal and hydrologic modification.

Region 9 is contained within the San Juan River Basin, which includes the San Juan River and its principal tributaries, the Piedra, Los Pinos, Animas, La Plata, and Mancos Rivers. The San Juan and Dolores rivers ultimately reach the Colorado River, but they are considered to be within the San Juan River Basin for water quality management purposes. Although the population in the San Juan River Basin is sparse compared to other parts of the United States, increased growth and tourism are placing demands on several communities to provide adequate wastewater treatment. Several year-round resorts (the most controversial is the Village at Wolf Creek) are proposed in the upper San Juan River region, which could significantly impact future water quality.

In southwest Colorado, drought, wildfires, mining activities, agriculture, and population growth have altered the landscape from its natural condition. These changes have potentially degraded the water-quality of streams, rivers, reservoirs, and groundwater by introducing or increasing levels of metals, nutrients, synthetic organic chemicals, and sediment. There are several drainages in the region with water quality issues. In 2016, a total of 430 miles of the San Juan and Dolores River Basins, as well as 7,594 acres

¹⁴ <https://cpw.state.co.us/learn/Pages/ResearchMammalsRP-02.aspx>

of lakes and reservoirs were assessed as impaired.¹⁵ The U.S. Environmental Protection Agency requires states to develop Total Maximum Daily Loads (TMDL's) for impaired river segments. A TMDL is the maximum amount of a pollutant that a waterbody can receive and still maintain water quality standards. A list of impaired stretches is available through the Colorado Department of Public Health and Environment (CDPHE).¹⁶

In the upper reaches of the Animas River, a relatively extensive mine remediation project has been ongoing since the early 1990s, involving the plugging of mine tunnels and the relocation of mine waste. The Animas River Stakeholders Group, comprised of mining interests, local citizens, and government interests, are helping to direct and oversee the activities. On August 5, 2015, the Environmental Protection Agency (EPA) was conducting an investigation of the Gold King Mine near Silverton, Colorado, to: assess the on-going water releases from the mine, treat mine water, and assess the feasibility of further mine remediation. While excavating above the old adit, pressurized water began leaking above the mine tunnel, spilling about three million gallons of water stored behind the collapsed material into Cement Creek, a tributary of the Animas River. The creek has long been considered [one of the worst sources of metals contamination](#) in the upper Animas River Basin, because heavy metals from abandoned mines (and from natural sources) in the Gladstone area, some which operated in the late 1800s to early 1900s, are believed to be polluting the creek.

The EPA is also conducting a site reassessment to determine if the complex of mines near Gladstone (known as the Bonita Peak Mining District) could qualify for the National Priorities List, which would make it eligible for the so-called Superfund. Previously, many in the Silverton community felt that the stigma of such a Superfund designation would negatively affect the area's tourism and potential mining industry. Now, after extensive community input, and a vote by Silverton and San Juan County officials, the determination of Superfund status is going forward. More timely information is available at the County website [Gold King Mine Spill](#).

Lower in the Animas drainage, the long-proposed Animas/La Plata water diversion and storage project (A-LP) southwest of Durango has been completed. The A-LP settles Native American water-right claims and provides water for household and industrial uses to three tribes and four non-tribal entities: the Southern Ute Indian Tribe, the Ute Mountain Ute Indian Tribe, the Navajo Nation in New Mexico, the state of Colorado, the Colorado Water Resources and Power Development Authority, the San Juan Water Commission, and the La Plata Conservancy District.

The City of Durango is currently refining a management plan for the lake though the types of recreation that will be allowed are still under public debate. They have made public participation in the process available through open houses, public forums, design workshops, and a website where people can post their comments and view others' input. Some activities at the lake could include close-to-town camping, swimming, boating, trails, and riding options. A boat ramp has been constructed at Lake Nighthorse, as the State of Colorado has provided a \$3 million grant for a boat ramp with the contingency that gas-powered boats be allowed on the lake within three years of completion. A concern of many residents is the likelihood of motorized sports on the lake. People who prefer a more tranquil, natural setting are averse to the idea of speedboats and ATV's at the lake. A compromise has been reached with alternate days for motors and no motors.¹⁷

A water rights issue that is ongoing in the region involves legal challenges by property owners who sue to protect their water rights from natural gas drilling. Two local ranching families took the State Engineer's

¹⁵ <https://cdphe.colorado.gov/lakes-monitoring>

¹⁶ https://toxics.usgs.gov/photo_gallery/aml_all.html

¹⁷ <https://co-durango.civicplus.com/lakenighthorse>

Office to court for not protecting their water rights from gas wells and won in the Colorado Supreme Court in 2009. The gas industry was concerned that all gas wells in the state would need to be permitted, and the state engineer's office drew maps showing where gas wells interact with surface water. The reasoning is that water used in the drilling process does not need to be replaced outside of these interface zones, because the water used in drilling is assumed to be so deep underground that it will have no effect on surface water. Several lawsuits are active at the writing of this report.

Another facet of water quality is storm water discharge and regulation under the EPA's National Pollutant Discharge Elimination System (NPDES). The purpose of an NPDES permit is to maintain water quality by controlling the discharge of pollutants into the waters of the state. The Colorado Department of Public Health and Environment is responsible for the implementation and enforcement of these regulations.

Wetlands

Wetlands are a critical natural resource, and as such, have come under federal protection. Wetlands can vary greatly in appearance. They include riparian wetlands that are dominated by cottonwoods and willows that are adjacent to rivers and streams and montane wetlands such as beaver ponds, wet meadows, and other boggy areas. There are several types of wetlands in the region depending on the elevation, topography, and water source. 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 storm water detention, groundwater recharge and discharge, and recreational opportunities.