Meta

Volumetric Water Benefits: 2023 Report

Prepared by:
LimnoTech

June 25, 2024

LimnoTech
Water Environment | Scientists Engineers

Volumetric Water Benefits:
2023 Report

Prepared for:
Meta

Prepared by:
LimnoTech

June 25, 2024

Contents

Introduction

Meta takes a comprehensive approach to water stewardship, incorporating efficient operations, reuse, and water restoration. Since 2012, Meta has tracked and reported water usage effectiveness at its data centers, which are among the most water-efficient in the world.

Meta has set a goal of being Water Positive in 2030. To achieve this goal, Meta will restore more water than consumed by supporting and funding projects with volumetric benefits, with targets of restoring 200% of water consumed in high water stress regions and 100% in medium water stress regions. Meta will also provide support and funding for capacity building projects that may not have a volumetric benefit but have a catalytic impact on watersheds where the company operates. Meta initiated its water restoration program in 2017, and through the end of 2023, Meta has funded 32 projects that are in various stages of completion in the source watersheds of ten data centers with medium to high water risk. Eighteen of these projects generated volumetric benefits in 2023, totaling 1.55 billion gallons (see Appendix 1), with additional benefits expected from the remaining projects in the coming years (see Appendix 2). The locations of the watersheds, Meta assets, and projects are shown in Figure 1.

Figure 1. Locations, operations, and basins related to Meta's 2023 water restoration projects.

Quantification Methodology

Volumetric water benefits (VWBs) are the volume of water resulting from water stewardship activities, relative to a unit of time, that modify the hydrology in a beneficial way and/or help reduce shared water challenges, improve water stewardship outcomes, and meet the targets of Sustainable Development Goal (SDG) 6[1] (Reig et al., 2019). Volumetric water benefits of water restoration projects are quantified following Reig et al. (2019), and the specific method applied depends on the project objectives, activities implemented, and the information available for calculating benefits. It is recognized that the estimated benefits have some uncertainty, as they are based on available data and information using models and estimation techniques. To reduce this uncertainty, scientifically-defensible methodologies and conservative assumptions are employed throughout the quantification process.

Volumetric water benefits of funded and completed projects are first counted in the year the project begins achieving volumetric water benefits, and in each subsequent year, for up to a maximum of ten years, provided the project is maintained and confirmed to function as intended. If a project has multiple funders, the volumetric water benefit is adjusted to reflect Meta's financial contribution compared to the total project cost, to report the percent of the total volumetric water benefit that can be attributed to Meta.

Risk Assessment Methodology

Water risk for each data center was assessed using WRI Aqueduct Water Risk Atlas 4.0 (2023). The Water Risk Atlas includes 13 indicators covering various types of water risk; there are eight indicators related to water quantity, two indicators related to water quality, and three indicators related to regulatory and reputational risk. Based on a site's location, Aqueduct assigns a raw overall risk score as well as a categorical ranking (low, low-medium, medium-high, high, or extremely high), which Meta simplifies into risk scores of low, medium, or high.

However, Aqueduct is a global tool with some underlying limitations. While the underlying models have been validated, the results are not. Water stress remains highly subjective and cannot be measured directly, and not every aspect of water risk can be captured and incorporated into the tool. The underlying model results are static and are only periodically updated in Aqueduct, so the results may not necessarily reflect current basin conditions. Furthermore, the current underlying model does not include inter-basin transfers, which is an important component of many water systems; in such instances, Aqueduct would only capture water risk for the site, not necessarily risk for the site's water supply, which could result in misleading results. Finally, Aqueduct is a global tool meant to compare regions with limited application at the local level. Because of these limitations, best professional judgement was used to adjust the risk scores at several sites based on Meta's intimate knowledge of the local water context. Meta only increases the risk category of a site to a higher category (e.g., Medium to High), but does not adjust the risk score to be lower than what is reflected in Aqueduct.

[1] SDG 6: Ensure availability and sustainable management of water and sanitation for all. https://sdgs.un.org/goals/goal6#targets_and_indicators

Meta's 2023 Volumetric Water Benefits by the Numbers

7
data centers
in 6 watersheds

18
projects
with 2023
benefits

1,555
million
gallons
of volumetric water benefit

+
Co-benefits &
more projects
on the horizon

In 2023, volumetric benefits were generated by eighteen Meta-supported water restoration projects implemented across six watersheds in which data centers with medium to high water risk are located. These projects have been completed in collaboration with a wide range of partner organizations, including NGOs, government agencies, and private firms. Together, adjusted for Meta's cost-share, the projects represent a volumetric water benefit of 1,555 million gallons for 2023. These projects provide a variety of additional benefits beyond their volumetric contributions, including strengthened water security, improved water quality, habitat creation, and erosion prevention.

These projects, as well as other funded projects anticipated to begin generating volumetric benefits in the years ahead, are described below, organized by the watershed they impact.

Columbia River | Prineville Data Center and Kuna Data Center

The Columbia River Basin, within which the Prineville and Kuna Data Centers are located, extends across the northwestern United States and into Canada, covering large portions of Oregon, Washington, Idaho, and Montana. The watershed faces high interannual variability in water supply and availability, and concerns over flooding and water quality. Water demand in excess of reliable supply also contributes to water stress in the basin. Meta has funded three projects within the Columbia River Basin (Figure 2). The Ingram Meadow Restoration and the Prineville Aquifer Storage and Recharge project provided a combined volumetric benefit of 34.5 MGY for the Columbia River basin in 2023. These projects are in the vicinity of the Prineville Data Center. Farther upstream, the Kuna Data Center is rated as having a medium water risk based on its local context. The Alta Harris Creek Side Channel is not yet complete, but in future years, it is expected to provide benefits in the Columbia River basin, in the vicinity of the Kuna Data Center.

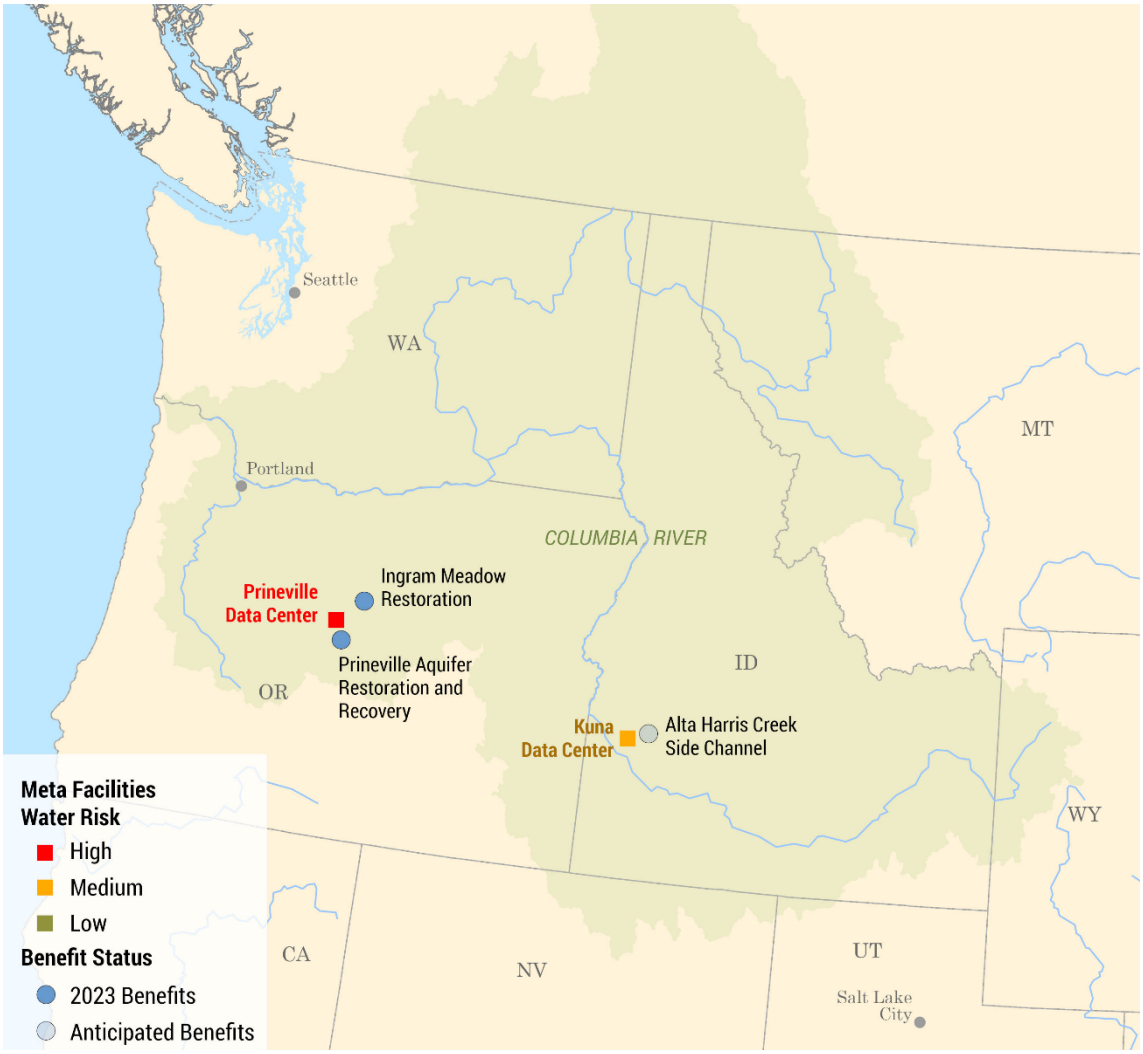


Figure 2. Project locations within the Columbia River Basin.

Ingram Meadow Restoration

Ingram Meadow is located within Ochoco National Forest, Oregon (Figure 3). Past grazing, removal of riparian hardwood vegetation, and timber harvest resulted in a downcut channel that drained the wet meadow and had lowered the water table for most of the year. Although the stream channel supported perennial flows of water, the meadow no longer functioned as a "sponge," holding groundwater throughout the year. Instead, the meadow dried out and areas with important fen habitat were at risk of being drained and lost.

Figure 3. Project Location: Ingram Meadow Restoration

- **Challenge**: Incised channel draining a wet meadow and lowering the water table
- **Outcome**: Restored 15 acres of wet meadow, increasing late summer water availability
- **Volumetric Water Benefit:** 1.5 MGY increased storage
- **Additional Benefits:** Improved water quality, decreased sediment loading, habitat creation
- **SDG Goal**: 6.6

This project, completed in 2019, repaired the degraded, incised channel to halt headcutting by using plug and pond techniques (Figure 4). Significant amounts of large wood, rock, and soil were placed in the channel to prevent upstream headcutting and increase groundwater storage. The aquifer replenishment and corresponding rise of the water table supports increased summer water availability. Additionally, this project improves water quality, reduces sediment loading, and provides improved wet meadow habitat. The implementing partners included the National Forest Foundation, the US Forest Service, the Middle Deschutes Watershed Council, and the Rocky Mountain Elk Foundation. This project is anticipated to provide volumetric benefits through 2029.

Figure 4. Ingram Meadow Restoration Site (Photo credit: USFS, 2018)

Prineville Aquifer Storage and Recharge

The City of Prineville has experienced growing water demand from its customers, including multiple data centers. There are concerns about meeting peak day demands, which can vary from 1 to 4 million gallons per day (MGD), as well as about the long-term resiliency of the city's water supply. This project was funded collaboratively by Meta, Apple, and the City of Prineville to construct an Aquifer Storage and Recovery (ASR) System that takes advantage of underground storage capacity in geologic formations to support the City in meeting growing peak day demands (Figure 5).

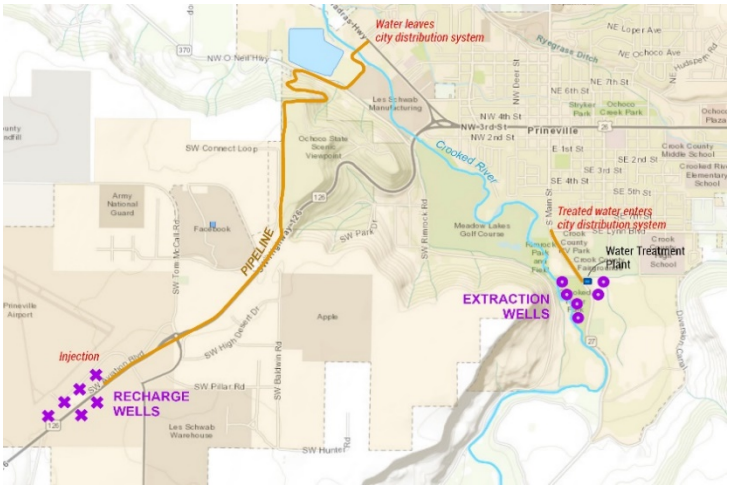


Figure 5. Project Location: Prineville ASR.

- **Challenge**: Local water availability
- **Outcome**: Increased supply reliability
- **Volumetric Water Benefit:** 33.0 MGY increased recharge
- **Additional Benefits:** Groundwater level stabilization, improved community economic welfare & climate resilience
- **SDG Goal**: 6.b

To utilize the available storage, groundwater is extracted from wells located near the Crooked River during the winter, when streamflows are higher and demand is lower. The water is conveyed uphill to the ASR, where it is used to recharge the aquifer through injection wells and stored for use during summer periods of greater demand. This project was completed and began delivering volumetric benefits in 2021. The City of Prineville is taking responsibility for ongoing monitoring and maintenance.

Anticipated Future Benefits: Alta Harris Creek Side Channel

In 2005, construction of a side channel on the Boise River was initiated to provide a fish passage around Barber Dam. The side channel was connected to the Boise River downstream of the dam but work to connect the side channel to the Boise River upstream of the dam was never completed. The partially completed channel, referred to as the Alta Harris Creek Side Channel, is currently obstructed by the Barber Dam. There is therefore minimal flow in the channel, and the existing flow is primarily from springs and irrigation system overflow. This project will complete the side channel connection with the mainstem of the Boise River to bypass Barber Dam. The channel is expected to improve habitat for native salmonids, improve water quality, and reestablish a robust riparian corridor along the Boise River.

Great Basin | Eagle Mountain Data Center

The Great Basin of the Southwestern United States, within which the Eagle Mountain Data Center is located, covers large portions of Nevada and Utah. Water risk in the watershed arises from increasing aridity from climate change and increasing water demand from rapid population growth. These twin pressures have led to substantial and publicized[2] reductions in the volume and area of the Great Salt Lake. This desiccation is leaving the lakebed exposed and allowing dust laden with toxic heavy metals to become airborne, which poses a risk to Salt Lake City to the North of the Eagle Mountain Data Center. Efforts to conserve water have led the City of Eagle Mountain to pause issuance of permits for businesses that require significant water. These concerns contribute to a high water risk in this region. Meta has funded three projects within the Great Basin. The Provo River Flow Restoration and the Hobble Creek Flow Restoration project provided a combined volumetric benefit of 883.2 MGY in 2023. The Eagle Mountain Wastewater Reuse project is expected to provide benefits in coming years (Figure 6).

Figure 6. Project locations within the Great Basin.

[2] As the Great Salt Lake Dries Up, Utah Faces An 'Environmental Nuclear Bomb' - The New York Times (nytimes.com)

Provo River Flow Restoration

For over one hundred years, flows from the Provo River have been diverted out of the river at Olmstead Diversion Dam for hydropower generation (Figure 7). As a result, in-river flows were reduced for a stretch of approximately five miles along the river, with very significant low flow impacts occurring in the most downstream 1.2-mile portion. During periods of high irrigation demand, river flows had dropped below five cubic feet per second (cfs), resulting in warmer water and reduced oxygen levels, which can be fatal to wild brown and rainbow trout populations in this popular fishery.

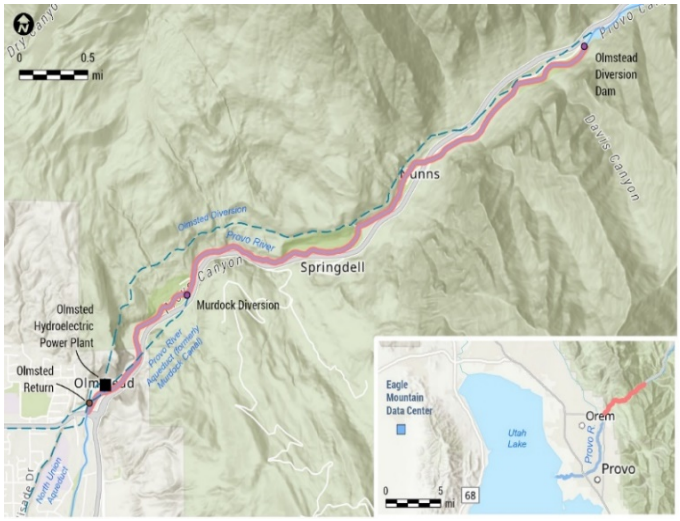


Figure 7. Project location: Provo River Flow Restoration

- **Challenge**: Seasonal flow depletion impacting aquatic habitat and recreation
- **Outcome**: Restored flows in a dewatered reach, improving fisheries and catalyzing increased investment and restored flows.
- **Volumetric Water Benefit:** 415.8 MGY reduced withdrawal
- **Additional Benefits:** Improved water quality, recreational benefits, habitat creation for species of interest
- **SDG Goal**: 6.6

Meta was the initial funder of this collaborative project to increase flows in the lower Provo River, paying Central Utah Water Conservancy District for foregone revenue to ensure 7.15 cfs remain in the river during the hottest months of the year for a 10-year period begun in 2020. Figure 8 shows the project reach before and after this project was implemented. This project has received widespread support from NGOs, as well as federal and state agencies, and has piqued the interest of others. The initial investment from Meta has since been leveraged to raise significant additional funds that ensure 20 cfs remains in the river from April 15 to October 15 each year through 2029. These flows will be measured and dedicated to support instream flow in the project reach.

Figure 8. Provo River before and after flow restoration. Photo Credit: Trout Unlimited

Hobble Creek Flow Restoration

The June sucker is a fish found in Utah Lake and the lower reaches of its tributaries. The June Sucker Recovery Implementation Program (JSIP) is a multi-agency effort designed to coordinate and implement recovery activities for the threatened species. JSIP has identified Hobble Creek, a tributary of Utah Lake, as a priority for June sucker restoration (Figure 9).

- **Challenge**: Irrigation diversion depleting flows and impacting aquatic habitat for a species of interest
- **Outcome**: Enhance flows below a modernized irrigation diversion, which will improve habitat conditions for a species of interest
- **Volumetric Water Benefit:** 467.4 MGY improved flow regime
- **Additional Benefits:** Improved aquatic habitat availability and quality, improve aquatic habitat connectivity
- **SDG Goal**: 6.6

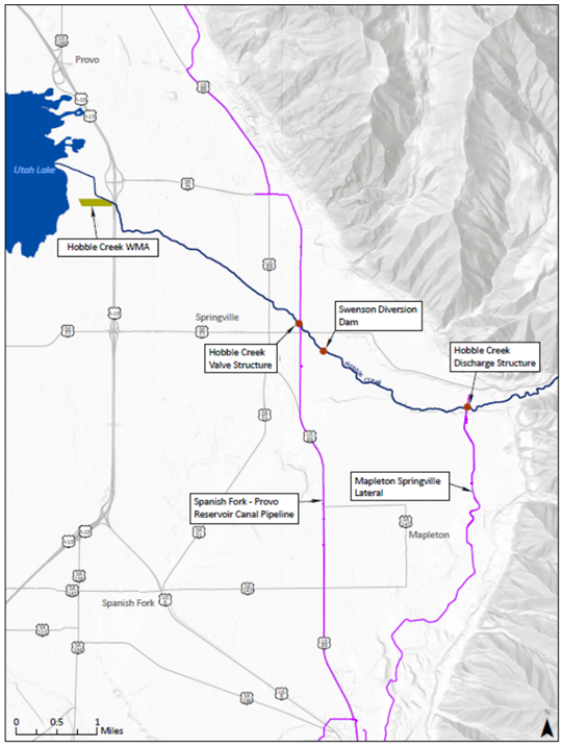


Figure 9. Project location: Hobble Creek Flow Restoration. Source: CUWCD

The Swenson Diversion Dam (Figure 10) was designed to divert the entire flow of Hobble Creek for irrigation, which has historically resulted in a reach of dry stream below the diversion for most of the irrigation season. Water managers were supplementing flows in the creek through the Hobble Creek Valve Structure, which was critical to encouraging spawning and maintaining a suitable reach habitat for the June sucker. Unfortunately, the ability to deliver water at the Hobble Creek Valve Structure was in jeopardy due to competing water demands.

Figure 10. The Swenson Diversion Dam, looking upstream, prior to replacement. Photo Credit: CUWCD

This project modernized an irrigation diversion in Hobble Creek by replacing the existing Swenson Diversion Dam with a new diversion that allows for enhancement of flows in Hobble Creek and improves habitat conditions for the June sucker fish.

Anticipated Future Benefits: Eagle Mountain Wastewater Reuse

The City of Eagle Mountain is at risk of future water scarcity because of limited precipitation, increasing water demand due to rapid population growth, and its location in a hydrologically closed watershed. This project involved construction of infrastructure to treat and reuse wastewater effluent from Meta's data center to irrigate a city park using drip irrigation. The reuse of treated wastewater effluent will reduce the volume of freshwater withdrawn for irrigation.

After use in the data center's evaporative cooling system, wastewater is transported to Cory Wride Memorial Park. The infrastructure constructed for the project includes two new reservoirs with a total capacity of 50 million gallons, a pump station with five pumps to facilitate water transport, and 19,500 feet of PVC conveyance pipe. Project construction was completed in 2021. Due to required operational updates, this project is expected to start generating volumetric water benefits in the coming years. Monitoring and maintenance are handled by the City. The volumetric benefit will be based on the volume of reused wastewater provided to the City each year by Meta's Eagle Mountain data center for irrigation.

San Francisco Bay | Santa Clara Data Center & Bay Area Offices

The San Francisco Bay Watershed, within which the Santa Clara Data Center and Bay Area Offices are located, extends across central California. High and growing demand from domestic, commercial, and industrial water users has contributed to water stress in the basin. Intensifying aridity in the region has further heightened water stress, as has the extreme drought and resultant groundwater table decline. These stressors, and the governance decisions being made to curtail water rights of certain users, contribute to high water risk in this region. Meta has funded the California Wildfire Reforestation project within the San Francisco Bay Watershed (Figure 11), providing a volumetric benefit of 37.3 MGY in 2023.

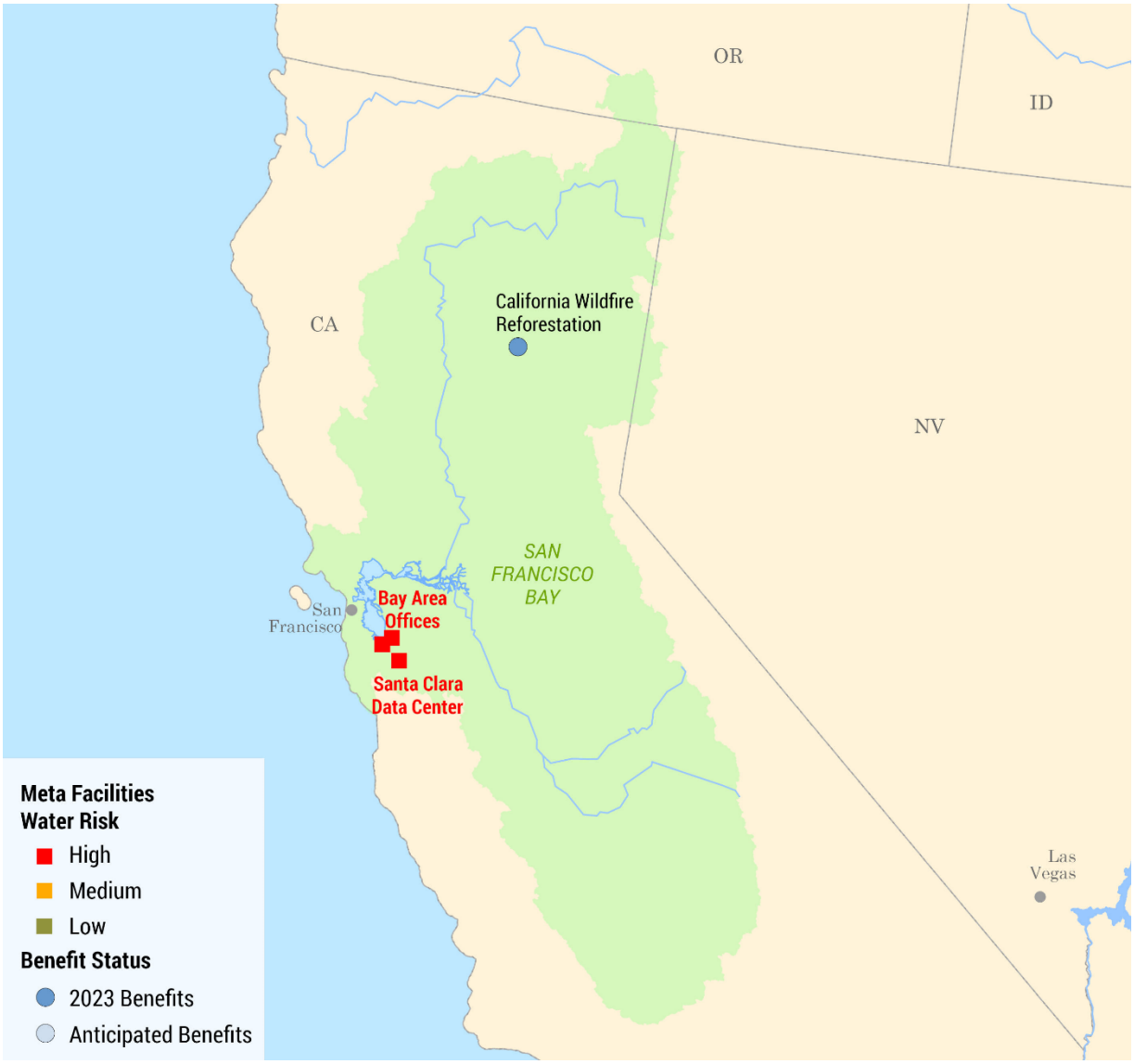


Figure 11. Project locations within the San Francisco Bay Delta.

California Wildfire Reforestation

In 2018, over 1.8 million acres of California forestland were burned by wildfires. To restore these areas, the Arbor Day Foundation and American Forest Foundation planted two million trees on 8,000 acres, focusing on large swaths of private lands, which are often omitted from governmental revitalization efforts.

- **Challenge**: Fire impacts and altered hydrology
- **Outcome**: Reforested 280 acres of forest to restore hydrologic function
- **Volumetric Water Benefit**: 37.3 MGY reduced runoff
- **Additional Benefits**: Habitat restoration, improved water quality
- **SDG Goal**: 6.6

Figure 12. Project area before reforestation (left) and anticipated future condition (right). Photo credit: Arbor Day Foundation

In 2020, Meta supported the planting of 70,000 trees on 280 acres of the Sacramento River Watershed, within the larger project area. Species planted included Ponderosa pine, Douglas fir, Sugar pine and Incense cedar (Figure 12). This restoration of vegetative cover on burned lands reduces runoff and erosion and restores habitat lost due to wildfires; these efforts are anticipated to provide volumetric benefits through 2027.

Rio Grande | Los Lunas Data Center

The Rio Grande Basin, within which the Los Lunas Data Center is located, is situated in the Southwestern United States and along the US- Mexico border. The basin covers most of New Mexico and portions of Colorado, Texas, and Mexico. Water risk in the watershed arises from high baseline water stress and scarcity, groundwater depletion, and annual and seasonal variability in available water supply. High volumes of withdrawals and diversions, combined with increasing aridity, result in minimal or non-existent flows in the downstream regions of the river. These stressors contribute to a high water risk in this region. Meta has funded six projects that together provided a volumetric benefit of 136.4 MGY in the Rio Grande Basin in 2023: the Comanche Creek Restoration, Restoration of La Jara Wetland, the Cedro Creek Restoration, the Middle Rio Grande Flow Restoration, and the Harvey Jones Bioswale Demonstration Project, and the Rito Peñas Negras Restoration project (Figure 13).

Figure 13. Project locations within the Rio Grande Basin.

Comanche Creek Restoration

Comanche Creek is a high elevation tributary to the Rio Costilla and Upper Rio Grande located in Carson National Forest, upstream of the Los Lunas data center. High elevation perennial streams in the area provide important habitat for Rio Grande cutthroat trout and support large areas of organic wetlands (fens), which are rare across the southwest.

- **Challenge**: Wetland loss, floodplain disconnection and lowered groundwater table
- **Outcome**: Restored 24 acres of off-channel floodplain wetland habitat
- **Volumetric Water Benefit**: 7.9 MGY increased storage
- **Additional Benefits**: Habitat restoration, reversed groundwater losses, improved water quality
- **SDG Goal**: 6.6

Figure 14. Project area before restoration (left) and after restoration (middle (2018) and right (2019)). Photo credits: Craig Sponholtz, Watershed Artisans, Inc. (left and middle photos). T. Mitchell, Trout Unlimited, 2019 (right photo)

Past logging, road building, mining, and heavy grazing activities have caused stream channel incision, wetland loss, and floodplain disconnection within the Comanche Creek watershed. As a result, wetland water storage and flows to Comanche Creek have been reduced, the groundwater table has dropped, and wet meadow vegetation has converted to dryland and shrub vegetation. A combination of instream and bank restoration activities were identified and carried out by Trout Unlimited and the National Forest Foundation to address channel incision, reconnect Comanche Creek to its floodplain, and recharge floodplain wetlands. As a result of this project, 24 acres of off-channel floodplain wetlands were restored (Figure 14). Additionally, Trout Unlimited reports that the water table in this area has been raised between 12 and 18 inches in coordination with this project. The restoration activities are expected to provide improved habitat quality for fish and wildlife, increased off-channel wetland habitat for plant communities, reversed groundwater losses, and improved water quality. Completed in 2018, this project is anticipated to provide volumetric benefits through 2028.

Restoration of La Jara Wetland

La Jara Wetland is located within the Carson National Forest and is degraded due to historic and current land management activities including livestock grazing, forestry (and associated fire suppression), road drainage, and recent prolonged drought cycles.

In partnership with The Nature Conservancy, Amigos Bravos, and Watershed Artisans, high priority erosion areas were identified for headcut repair along the Rio Fernando de Taos and three tributary valleys. Completed in 2019, this project restored 12.7 acres of off-channel wetland habitat by stabilizing eroding headcuts with rock rundowns, controlling channel grade with one-rock dams, and increasing floodplain connectivity with sheet flow spreaders (Figure 15). These activities increase groundwater storage, supports increased summer baseflow in Rio Fernando de Taos, and improves water quality. Volumetric benefits from this project are anticipated to continue through 2029.

- **Challenge**: Channelization and headcuts causing loss of hydrologic connectivity & function
- **Outcome**: Restored 12.7 acres of off-channel wetland habitat, reduced erosion, increased floodplain connectivity and groundwater storage
- **Volumetric Water Benefit**: 3.0 MGY increased storage
- **Additional Benefits**: Habitat restoration, reduced erosion, increased groundwater storage
- **SDG Goal**: 6.6

Figure 15. Left: Lower project area restoration structures (3 visible in photo). Right: Headcut repair and erosion control at project site. Photo credit: Rachel Conn, Amigos Bravos, 2019.

Cedro Creek Restoration

Cedro Creek is located within the Cibola National Forest upstream of the Los Lunas data center (Figure 16), in an area that has been severely impacted by improper road and trail alignment, historic logging and grazing, and wildfire suppression.

- **Challenge**: Channel erosion causing drying riparian zone
- **Outcome**: Reconnected floodplain, increased baseflow duration, reduced erosion, and increased riparian vegetation
- **Volumetric Water Benefit:** 19.5 MGY increased infiltration
- **Additional benefits:** improved water quality, increase in native biodiversity, improved baseflow
- **SDG Goal:** 6.6

Figure 16. Project Location: Cedro Creek Restoration

Cedro Creek and its tributaries have become highly eroded and incised (Figure 17). Channelization has increased runoff volume and velocity and has reduced infiltration and storage. In partnership with The Nature Conservancy, the Rocky Mountain Youth Corps, and Stream Dynamics, zuni bowls, rock rundowns, one-rock dams, and diversion dams were implemented at approximately 70 degraded locations to increase soil moisture along the stream corridor and decrease wildfire risk in the Cedro Creek headwaters. As a result of this project, streambank erosion and down-cutting were addressed, increasing infiltration, reducing sediment loading, and improving water quality. Native woody plants, grasses, and forbs benefit from increased soil moisture and improve biodiversity. Additionally, increased infiltration is expected to increase the baseflow duration in Cedro Creek. Volumetric benefits from this project are anticipated to continue through 2029.

Figure 17. Bank erosion (left), structure installation (center), and installed structures (right). Photo credit: Rocky Mountain Youth Corps/Stream Dynamics, 2019

Middle Rio Grande Flow Restoration

Flow depletion in the Middle Rio Grande is a chronic issue with important cultural, water quality, and wildlife implications. The river corridor provides crucial habitat for migratory, wintering, and nesting birds. Isleta Reach is a 42-mile portion of the Middle Rio Grande downstream of Albuquerque (Figure 18). Irrigation withdrawals contribute to persistent low flows and intermittent drying, depriving cottonwoods, wetlands, birds, fish, and other wildlife of the water they need to survive.

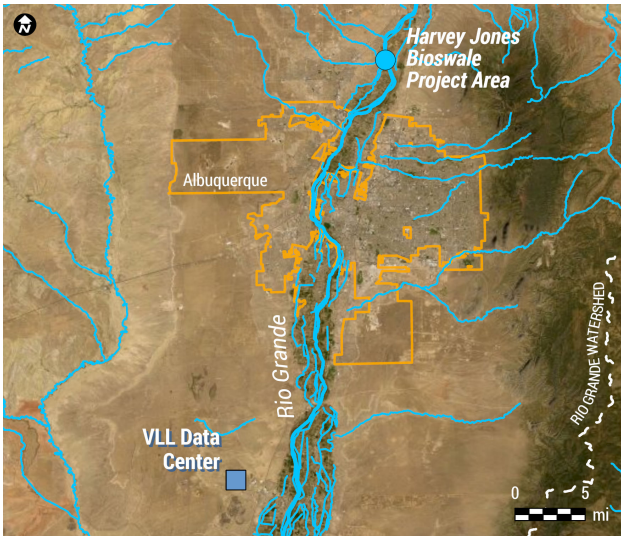
- **Challenge**: Chronic flow depletion impacting aquatic and riparian habitat
- **Outcome**: Restored flows in a dewatered reach, improving fish and wildlife habitat
- **Volumetric Water Benefit:** 81.5 MGY reduced withdrawal
- **Additional benefits:** increased habitat provision for fish, birds, and wildlife,
- **SDG Goal:** 6.6

Figure 18. Project location: Middle Rio Grande Flow Restoration

Endangered species like the Rio Grande Silvery Minnow and Southwestern Willow Flycatcher remain imperiled in this area, and work to restore flow to the river and improve critical riparian habitat is a focus for many groups across the region. In 2023, this project leased a total of 250 acre-feet of water (81,462,735 gallons) from the City of Bernalillo which was delivered to key wetland and channel areas in the Isleta Reach of the Rio Grande that lack adequate water supply to support riparian, in-channel, and environmental function. This project will continue to deliver 250 acre-feet of water to these key wetland and channel areas through the end of 2027. This 8-year flow restoration project is the first long-term commitment to lease water for environmental flows in the Rio Grande. Observations in 2020 by project partner Audubon New Mexico identified a total of 75 bird species at three monitored locations in the project area.

Harvey Jones Bioswale Demonstration

The Nature Conservancy and the Southern Sandoval County Arroyo Flood Control Authority partnered to develop a bioswale in Rio Rancho, New Mexico, upstream of the Los Lunas data center (Figure 19). This green stormwater treatment feature captures and infiltrates stormwater runoff from the Montoya watershed, filtering sediments, toxins, and nutrients from the stormwater before it is infiltrated or released to the Rio Grande (Figure 20). The capture and slow infiltration or release of stormwater supports fish and wildlife through creation of wetland habitat. A system of trails allows recreational access and viewing of the newly created habitat.



- **Challenge**: Water quality degradation due to stormwater runoff
- **Outcome**: Stormwater runoff is captured and filtered by the bioswale before discharging to the Rio Grande
- **Volumetric Water Benefit:** 0.6 MGY volume captured
- **Additional benefits:** increased groundwater recharge, improved water quality, improved habitat, increase in native plant species
- **SDG Goal:** 6.6

Figure 19. Project location: Harvey Jones Bioswale

The bioswale has been completed and a grand opening took place in 2022. The project is expected to generate volumetric water benefits through the end of 2031.

Figure 20. Project area before the bioswale in April 2020 (left) and after in August 2022.

Rito Peñas Negras Restoration

Rito Peñas Negras is a headwater tributary of the Jemez River in the Upper Rio Grande basin. Historic grazing practices, an extensive road system, past timber harvest, and dispersed recreational practices within the floodplain have destabilized the stream banks, widened the stream channel, and reduced riparian vegetation, leading to increased temperatures and sediment loads within the stream. These changes have been detrimental to the resident populations of Rio Grande Cutthroat Trout and other aquatic organisms.

This project, implemented by the National Forest Foundation, installed 250 Beaver Dam Analogs (BDAs) along 3.43 miles of the stream to reconnect the stream to its floodplain (Figure 21). Wherever possible BDAs were constructed within existing exclosures that are intact and functioning well, to prevent grazing impacts. Additional perimeter fencing was included as part of this project to limit cattle access into the valley and further reduce grazing impacts. In addition to restoring and creating in-stream and wetland habitat, this project increases groundwater recharge by slowing and spreading the flow of the stream. The BDAs may also help attract beavers back to this area after riparian vegetation has been re-established.

- **Challenge**: Water quality degradation due to destabilized stream banks, widened stream channel, and reduced riparian vegetation.
- **Outcome**: Reconnected stream floodplain that will restore in-stream and wetland habitat and increase groundwater recharge
- **Volumetric Water Benefit:** 23.8 MGY increased recharge
- **Additional benefits:** improved aquatic habitat availability and quality, improved flow regime
- **SDG Goal:** 6.6

Figure 21. Images showing work completed by 2023. Image (left): BDA installation, with exclusion fencing at top of slope; Image (right): An installed BDA, demonstrating the additional ponded area behind BDAs

Colorado River | Mesa Data Center

The Colorado River Basin, within which the Mesa Data Center is located, encompasses parts of the Southwestern United States and the US-Mexico border. The basin covers all of Arizona and portions of California, Nevada, Utah, Wyoming, Colorado, New Mexico, and Mexico. The basin has been experiencing historic and extended drought conditions since 2000. These drought conditions, in combination with the increasing aridity and high water demand of the region, have led to the depletion of regional reservoirs, Lake Mead and Lake Powell, to historic and concerning low levels. These current conditions, and the prospect of further increases in the magnitude and frequency of drought in the basin from climate change, contribute to a high water risk in this region. Meta has funded six projects within the Colorado River Basin that provided 389.6 MGY of volumetric benefits in 2023: the Colorado River Indian Tribes (CRIT) System Conservation project, the Navajo Community Water Supply project, Mason Lane Ditch Piping, CRIT Irrigation Canal Lining Project, the Green River Demand Management and Resilience Project, and the Jicarilla Apache Nation Water Sharing Agreement. Four additional projects that are expected to provide future volumetric benefits for the Colorado River Basin have also been funded: the Phoenix Hospital Cooling & Conservation Project, the CRIT Drip Irrigation/Crop conversion Project, the CRIT Drip Irrigation Project, and the Navajo Community Water Supply Project Phase 2 (Figure 22).

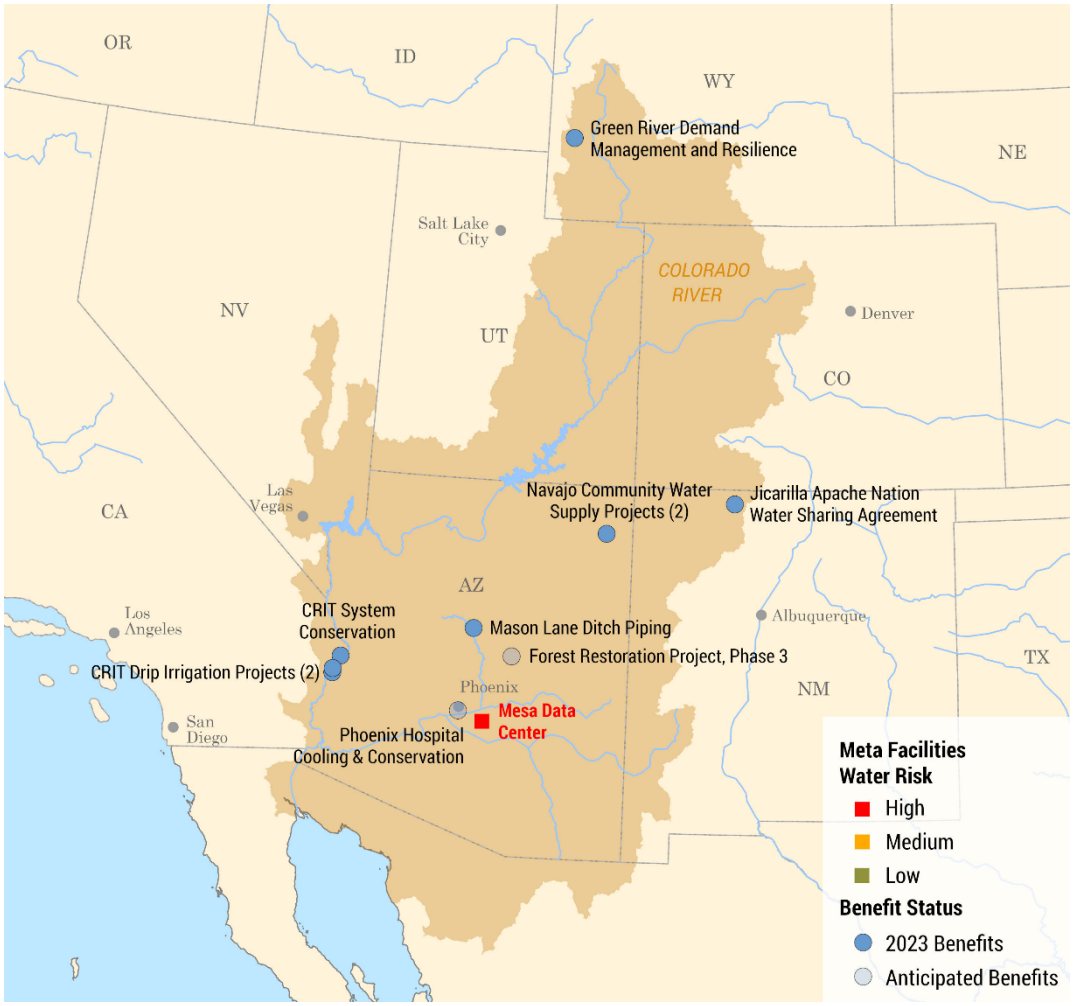


Figure 22. Project locations within the Colorado River Basin.

Colorado River Indian Tribes System Conservation

With the Colorado River experiencing long-term drought conditions, reservoir levels in Lake Mead have reached unprecedentedly low levels, negatively affecting water security for Colorado River water users. In response, representatives of the Department of the Interior, Bureau of Reclamation, all seven Colorado River Basin states, and Mexico agreed to the Drought Contingency Plan (DCP) in May of 2019. The plan is designed to reduce risks from ongoing drought by promoting conservation, reducing demand, and stabilizing water levels. As a part of this plan, water rights held by CRIT were leased for Lake Mead and Lake Powell system conservation (Figure 23).

- **Challenge**: Declining levels in Lake Mead due to drought and extraction
- **Outcome**: Cumulative restoration of 150,000 acre-feet of water to Lake Mead
- **Volumetric Water Benefit:** 25.5 MGY reduced withdrawal
- **Additional benefits:** Improved water security, funding for irrigation infrastructure improvements
- **SDG Goals:** 6.6, 6.b

Figure 23. Location of the CRIT reservation and surrounding area.

Rights for up to 150,000 acre-feet of water were leased from the CRIT through collaborative funding efforts, with Meta providing funding to lease 785 acre-feet of water over the next 10 years. The CRIT have pledged to forgo irrigation water deliveries and fallow approximately 10,000 acres of farmland from some of their least profitable and least efficiently irrigated areas, leaving 50,000 acre-feet per year in Lake Mead for the period 2020-2022. This agreement allows up to 150,000 acre-feet of water to accrue in Lake Mead and provides funding that the CRIT may use to modernize irrigation infrastructure. This project plays a key role in helping Arizona comply with its system conservation requirements for DCP implementation and large-scale conservation, and the retained volume of water reduces the severity of water curtailment.

Navajo Community Water Supply

The Navajo Nation is the largest contiguous Native American reservation in the continental United States, with approximately 174,000 residents. Approximately one third of the population in the Navajo Nation does not have running water in their homes; instead, households pay for and haul water at a price approximately 70 times the rate of typical urban water users. Project partner Dig Deep responded to the need for accessible and affordable water during the COVID-19 pandemic by installing temporary water systems. With funding from Meta, they have transitioned to providing permanent water systems for Navajo families, installing water tanks and infrastructure that supply families with in-home running water sourced from sustainable groundwater supplies in Dilkon, Arizona (Figure 24).

- **Challenge**: Navajo families lack access to water
- **Outcome**: Permanent drinking water supply to households in Navajo Nation
- **Volumetric Water Benefit:** 0.07 MGY volume provided
- **Additional benefits:** Improved water security
- **SDG Goals:** 6.1, 6.b

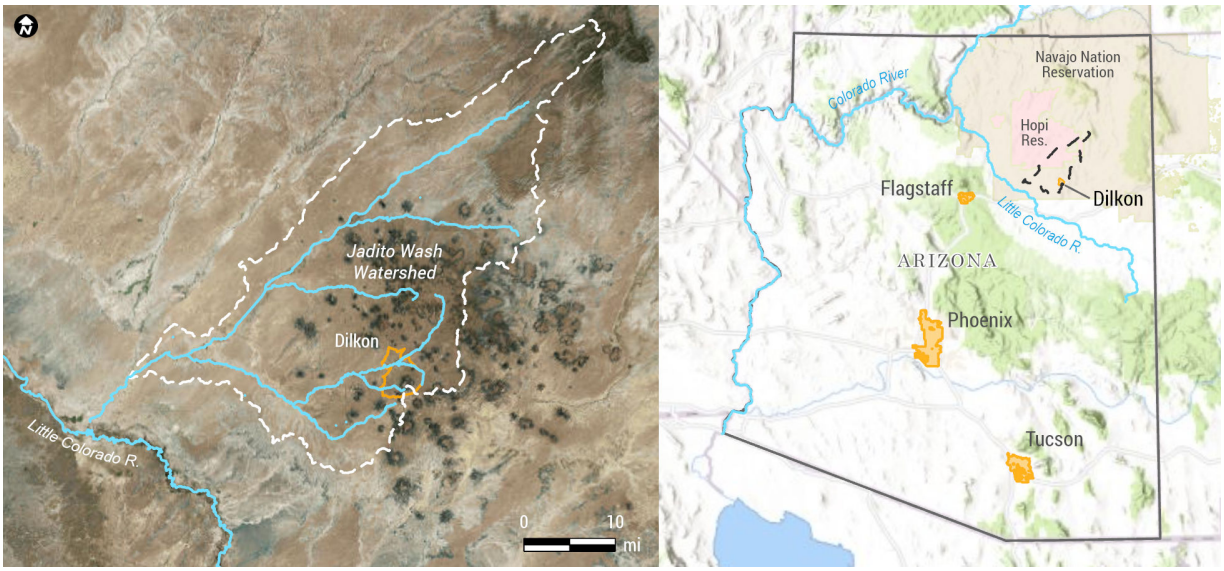


Figure 24. Location of the Navajo Community Water Supply project

The project installed five water systems that cumulatively provided 0.07 MGY (72,000 gallons/year) in 2023 to households in the Navajo Nation. Each system includes a 1,200-gallon polyethylene water tank, indoor plumbing, power connections to provide running water, and recurring water delivery to refill the water tank. The systems are expected to provide drinking water for at least the next 10 years, with volumetric water benefits through the end of 2031.

CRIT Irrigation Canal Lining Project

In addition to the CRIT System Conservation project introduced previously, the Colorado River Indian Tribes have partnered with BEF, the Bureau of Indian Affairs, the Bureau of Reclamation, and private sector funders including Meta to further combat the water shortage conditions confronting the Lower Colorado River Basin.

The CRIT are keenly aware of water shortage conditions in the Lower Colorado River Basin. To forestall irrigation system water shortages, improvements have been made to irrigation infrastructure to reduce seepage lost in conveyance (Figure 25). Multiple irrigation infrastructure rehabilitation needs were identified as first priority for improvements to improve system functionality. This project lines an earthen sublateral canal 73-19L-1 which was determined to have the highest leakage rate. This allows for decreased withdrawal volumes.

- **Challenge**: Water shortage conditions in the Lower Colorado River Basin
- **Outcome**: Reduced water conveyance loss and reduce demand at the point of diversion
- **Volumetric Water Benefit:** 42.7 MGY reduced withdrawal
- **Additional benefits:** Improved water security, improved flow regime and aquatic habitat quality, improved climate adaptation and mitigation
- **SDG Goals:** 6.6, 6.b

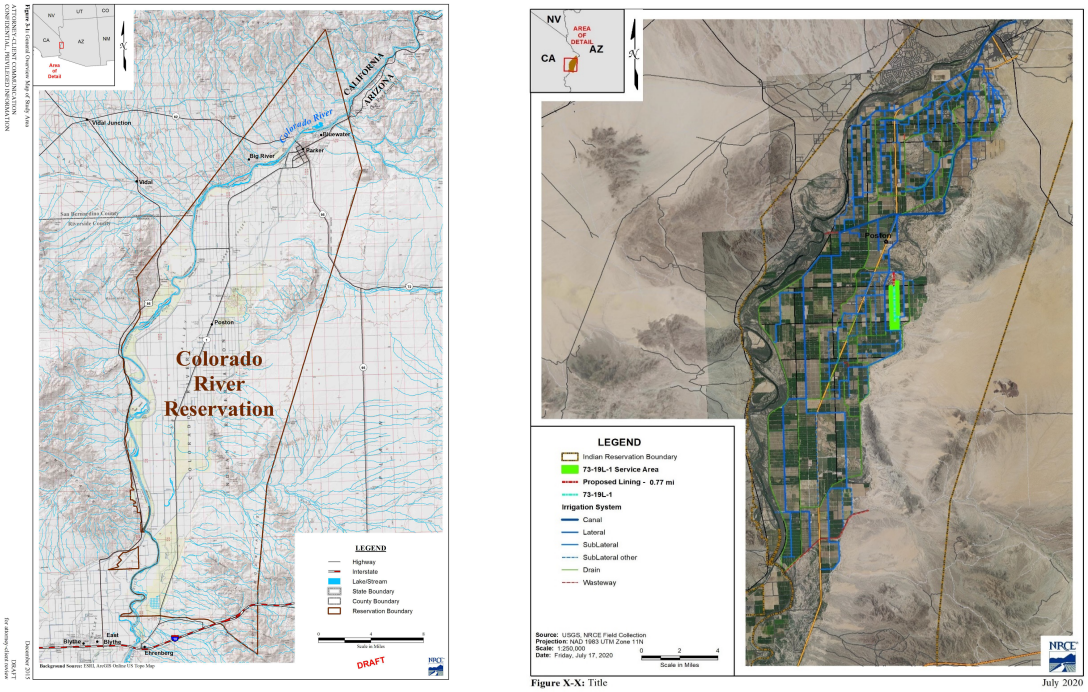


Figure 25. Colorado River Reservation (right), canal service area and location of proposed canal lining

Green River Demand Management and Resilience Project

In response to the increasing stress on the water supply of the Colorado River, this project seeks to address both the demand and supply pressures that contribute to the strain on shared water resources. The Green River Demand Management and Resilience Project is part of a large-scale pilot effort to develop projects and strategies that can free up additional water for federal reservoirs, shore up water supply for Arizona and Nevada, and simultaneously implement nature-based solutions that can achieve long-term environmental benefits to mitigate climate change impacts. A partnership between Trout Unlimited and ranchers in the Green River watershed have implemented demand management projects, such as fallowing of irrigated agricultural lands, to allow water to remain instream. Nature-based solutions were used to improve hydrologic function, infiltration, and habitat, with the construction of Beaver Dam Analogs (BDAs) reconnecting the river to its floodplain.

- **Challenge**: Water shortage conditions in the Colorado River Basin
- **Outcome**: Demonstrate an integrated land and water management approach to conserve water
- **Volumetric Water Benefit:** 27.7 MGY increase recharge and reduced withdrawal
- **Additional benefits:** Improved flow regime, improved surface water quality, improved climate adaptation and mitigation, and improved aquatic habitat quality
- **SDG Goals:** 6.6

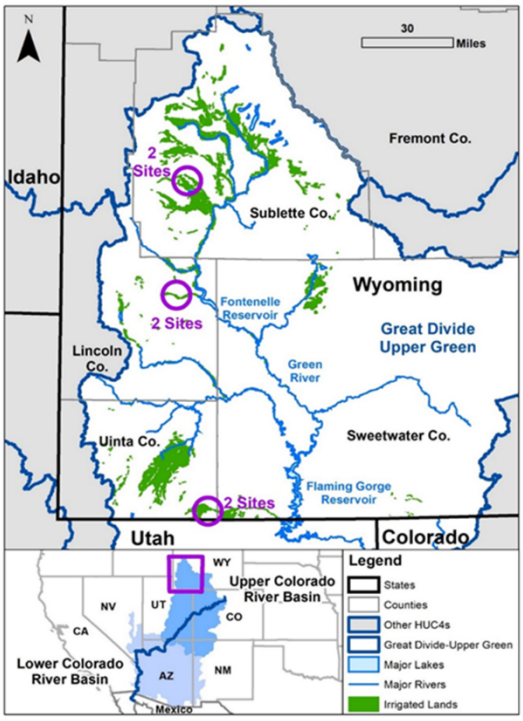


Figure 26. Location of the Upper Green River Basin, WY fallowing agreements (Provided by Trout Unlimited)

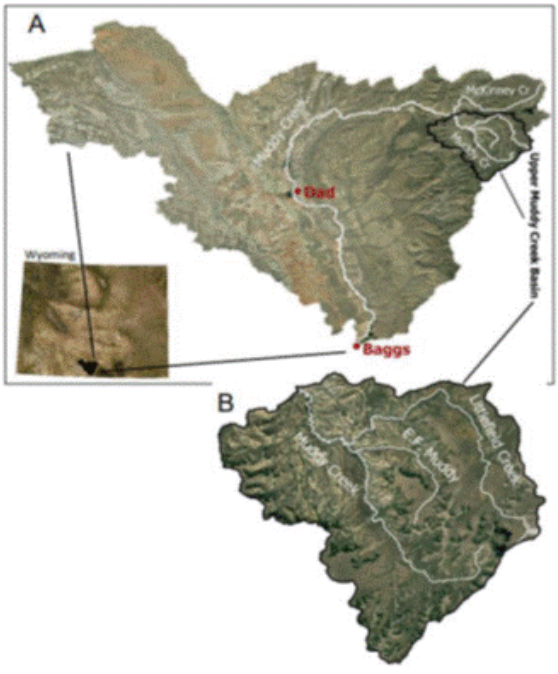


Figure 27. Location of Muddy Creek basin, (where BDA are installed), and relative location in Wyoming (Provided by Trout Unlimited)

Jicarilla Apache Nation Water Sharing Agreement

- **Challenge**: Critical drought and water shortages in Colorado River Basin
- **Outcome**: Increased flows in the San Juan River
- **Volumetric Water Benefit:** 114.0 MGY reduced withdrawal
- **Additional benefits:** Improved flow regime, improved aquatic habitat quality, improved climate adaptation and mitigation, and improved livelihood opportunities
- **SDG Goals:** 6.6

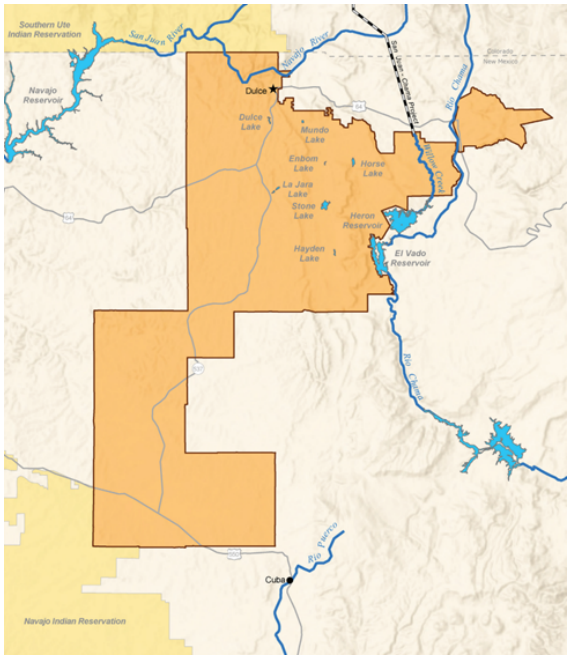


Figure 28. Jicarilla Apache Nation Indian Reservation is shown in orange. Source: Ten Tribes Partnership (2018).

The Jicarilla Apache Nation (the Nation, Figure 28) has more than 45,000 acre-feet of settled water rights in the San Juan River Basin, which are presently used for cultural practices, domestic supply, economic development, environmental, and other purposes. The Nation has a right to use up to 33,500 acre-feet per year from Navajo Reservoir, and this water has historically been used for economic development. For the last several decades, the Nation leased its Navajo Reservoir water to coal-fired power plants that are now facing closure. This transition presented a new opportunity for the Nation, the New Mexico Interstate Stream Commission, and The Nature Conservancy to work together. The partners collaborated to design a new innovative water-sharing agreement that allows the state to lease up to 20,000 acre-feet of water per year (for 10 years) from the Nation to benefit threatened and endangered fish and increase water security for New Mexico. Water leased under this agreement will be used in New Mexico's Strategic Water Reserve and released from Navajo Reservoir to increase flows in the San Juan River. The water leasing agreement bolsters flow in the San Juan River, and is expected to buffer against future cutbacks to Rio Grande water supplies (e.g., Albuquerque and Santa Fe) from the San Juan-Chama Project. Increased flows in the San Juan River are expected to provide ecological benefits for threatened, endangered, and sensitive fish species.

Mason Lane Ditch Piping

- **Challenge**: Critical drought and water shortages in the American southwest
- **Outcome**: Reduced transmission losses from Mason Lane Ditch
- **Volumetric Water Benefit:** 179.6 MGY reduced withdrawal
- **Additional benefits:** Improved flow regime, improved aquatic habitat quality, and improved climate adaptation and mitigation
- **SDG Goals:** 6.6

Oak Creek, one of the few remaining perennial streams in Northern Arizona, is a tributary of the Verde River. It runs through high desert canyons and the famous red rocks of Sedona before joining the Verde River. Oak Creek provides recreation and supports a vibrant ecosystem of mammals, birds, and aquatic species, including the endangered Gila Chub and Gila Topminnow.

Along Oak Creek, 19 separate ditches divert irrigation water to residents, including farmers and small properties. Although the ditches are important contributors to the local economy, most of them are around 150 years old and there is limited capital to invest in infrastructure upgrades to meet the needs of water users and aquatic habitat. Mason Lane Ditch (Figure 29), which diverts approximately half the flow of Oak Creek in the dry summer months, provides water to 77 water users and 223 acres of irrigated land along its five-mile path.

The soils under Mason Lane Ditch are extremely porous, which has resulted in severe leakage and seepage of water from the canal. These volumetric losses during conveyance threaten the ability of the diverted supply to meet agricultural water needs. This project installs a pipe for a mile-long section of the Mason Lane Ditch to reduce both transmission losses and the total volume of water diverted from Oak Creek. The project was completed in partnership with The Nature Conservancy and the Mason Lane Water Users Association.

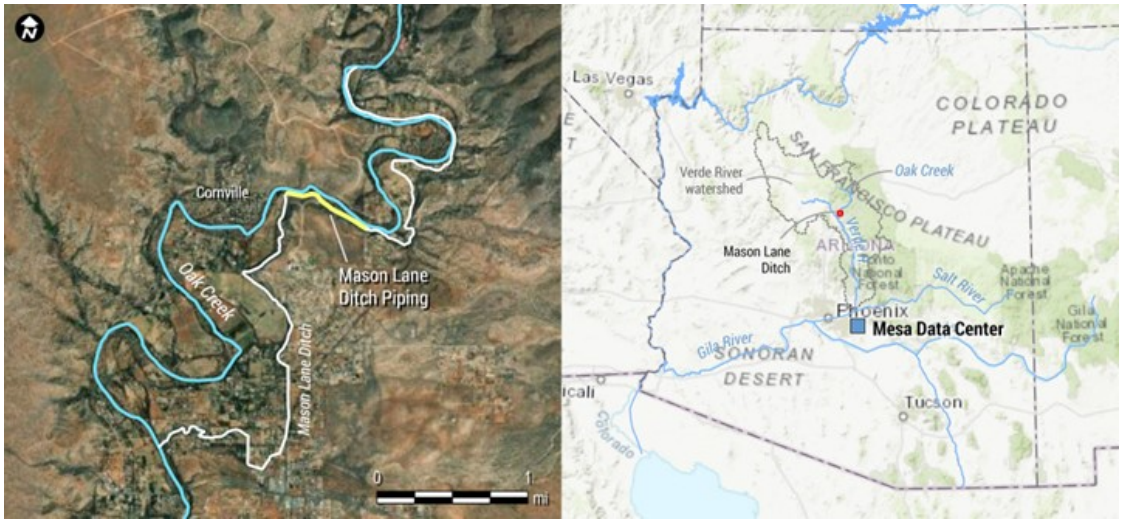


Figure 29. Approximate project location of the Mason Lane Ditch Piping Project

Anticipated Future Benefits: CRIT Drip Irrigation

The Colorado River Indian Tribes (CRIT) have territory that stretches along 56 miles of lower Colorado River lands with the majority of their reservation located in Arizona. Following the decision of *Arizona v. California*, the CRIT is entitled to the diversion of 719,248 acre-feet of water annually to supply consumptive irrigation uses. With funding support from Meta in 2022, this project will install precision drip irrigation on CRIT agricultural lands, replacing antiquated irrigation systems with more efficient equipment. The project is expected to reduce consumptive water use for irrigation starting in the coming years.

Anticipated Future Benefits: Phoenix Hospital Cooling & Conservation

The City of Phoenix is the third largest municipal water supplier in the United States, supporting nearly 1.7 million people within a 540 square-mile service area. As a desert city that relies primarily on surface water for nearly all of its total supply through the Colorado and Salt River systems, the city faces unique water supply risks that have driven it to make large-scale investments in its water portfolio and increase its focus on water conservation. The widespread use of dated wet-cooling systems in large commercial and industrial buildings provides a key opportunity for scaled water conservation. This project will implement and construct water softening and chemical treatment retrofits, media replacement, and plumbing system upgrades in existing wet cooling tower applications within large hospitals in the Phoenix metro area to reduce chemical use and hard water demand in hospitals. Project activities are anticipated to begin providing volumetric benefits in the coming years.

Anticipated Future Benefits: Navajo Community Water Supply Project Phase 2

This project will build off work completed as part of the Navajo Community Water Supply Project, described previously. This project will install additional permanent water systems to supply groundwater for household use in Navajo Nation in the coming years.

Anticipated Future Benefits: CRIT Drip Irrigation/Crop Conversion

This project, with funding support from Meta in 2023, will continue installation of precision drip irrigation on CRIT agricultural lands, as described previously. This project will also convert agricultural lands to less water consumptive crops. It is expected to reduce consumptive water use for irrigation starting in the coming years.

Texas – Gulf Region | Forth Worth Data Center

The Texas-Gulf Region, within which the Fort Worth Data Center is located, covers most of Texas and portions of New Mexico and Louisiana. Water risk in the watershed arises from high drought risk and baseline water stress. These concerns contribute to a medium water risk for this region. Meta has funded one project within the Gulf Coast Basin that has provided 74.4 MGY of volumetric benefits in 2023: Restoring and Enhancing Richland Creek Wildlife Management Area. Meta has also funded two projects: Wildcat Marsh Project and Longleaf Pine Restoration Project, which are expected to generate volumetric benefits in the coming years (Figure 30).

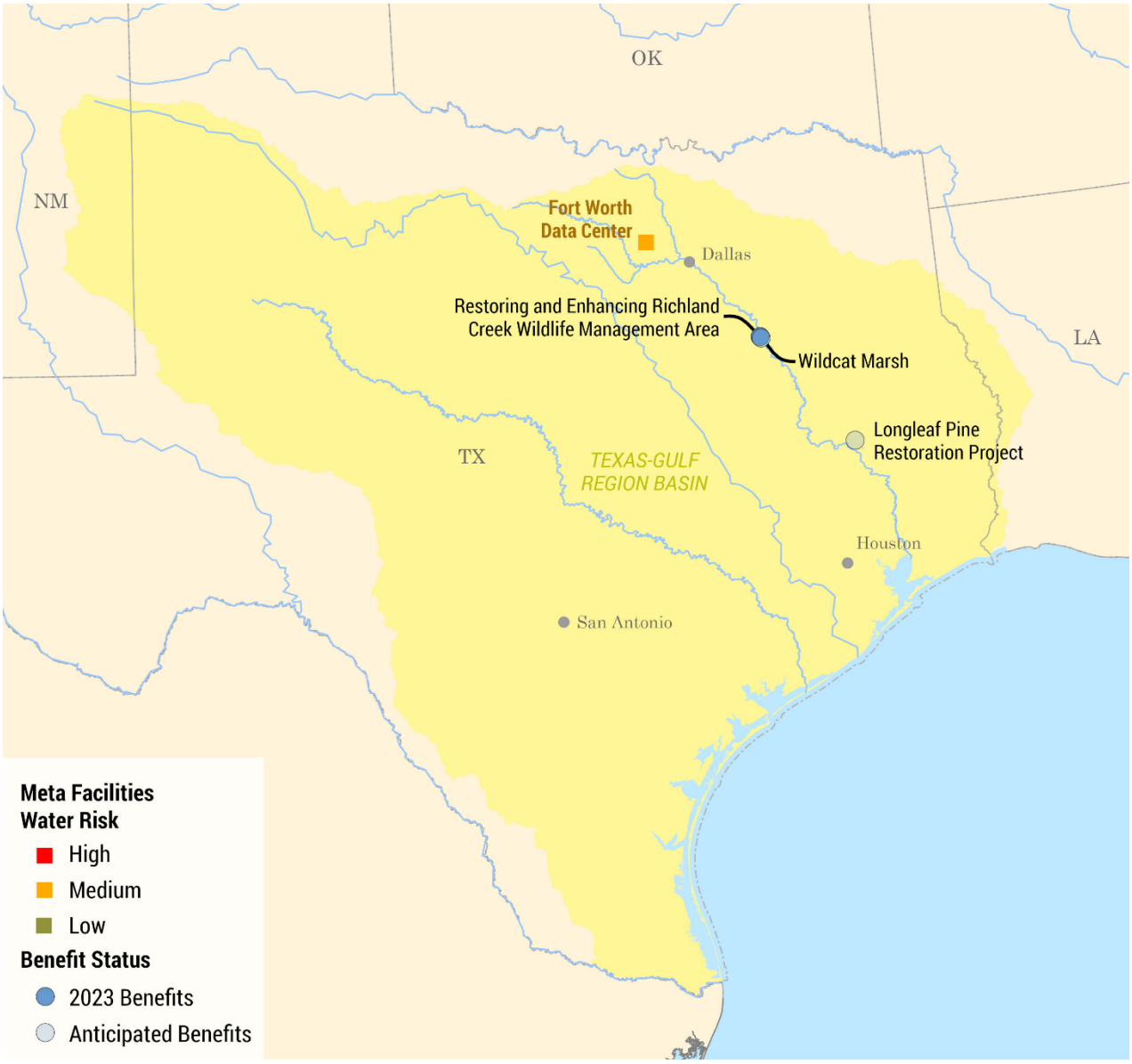


Figure 30. Project locations within the Gulf Coast Basin

Restoring and Enhancing Richland Creek Wildlife Management Area

The Richland Wildlife Management Area (WMA) is a 13,783-acre site consisting of bottomland forests, previously-cleared agricultural lands and riparian forests along the Trinity River. The Texas Parks and Wildlife Department (TPWD), which is responsible for managing the WMA, has worked in association with the Tarrant Regional Water District, responsible for meeting the growing water supply needs of the Dallas-Fort Worth region, to develop an extensive wetland treatment system on the WMA. Raw water from the Trinity River is pumped into sedimentation basins, then flows through the wetlands to reduce its sediment and nutrient contents before being pumped into the Richland Chambers Reservoir, from which water is supplied to municipal and industrial users in the Dallas-Fort Worth area. This system benefits wildlife through habitat creation and improves the quality of water in the reservoir that is delivered to municipal and industrial water users in Dallas Fort-Worth.

- **Challenge**: Growing water supply needs of the Dallas-Fort Worth region
- **Outcome**: Wetland creation in the Richland Creek WMA
- **Volumetric Water Benefit:** 74.4 MGY increased inundation
- **Additional benefits:** Improved surface water quality, improved aquatic habitat, improved recreation opportunities
- **SDG Goals:** 6.6

The project funded by Meta, in partnership with Ducks Unlimited and the TPWD, builds on the success of the existing projects to create new wetlands in the WMA. The constructed wetlands cover 238 acres providing expanded available wetland habitat and improved water quality to the Trinity River.

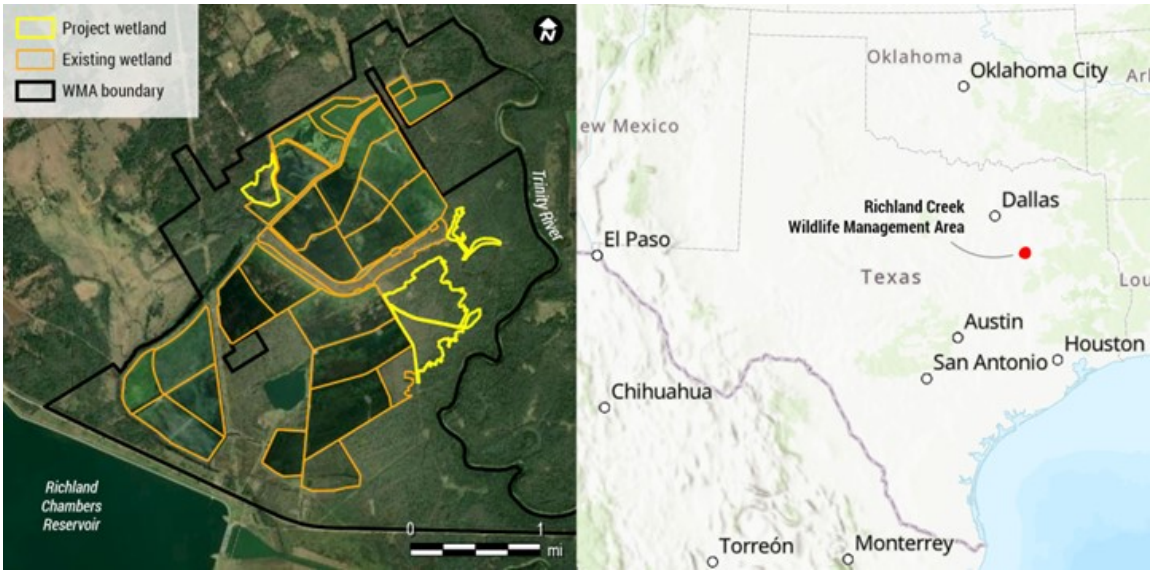


Figure 31. Approximate project location

Anticipated Future Benefits: Wildcat Marsh Project

Wildcat Marsh is an approximately 111-acre moist soil unit located 68 miles southeast of downtown Dallas, within the Richland Creek Wildlife Management Area (WMA) and the Trinity River watershed. The Texas Parks and Wildlife Department (TPWD) manages the Richland Creek WMA, a 13,783-acre site consisting of bottomland forests, previously cleared agricultural lands, and riparian forests. As part of the project, Ducks Unlimited will construct ~111 acres of wetlands in partnership with TPWD. The wetland will provide habitat for a variety of wildlife species and will also help improve water quality by reducing sediment, nitrogen, and phosphorous levels.

Anticipated Future Benefits: Longleaf Pine Forest Restoration

Longleaf pine (Pinus palustris) is an evergreen conifer native to the southeastern United States Longleaf pine forests support rich biodiversity and serve as a critical habitat for more than 30 endangered and threatened species (e.g., the red cockaded woodpecker). Healthy longleaf pine forests can also benefit local water resources; longleaf pines are water efficient and drought resistant, meaning they lose less water to evapotranspiration than other southern pines, which can help increase local water availability. However, longleaf pine forests have become one of the most endangered ecosystems in North America due to unsustainable land use practices and urbanization and many of the longleaf pine forests that remain are in degraded condition due to improper land management practices. These ecosystems rely on prescribed fires to create an ideal environment for longleaf seed germination, promote natural regeneration, and foster a healthy forest understory. This project will restore this longleaf pine ecosystem through improved forest stewardship practices.

Platte River Watershed | Papillion and Cheyenne Data Centers

The Platte River watershed, within which the Papillion Data Center and Cheyenne Data Centers are located, is a major river of the American Midwest and Southwest/Mountain West. The South Platte also provides groundwater recharge for the Ogallala Aquifer. Large-scale extraction for agricultural purposes and climate change contribute to a high water risk for this region. Meta has funded two projects within the Platte River basin from which benefits will be attributable to the Cheyenne Data Center: the Crow Creek Stream Restoration and the Mariah Pasture project, with volumetric benefits expected to begin in the coming years (Figure 34).

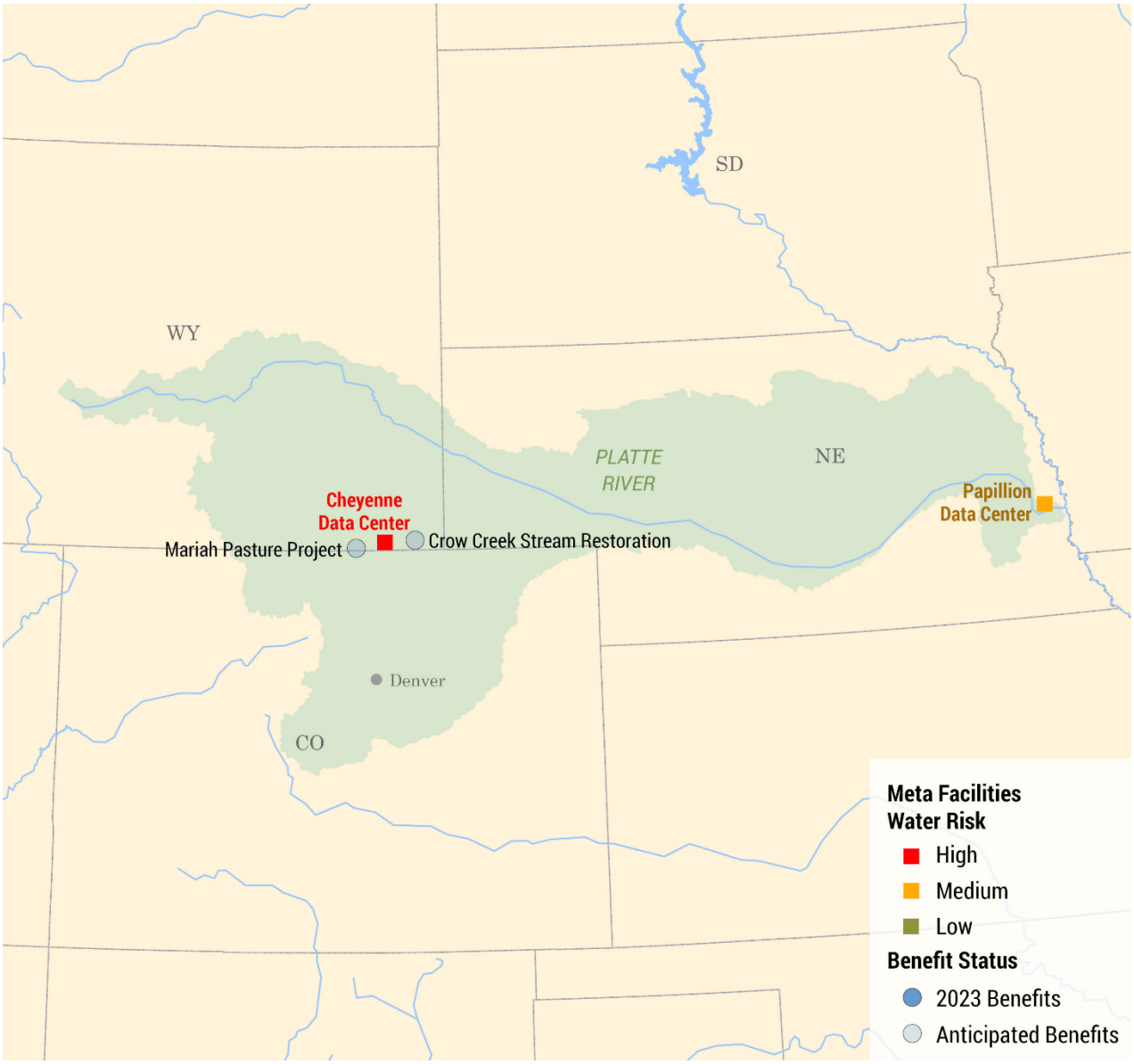


Figure 34. Project locations within the Platte River Watershed

Anticipated Future Benefits: Crow Creek Stream Restoration

Crow Creek is a tributary of the South Platte River that flows through southeastern Wyoming. It is an important water resource for Laramie County, providing flows for municipal, recreational, industrial, irrigation, and stock watering purposes. Crow Creek also provides groundwater recharge for southeastern Wyoming's Ogallala Aquifer. Crow Creek's many uses, in combination with land management decisions, have reduced hydrologic and ecologic functionality of the stream. Due to high flows and erosion, the creek is incised and separated from its floodplain. This has resulted in a lowered water table, which has decreased bank storage and riparian biomass.

The Laramie County Conservation District (LCCD) is committed to conservation of the county's water resources. To restore Crow Creek, LCCD will implement structures known as barbs, Post Assisted Log Structures (PALs), and Beaver Dam Analogues (BDAs) in the creek. These structures are made of wooden posts, branches, and other vegetation and aim to widen the stream channel, increase sinuosity, and encourage aggradation. These changes are expected to increase floodplain connectivity, water table storage, bank stability, sediment deposition, riparian vegetation, later season flows, longevity of flows, and groundwater recharge.

Anticipated Future Benefits: Mariah Pasture Project

Sand Creek is a tributary of the South Platte River that flows through southeastern Wyoming and the northern part of Colorado. It is an important water resource for Laramie County, providing flows for recreational, irrigation, and stock watering purposes. Sand Creek's many uses, in combination with land management decisions, have reduced hydrologic and ecologic functionality of the stream.

The City of Cheyenne owns a 27-square mile ranch which contains a livestock reservoir that is in disrepair. This reservoir is connected to Sand Creek and has collected sediment over time which has reduced its capacity to provide storage. Dredging activities are planned to increase reservoir capacity. In addition to the reservoir dredging activities, LCCD intends to implement structures known as Beaver Dam Analogues (BDAs) in the creek. These structures are made of wooden posts, branches, and other vegetation and aim to widen the stream channel, increase sinuosity, and encourage aggradation. These changes are expected to increase floodplain connectivity, water table storage, bank stability, sediment deposition, riparian vegetation, later season flows, longevity of flows, and groundwater recharge.

Looking Ahead

Meta has reaffirmed its commitment to water stewardship by pledging to be Water Positive in 2030, restoring more water than is consumed across its facilities and operations. This report describes Meta's progress towards its water stewardship commitment in the watersheds where it operates. In addition to substantial volumetric benefits, the projects described in this report generate a variety of non-volumetric benefits for both people and ecological systems, contributing to increased water access and security, modernized infrastructure, improved water quality, and expanded habitat. These projects and activities serve to support not only Meta's own operations, but also the health of the communities and ecosystems in which it operates.

In future years, Meta will continue to identify projects that protect and restore ecosystems, improve water supply and reliability, provide water access, and improve water quality. Meta is also investing in capacity-building projects that can have a catalytic effect in watersheds around the world. These projects could include supporting local environmental nonprofits, governance, research, and other non-volume-generating activities.

References

Reig, P., Larson, W., Vionnet, S. and JB Bayart. 2019. Volumetric Water Benefit Accounting (VWBA): A Method for Implementing and Valuing Water Stewardship Activities. URL: https://wriorg.s3.amazonaws.com/s3fs-public/volumetric-water-benefit-accounting.pdf

Appendix 1: Funded Projects with Volumetric Benefits in 2023

Project	Location	Data Center	Implementing Partners	Project Activity	VWB Indicator	2023 VWB MGY	Anticipated 2024 VWB MGY	Year of initial VWB claim	Anticipated Benefit Duration End Date
California Wildfire Reforestation	California	Santa Clara	Arbor Day Foundation, American Forest Foundation	Reforestation	Reduced runoff	37.3	37.3	2021	2027
Cedro Creek Restoration	New Mexico	Los Lunas	The Nature Conservancy; Rocky Mountain Youth Corps; Stream Dynamics	In-channel structures to facilitate recharge	Increased infiltration	19.5	19.5	2020	2029
Colorado River Indian Tribes System Conservation	Arizona/ Nevada	Mesa	Colorado River Indian Tribes, Arizona Department of Water Resources	Water leasing agreements	Reduced withdrawal	25.5	25.5	2021	2030
Comanche Creek Restoration	New Mexico	Los Lunas	Trout Unlimited and National Forest Foundation	Floodplain Reconnection	Increased storage	7.9	7.9	2019	2028
Colorado River Indian Tribes Irrigation Canal Lining Project	Arizona	Mesa	Colorado River Indian Tribes, Bureau of Indian Affairs, US Bureau of Reclamation	Irrigation canal lining	Reduced withdrawal	42.7	42.7	2023	2032

Project	Location	Data Center	Implementing Partners	Project Activity	VWB Indicator	2023 VWB MGY	Anticipated 2024 VWB MGY	Year of initial VWB claim	Anticipated Benefit Duration End Date
Green River Demand Management and Resilience Project	WY	Mesa	Trout Unlimited, partner ranchers	Fallowing agreements and Beaver Dam Analogues	Increased recharge and reduced withdrawal	27.7	17.3[3]	2023	2032
Harvey Jones Bioswale	New Mexico	Los Lunas	The Nature Conservancy; Southern Sandoval County Arroyo Flood Control Authority	Bioswale construction	Volume captured	0.6	0.6	2022	2031
Hobble Creek	Utah	Eagle Mountain	Central Utah Water Conservancy District, June Sucker Recovery Implementation Program, Springville Irrigation Company	Irrigation diversion and flow enhancement	Improved flow regime	467.4	467.4	2023	2032
Ingram Meadow Restoration	Oregon	Prineville	National Forest Foundation; U.S. Forest Service; Middle Deschutes Watershed Council; Rocky Mountain Elk Foundation	Wetland restoration	Increased storage	1.5	1.5	2020	2029

[3] This project allocates VWB for demand management over 3 years and VWB for Beaver Dam Analogs over 10 years. See the Benefit Summary anticipated benefits.

Project	Location	Data Center	Implementing Partners	Project Activity	VWB Indicator	2023 VWB MGY	Anticipated 2024 VWB MGY	Year of initial VWB claim	Anticipated Benefit Duration End Date
Jicarilla Apache Nation Water Sharing Agreement	New Mexico	Mesa	New Mexico Interstate Stream Commission, Jicarilla Apache Nation, The Nature Conservancy	Water leasing agreement	Reduced withdrawal	114.0	114.0	2023	2032
La Jara Wetland Restoration	New Mexico	Los Lunas	The Nature Conservancy, Amigos Bravos, Watershed Artisans	Wetland restoration	Increased storage	3.0	3.0	2020	2029
Mason Lane Ditch Piping	Arizona	Mesa	The Nature Conservancy, Mason Lane Ditch Association	Irrigation efficiency improvement	Reduced withdrawal	179.6	179.6	2023	2032
Middle Rio Grande Flow Restoration	New Mexico	Los Lunas	Audubon New Mexico	Water rights leasing	Reduced withdrawal	81.5	81.5	2020	2027
Navajo Community Water Supply	Arizona	Mesa	Dig Deep	Drinking water access	Volume provided	0.07	0.07	2022	2031

Project	Location	Data Center	Implementing Partners	Project Activity	VWB Indicator	2023 VWB MGY	Anticipated 2024 VWB MGY	Year of initial VWB claim	Anticipated Benefit Duration End Date
Prineville Aquifer Storage and Recovery	Oregon	Prineville	City of Prineville, Apple	Aquifer recharge	Increased recharge	33.0	33.0[4]	2021	2030
Provo River Flow Restoration	Utah	Eagle Mountain	Central Utah Water Conservancy District	10-year water rights lease	Reduced withdrawal	415.8	415.8	2020	2029
Restoring and Enhancing Richland Creek Wildlife Management Area	Texas	Fort Worth	Ducks Unlimited, Texas Parks and Wildlife Dept., Litman Foundation	Wetland creation	Increased inundation	74.4	74.4	2023	2032
Rito Penas Negras Restoration	New Mexico	Los Lunas	National Forest Foundation	Beaver dam analogs	Increased recharge	23.8	23.8	2023	2032
2023 Volumetric Water Benefit, MGY (gallons/yr)						**1,555**			
Anticipated 2024 Volumetric Water Benefit from Completed Projects, MGY (gallons/yr)							**1,544**		

[4] This project has variable annual volumetric water benefits based on actual measured volumes. The anticipated 2024 VWB here is equal to the actual 2023 VWB, but actual annual benefits in 2024 may differ from the anticipated benefits.

Appendix 2: Funded Projects Not Yet Generating Volumetric Benefits

Project	Location	Data Center	Implementing Partners	Project Activity	VWB Indicator	Estimated Future VWB MGY	Anticipated Implementation Timeline
Alta Harris Creek Side Channel	Idaho	Kuna	Trout Unlimited	Side channel reconnection	Increase in streamflow	TBD	TBD
CRIT Drip Irrigation/Crop Conversion	Arizona	Mesa	CRIT; N-Drip	Irrigation efficiency improvement	Reduced consumption	101.88	2024
CRIT Drip Irrigation	Arizona	Mesa	CRIT; N-Drip	Irrigation efficiency improvement	Reduced consumption	96.4	2024
Crow Creek Stream Restoration	WY	Cheyenne	Laramie County Conservation District	Stream restoration	Increased recharge	12.4	2025
Eagle Mountain Wastewater Reuse	Utah	Eagle Mountain	Eagle Mountain City	Wastewater reuse	Reduced withdrawal	35.9[5]	2024
Forest Restoration Project, Phase 3	Arizona	Mesa	Salt River Project	Forest thinning/ restoration	Reduced evapotranspiration	5.1	2025
Longleaf Pine Forest Restoration	Texas	Fort Worth	Texan by Nature	Forest restoration	Reduced evapotranspiration	44.0	2026

[5] The full volumetric water benefit is anticipated to equal 35.9 MGY (35,927,392 gallons/yr) when this project is fully built out. Meta will only claim the actual volume reused when the project is functional, so actual annual benefits may differ from the anticipated benefits.

Project	Location	Data Center	Implementing Partners	Project Activity	VWB Indicator	Estimated Future VWB MGY	Anticipated Implementation Timeline
Mariah Pasture Project	WY	Cheyenne	Laramie County Conservation District	Reservoir dredging and BDAs	Increased storage volume and increased recharge	1.0	2027
Navajo Community Water Supply Phase II	Arizona	Mesa	Dig Deep	Drinking water access	Volume provided	0.1	2024
Phoenix Hospital Cooling & Conservation	Arizona	Mesa	BlueCommons; City of Phoenix	Improved efficiency of upgraded wet cooling systems	Reduced withdrawal	11.0	2024
Wildcat Marsh	Texas	Fort Worth	Ducks Unlimited	Wetland creation	Increased inundation volume	13.4	2024