

A WHITE PAPER BY THE
WALTON FAMILY
FOUNDATION

COLORADO RIVER

Critical Infrastructure Needs



Water Infrastructure Investments are Critically Important to the Colorado River Basin

The Colorado River is a place of unimaginable beauty—it flows furiously through rises and rapids, valleys and deserts 1,500 miles all the way to Mexico. And it is facing incredible challenges.

It has been called America's hardest-working river—and the most plumbed. The sheer magnitude of the challenge facing the river is monumental. It provides water to more than 30 million Americans, but is still reeling from the impacts of a 16-year drought that brought its basin states to the brink of shortages.

The struggle we face to protect the Colorado River basin is one of necessity, not choice.

By 2030, 53 percent more people will be living in Colorado River basin states. They will depend on a healthy and secure water supply from Colorado River.

At the Walton Family Foundation, we are working to find creative solutions—that benefit the environment and the economy—to ensure the Colorado River basin has the water supply it needs to sustain the West's growing population.

There has been a lot of talk recently about the critical need to fund infrastructure projects in the United States. These conversations so far have put little focus on the importance of water infrastructure to the people and economy of the West, and the Colorado River basin in particular.

As a way to help start the much-needed conversation, the Walton Family Foundation developed this Colorado River Critical Infrastructure Needs White Paper. This white paper comes on the heels of the Bureau of Reclamation's P3 meeting in Denver in May 2017, which focused on how public-private partnerships may be able to help solve some of the water infrastructure challenges facing the United States.

Each of the projects highlighted in the white paper can create jobs and enhance local communities, prevent hazardous situations from developing as a result of aging infrastructure, and underscore the importance of using water efficiently for the benefit of multiple purposes. The white paper summarizes 15 projects within the basin states of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming that represent a variety of water use sectors. They range from a groundwater replenishment project in Arizona to a project that would increase stability and storage capacity at a reservoir in (the headwaters within) Wyoming. The infrastructure white paper is divided into lower basin projects, upper basin projects, basin-wide projects and options for funding water infrastructure under existing programs.

Municipal and Agricultural Projects

The white paper includes selected projects from the municipal and agricultural sectors that benefit both urban and rural communities. For example, the Los Angeles Regional Recycled Water Program will provide drinking water to one of the country's largest municipal areas by reusing wastewater and decreasing the region's reliance on imported water from the Colorado River basin. In Utah, the Steinkjer Service Canal Enclosure Project will rehabilitate infrastructure constructed more than 50 years ago to install a pipeline to convey irrigation water to farms with increased efficiency and improved water quality. It will have the added benefit of increasing the project's hydropower generation capabilities.

Ongoing Projects and Tribal Projects

The white paper underscores the importance of completing ongoing infrastructure projects – especially those connected with tribal water rights settlements. Those include the Gila River Indian Community Pima-Maricopa Irrigation Project and

the Navajo Gallup Water Supply Project. Completing these projects will: 1) provide necessary drinking and irrigation water to communities that need them; and, 2) ensure the security and stability that the tribal water rights settlements provide.

Multi-Use Projects

Certain projects highlight the valuable partnerships among multiple water use sectors, including conservation organizations. The Salton Sea Management Program is a good example of the complicated situation Southern California faces as the Salton Sea gradually recedes and becomes more saline. The Salton Sea is an important flyway for migrating birds and is located in an area with one of the nation's highest levels of asthma due to poor air quality. Restoration efforts at the Salton Sea have been under development for several years. But increased efforts by the state of California, local agencies, national conservation organizations and the federal government are necessary to ensure that essential dust suppression and habitat restoration projects will be completed within the next 10 years. That timeline is necessary in order to ensure that the public's health is protected and the natural resources can be maintained. On a smaller scale, at the Wines Ditch in Colorado, a private landowner has teamed up with conservation organizations and the state of Colorado to rehabilitate a water diversion structure to allow continued delivery of irrigation water and increased recreational opportunities and restoration of riparian habitat.

Projects Supported by Public-Private Partnerships

The white paper also shows the diversity of funding programs that are available and the broad variety of potential partnerships that can be developed. Federal funding from existing programs at the Department of the Interior and the Department of Agriculture is essential for these projects to continue to protect the national benefits that derive from improved water infrastructure. New and evolving programs such as the Bureau of Reclamation's recent Public Private Partnership (P3) Request for Information provided insights into potential funding opportunities for some of the projects listed in the infrastructure report, including the rehabilitation of the Yuma Desalting Plant in Arizona and the replacement of the Colorado River Salinity Control Program's Paradox Valley Unit in Colorado. Importantly, these projects can be developed in ways that support or improve the environment.

The projects included in this white paper build on successful partnerships within the Colorado River basin among federal and non-federal entities. They can be constructed to generate stability and sustainability in the Colorado River basin for municipal, industrial, agricultural and recreational uses and for the natural ecosystem we all rely on for our health and prosperity. The types of projects identified have allowed the basin to flourish economically. Through continued smart management, these projects can be operated to provide ongoing, multifaceted benefits for generations to come.

Barry Gold

Environment Program Director

June 2017

Water Infrastructure Requires Federal Investment

Investments in water infrastructure are sound investments in America's future. The need is unquestioned – a recent report by the American Society of Civil Engineers (ASCE) documents a gap of over \$200 billion between available funding for essential water facility investment and existing sources of capital. The ASCE report gives both dams and drinking water infrastructure an embarrassing grade of D, slightly below even the dismal rating of D+ for American infrastructure in general.

In addition to the unquestioned funding gap, water investment has lagged behind other sectors and is now at critically low levels. While federal investment previously provided significant support for water

utility needs, that spending has plummeted (Figure 1), in stark contrast to the continuing investment in transportation infrastructure, despite universal recognition that reliable water supplies are essential to a thriving economy. State and local investment has more than doubled over the same period, but the substantial funding gap described above remains.

Even though per capita federal spending on water is dwarfed by that in other sectors, such as information technology, energy, and transportation, the economic impact of water infrastructure investment per dollar spent compares favorably with those industries. For every \$1 million invested in water infrastructure, it is estimated that fifteen or more jobs are created, similar to the beneficial return on investments in

Federal Contribution to Total Infrastructure Spending

■ Water Utilities ■ Highways ■ Aviation ■ All Transportation Infrastructure

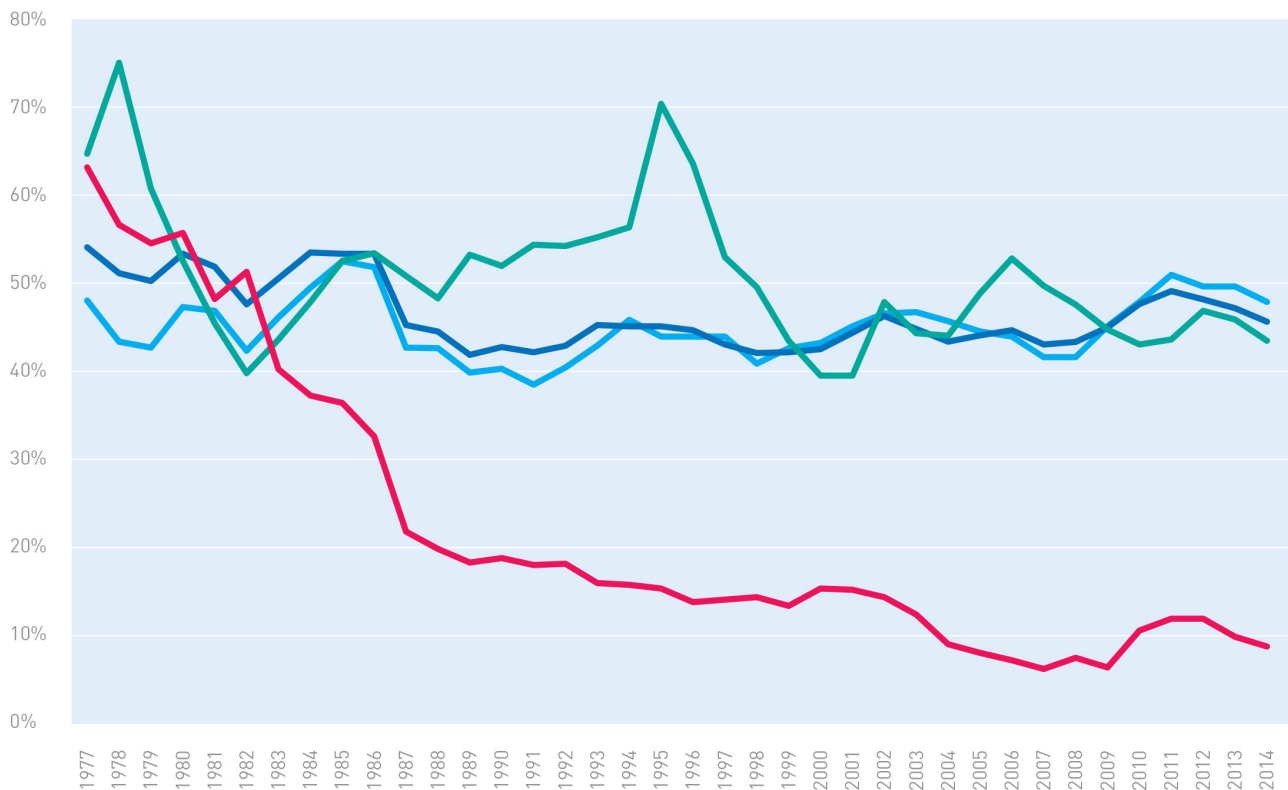


Figure 1 Source: The Economic Benefits of Investing in Water Infrastructure, Value of Water Campaign, March 2017

transportation, health care, and energy. The cost of unreliability of water supplies caused by inadequate infrastructure, including service disruptions, lost productivity, and the expense of obtaining alternate or backup supplies, is enormous.

Colorado River Basin Needs Are Urgent

While the need for water infrastructure investment blankets the country, the Colorado River Basin has a particularly challenging requirement. This basin hosts some of the fastest population growth in the nation, but is also facing an era of diminished supplies. A recent scientific study documents a 19% reduction of average flows from 2000 to 2014 as compared to the previous 95 years, and predicts a further 20% decrease by 2050. Figure 2 shows the relentless decline in water levels in Lake Mead, the largest reservoir in the Basin and the country, which has remained at less than half of its full capacity for several years. This decline is an indicator of the challenging hydrology throughout the Basin and demonstrates the necessity for investments that produce a more sustainable balance between supply and demand. Without additional funding for targeted infrastructure investments, the Colorado River's support for 35 million people and 5 million acres of productive agriculture is at substantial risk.

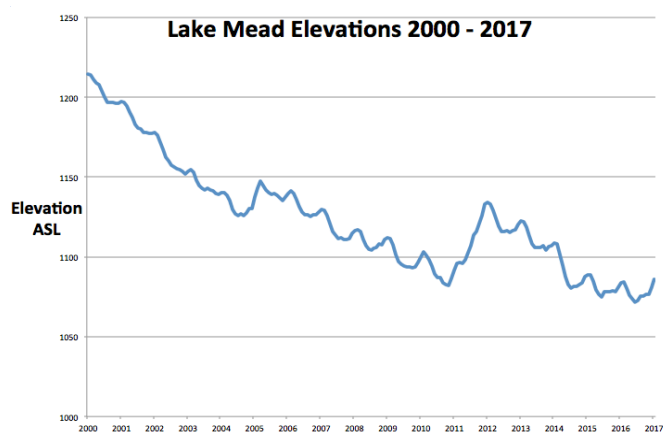
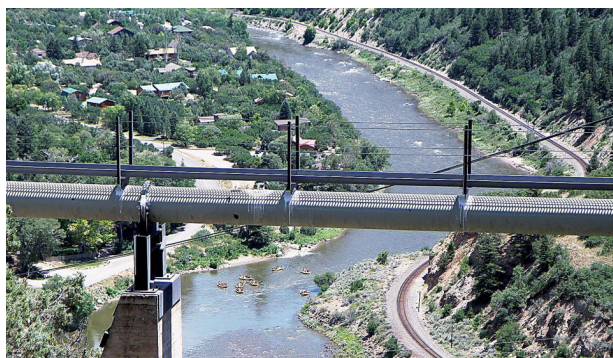


Figure 2: Source: U.S. Bureau of Reclamation

This white paper recommends federal infrastructure investment in specific projects benefiting the Colorado River Basin. Several are designed to increase the resilience and efficiency of natural and man-made systems in the Basin. Others will allow more efficient and productive use of existing supplies. All are multi-purpose, will contribute to overall sustainability in the system, and help to correct the current imbalance between supply and demand. A brief listing is provided first, with accompanying additional detail and references to more specific sources.



Funding Water Infrastructure Through Existing Programs

One of the most efficient ways to provide structural investment is through the use of existing cost-share infrastructure programs that prioritize effective, water conserving projects. Programs like Interior's WaterSMART, USDA's Environmental Quality Incentive and Regional Conservation Partnership Programs, and EPA's Water Infrastructure Finance and Innovation Act (WIFIA) funding and credit assistance program are all designed to provide federal incentives for projects primarily funded from other sources. In the Colorado River Basin, the Salinity Control Program has a decades-long history of incentivizing user-proposed projects that benefit water quality. All of these programs have existing authorizing legislation and tested processes to evaluate and fund worthy multi-purpose water infrastructure projects. Additional support for these programs will ensure a commitment to America's water infrastructure that is vital to maintain and optimize this critical backbone of our society. These programs are also described and recommended for additional directed federal funding.



Recommended Projects for Infrastructure Investment

These recommendations for water infrastructure investment have been compiled through discussions with water leaders throughout the Colorado River Basin and from review of numerous reports on infrastructure needs. Each project has multiple partners and significant anticipated cost-share contributions, providing considerable leverage to any federal investment. Projects in both the Upper Basin and Lower Basin are included and segregated.

This white paper is by no means an all-inclusive list of projects and programs benefiting the Colorado River

Basin that are worthy of an investment of federal funds. Rather these are representative examples of excellent projects and programs with significant water user support that will each increase water reliability, improve the balance between supply and demand, and enhance the overall environment, all while creating jobs and contributing to economic productivity. Key attributes of each project are listed, including contributions to municipal or agricultural water efficiency, enhancement of water supplies, technology advancement, regional and multi-partner benefits, benefits to public lands, and recreation or environmental improvement.

Sources

The Economic Benefits of Investing in Water Infrastructure, Value of Water Campaign, March 2017, http://thevalueofwater.org/sites/default/files/Economic%20Impact%20of%20Investing%20in%20Water%20Infrastructure_VOW_FINAL_pages.pdf

American Society of Civil Engineers, 2017 Infrastructure Report Card, America's Grades, www.infrastructurereportcard.org/

Lake Mead Elevations Archived Data, U.S. Bureau of Reclamation, <https://www.usbr.gov/lc/region/g4000/hourly/mead-elv.html>

Udall and Overpeck, *The 21st Century Colorado River Hot Drought and Implications for the Future*, Water Resources Research, <http://onlinelibrary.wiley.com/doi/10.1002/2016WR019638/full>

COLORADO RIVER INFRASTRUCTURE PROJECTS

LOWER BASIN

Cochise Conservation and Recharge Network (San Pedro River - Arizona)
Gila River Indian Community Pima-Maricopa Irrigation Project (Arizona)
Grand Canyon National Park Trans-Canyon Water System (Arizona)
Los Angeles Regional Recycled Water Program (California)
Salton Sea habitat improvement and dust suppression (California)
Yuma Desalting Plant (Arizona)
242 Well Field Upgrades (Arizona)

UPPER BASIN


Fontenelle Reservoir Riprap (Wyoming)
Grand Valley Power Plant Rehabilitation (Colorado)
Navajo-Gallup Water Supply Project, San Juan and Cutter Laterals (New Mexico)
Price River Watershed Enhancements (Utah)
Steinaker Canal Enclosure Project (Utah)
Wines Ditch Headgate Structure (Dolores River - Colorado)

BASIN-WIDE

Colorado River Salinity Control Projects
Critical Stream Gages Essential to Water Management and Public Safety

FUNDING FOR INFRASTRUCTURE THROUGH EXISTING PROGRAMS

List of Existing Authorizations and Funding Sources
Water Infrastructure Finance and Innovation Act (WIFIA)
WaterSMART
Title XVI
Environmental Quality Incentives Program (EQIP)
Regional Conservation Partnership Program (RCPP)
Watershed Protection and Flood Prevention Act (PL566)

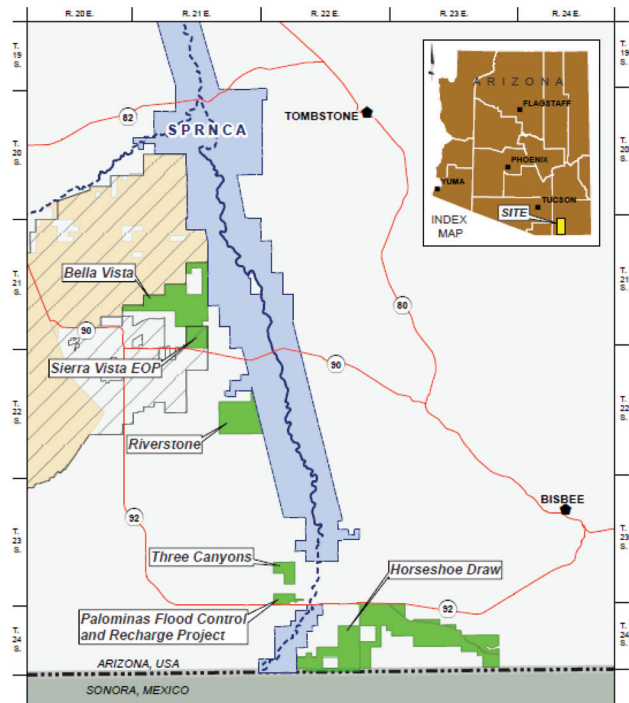
A photograph of a large-scale water treatment facility. In the foreground, there are several large, circular clarifiers with a light blue-green water surface. The water is divided into sections by concrete walls. In the background, there are large industrial buildings with corrugated metal roofs and several tall, cylindrical storage tanks. A walkway with railings runs along the tanks. The sky is clear and blue. The text "Recommended Representative Multi-Purpose Water Infrastructure Projects in the Colorado River Basin" is overlaid in white on the lower half of the image.

Recommended Representative Multi-Purpose Water Infrastructure Projects in the Colorado River Basin

Cochise Conservation and Recharge Network (CCRN)

The CCRN is a collaborative partnership implementing a regional network of aquifer replenishment projects to sustain both a vibrant local economy and a flowing desert river within the San Pedro Riparian National Conservation Area (SPRNCA). The partnership includes the Cities of Sierra Vista and Bisbee, Cochise County, Hereford Natural Resource Conservation District, and The Nature Conservancy. The group also works closely with the U.S. Army. The CCRN consists of facilities utilizing treated effluent and stormwater runoff to replenish this areas' depleted groundwater aquifer, which in turn helps to sustain flows in the San Pedro River within the boundaries of the SPRNCA. Multiple benefits are provided to the local communities including support for the continuing operations at Fort Huachuca, a U.S. Army facility that develops and tests cutting edge and critical communications and surveillance capabilities for the military. Fort Huachuca is vital to national security and contributes \$2.3 billion annually to the economy of southern Arizona and supports over 26,000 jobs.

Two CCRN projects have been constructed but two others are needed to further increase available water supplies and replenish groundwater. The Horseshoe Draw Project will be designed to utilize local stormwater and treated effluent from the City of Bisbee to increase water availability for 2,100 acres of riparian habitat in the National Riparian



Conservation area and increase more than five miles of base flow in the San Pedro River. An innovative use of urban stormwater runoff is envisioned in the Bella Vista Project directing the runoff to a recharge facility, replenishing the underground aquifer, and protecting the River's base flow. These projects require approximately \$16.8 million for permitting, design, and construction.

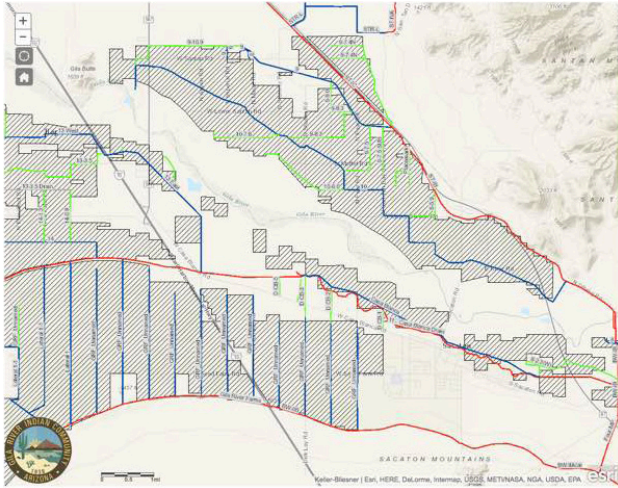
Key Attributes: Municipal efficiency, technology advancement, groundwater replenishment, regional multi-partner project, benefit to public land

Federal Authorization and Funding Sources: WaterSMART; RCPP; PL566

Resources: Upper San Pedro Partnership, Cochise Conservation and Recharge Network, Dec. 7, 2017, <http://uspp.us/docs/CCRN%2012-09-16.pdf>; Memorandum of Understanding establishing the CCRN, <http://www.bisbeeaz.gov/DocumentCenter/Home/View/2404>

Gila River Indian Community Pima-Maricopa Irrigation Project (P-MIP)

The P-MIP is a water delivery system designed to allow full use of water belonging to the Gila River Indian Community (Community) for irrigation of lands within the reservation in south-central Arizona. Much of the Community's traditional economy of



agriculture has suffered from loss of both surface and ground water supplies over many decades. The construction and completion of the P-MIP will provide more reliable supplies for existing agricultural land, address natural resource concerns, including water conservation and soil and water degradation, allow for re-irrigation of lands historically farmed by Community members that have fallen fallow as

a result of water scarcity, and replace inefficient, leaky existing facilities. Flood protection, riparian habitat restoration, and groundwater recharge are included as components of the project. The canal lining components of the P-MIP will provide for more efficient use of existing supplies and reverse unsustainable utilization of ground water, benefiting the overall Colorado River system.

The P-MIP is an essential component of the Community's water rights settlement with the United States government and the State of Arizona, as mandated by the Arizona Water Rights Settlement Act (P.L. 108-451, 118 Stat. 3478, December 10, 2004). Although a funding stream has been provided through 2029, completion could be accelerated through additional, one-time federal investment, creating employment and accelerating economic productivity in the entire Phoenix, Arizona metropolitan area. Shovel ready projects include Canals 9 and 10 and their sublaterals for approximately \$40 million, which will remediate average water losses of 4,400 acre feet annually. With additional funding of \$2.3 million for design, Canals 13-16 would be ready for construction at a total cost of approximately \$50 million. Without additional funding, none of these essential components of the P-MIP are scheduled for construction before 2021.

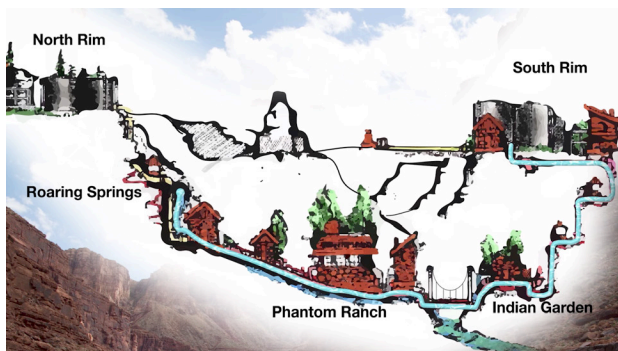
Key Attributes: Agricultural efficiency, habitat restoration, Indian water rights, regional multi-partner project

Federal Authorization and Funding Sources: WIFIA; RCPP; EQIP; USBR P-MIP

Resources: Pima-Maricopa Irrigation Project Strategic Plan 2016-2021, Pima-Maricopa Irrigation Project, <https://www.gilariver.com/>; Memorandum dated March 2, 2017 from David H. DeJong, Director P-MIP to Lawrence Marquez, Bureau of Reclamation

Grand Canyon National Park Trans-Canyon Drinking Water System Improvements

The drinking water system for the South Rim developed area of Grand Canyon National Park was constructed in the 1960s with an expected life of approximately 30 years. The system serves the Park's visitors numbering in excess of six million visitors and 2,500 year-round residents. As shown in the diagram below, the water is diverted from Roaring Springs below the North Rim of the Canyon, flowing by gravity all the way down to the bottom, and piped and pumped up to the top of the South Rim. The total length of the aluminum pipeline is fifteen miles and the elevation gain from the bottom of the canyon to the South Rim is over 4,000 feet.



As a result of the age of the system and the challenging physical environment, the trans-canyon pipeline has numerous breaks and leakages every

year, sometimes as many as 30. Costs for repair of a single break often exceed \$25,000, and may limit the Park's ability to provide water to visitors or even cause temporary evacuations. Repair operations include risks to crew safety due to extreme terrain, required helicopter access, and high temperatures of the inner canyon. The strain on the Park's budget is substantial. Due to the fragility of the pipeline, it is kept flowing at full capacity even when the water is not fully needed, causing unnecessary and wasteful discharges of treated water at the South Rim.



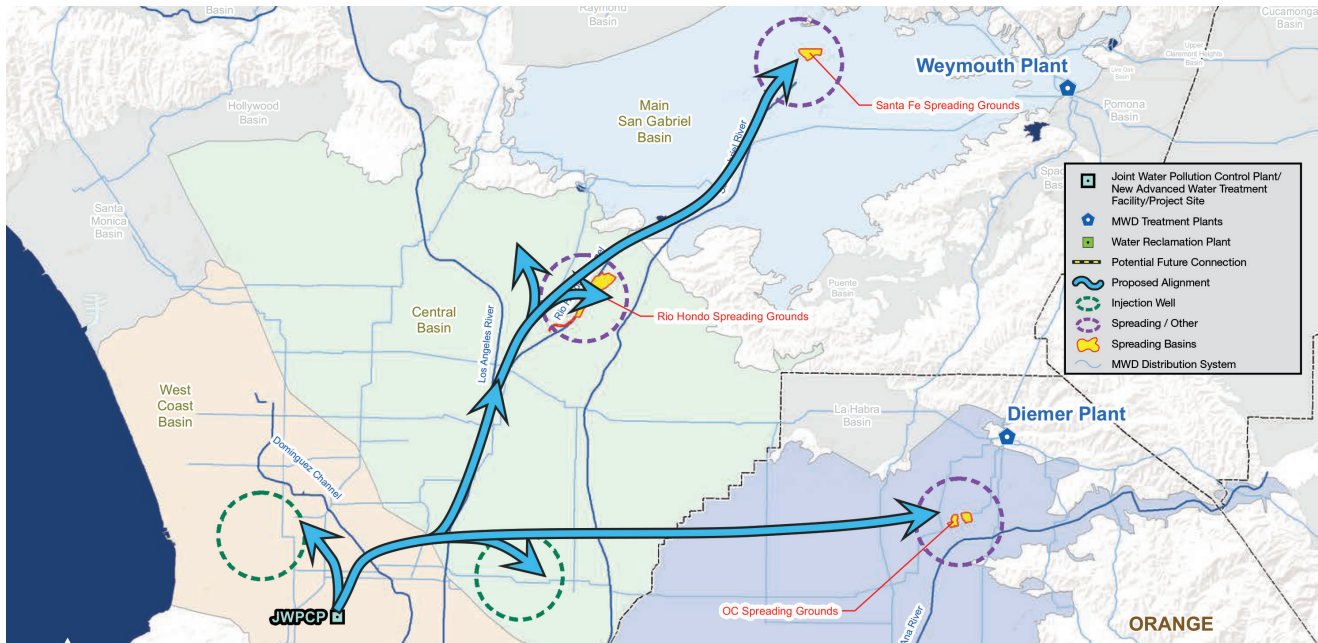
Replacement of the trans-canyon pipeline is estimated to cost \$150 million. It is the #1 infrastructure rehabilitation priority of the National Park Service, befitting the Grand Canyon's status as the crown jewel of the National Park system. A recent study documents the Park's support of nearly 10,000 jobs and economic contribution of over \$900 million annually, all reliant on a working and reliable drinking water system.

Key Attributes: Public health and safety, drought resilience, benefit to public lands

Federal Authorization and Funding Sources: WIFIA, WaterSMART

Resources: National Park Service, Trans-Canyon Pipeline, <https://www.nps.gov/grca/learn/photosmultimedia/gcid-06-tcp.htm>; The Pew Charitable Trusts, Grand Canyon National Park, www.pewtrusts.org/en/research-and-analysis/fact-sheets/2017/01/grand-canyon-national-park

Los Angeles Regional Recycled Water Program



The project is proposed by the Metropolitan Water District of Southern California (MWD) in partnership with the Sanitation Districts of Los Angeles County to beneficially reuse water currently discharged to the Pacific Ocean to recharge regional groundwater basins. This indirect potable reuse project includes a new purification plant and distribution lines to groundwater spreading facilities in Los Angeles and Orange Counties.

This development of local sources of water will increase drought resilience for southern California and allow for more efficient use of Colorado River water that constitutes 45% of MWD's overall supplies. A demonstration facility with capacity of 500,000

gallons per day will utilize cutting edge technology (including membrane bioreactors) and test the feasibility of newer, less costly processes for treating wastewater. Proof of concept will allow advancement to an operational phase that will provide new supplies of up to 168,000 acre-feet annually that will help MWD to serve a growing population without additional pressure on imported supplies.

The entire project cost is estimated at \$2.7 billion, with the construction of the demonstration facility in the range of \$10 to 12 million. The anticipated increase in rates paid by MWD customers would be mitigated by federal investment.

Key Attributes: Supply enhancement, municipal efficiency, drought resilience, technology advancement, groundwater replenishment, regional multi-partner project

Federal Authorization and Funding Sources: WIFIA; Title XVI; WaterSMART

Resources: Regional Recycled Water Program, http://www.mwdh2o.com/PDF_About_Your_Water/Regional_Recycled_Water_Supply_Program.pdf; About Your Water, <http://www.mwdh2o.com/AboutYourWater/regional-recycled-water>

Salton Sea Management Program (SSMP) Phase I

As California's largest lake, the Salton Sea is foundational to regional public health, ecological integrity, and a stable water supply. Over the last several decades, water levels at the Salton Sea have declined and salinity concentrations have increased. Water transfers from the Imperial Valley to the California coastal plain have exacerbated these problems. Declining lake levels threaten important bird habitat and pose public health risks due to particulate air pollution. The SSMP is designed to protect air quality and ecosystem values at the Sea and to guide the State of California in meeting the state's commitments. The first phase will suppress dust on areas of playa that have been or will be exposed at the Salton Sea by 2028 and expedite restoration of lost habitat. Managing the Sea's natural, agricultural, and municipal water inflows to maximize bird and fish habitat and minimize fine-particle air pollution is critical to the economy of Imperial and Riverside Counties and the entire state. Progress on this type of mitigation at the Sea is essential to a comprehensive drought contingency plan for the Lower Colorado River Basin and the strong support of the Imperial Irrigation District.

The central component of the SSMP Phase I - 10-Year Plan (currently in draft form) is the "water backbone infrastructure." The backbone is designed to supply agricultural return flow water for dust suppression, habitat projects and other potential land uses at the south end of the Salton Sea, and consists of a series of outlets from the Alamo and New Rivers to take

return flow water to management ponds located along the shoreline that will also contain inlets for Salton Sea water. Among the multiple components to the SSMP Phase I are two that have a strong federal connection justifying additional investment of federal funds as an infrastructure priority: the Red Hill Bay and Torres-Martinez Indian Tribe projects. Various federal agencies own land that is now or will become exposed



by the receding Sea, with attendant responsibilities for air emissions. The State of California has estimated the cost of the proposed 10-year plan at \$383 million, of which \$80 million is currently available from the State of California. Federal funding would help ensure that the necessary work occurs on a timely basis and provides needed protection to public health and the environment. Importantly, philanthropic entities have pledged to a goal of providing \$10 million by 2020, if progress can be made at establishing a 10 year Plan.

Key Attributes: Public health and safety, habitat restoration and preservation, benefit to public land, regional multi-partner project, related to supply enhancement and drought resilience

Federal Authorization and Funding Sources: WIFIA; WaterSMART; RCPP; PL 566; USBR Salton Sea; USACE Salton Sea

Resources: Salton Sea Management Plan, Phase I, 10-Year Plan, Draft March 2017, <http://resources.ca.gov/salton-sea/salton-sea-management-program/>; Memorandum of Understanding dated Aug. 31, 2016 between State of California and U.S. Department of the Interior; CA Natural Resources Agency WIFIA Letter of Intent to EPA, April 10, 2017.

Yuma Desalting Plant (YDP)

The YDP is a brackish water reverse osmosis desalination plant located on the outskirts of Yuma, Arizona. It was constructed to assist in compliance by the United States with its agreement with Mexico in Minute 242 governing the salinity of water that may be delivered to Mexico in fulfillment of the obligations of the 1944 Colorado River Treaty. YDP was designed to treat saline agricultural return flows from the Wellton-Mohawk Irrigation and Drainage District in southern Arizona. Since its construction in 1992, it has operated only sporadically primarily because its operation is unnecessary during years of surplus or normal flows.

Increasing drought in the Colorado River system has brought renewed attention to the YDP and its capacity to help maintain critical elevations in Lake Mead. A recent workgroup convened and co-chaired by the Bureau of Reclamation and the Arizona Department of Water Resources, with participation from Nevada, California, and various environmental organizations, worked to develop a series of potential solutions that would help to address salinity issues associated with meeting U.S. obligations to Mexico on the Colorado River. The workgroup report identified operation of the YDP at one-third capacity to produce approximately 33,000 acre feet annually as part of a broader solution portfolio involving a combination of infrastructure and policy changes that support maximum use of water balanced with protecting the environment within Mexico. Because

of the close interconnections with Mexican border water issues, re-operation of YDP would require close consultation with Mexico or could materialize in connection with a future binational agreement on Colorado River management. The exact configuration of YDP operation will be affected by those discussions and the consensus reached on the broader portfolio and salinity management. Renewed operation of the YDP would result in decreased volume and increased salinity of the water reaching the ecologically important Cienega de Santa Clara in Sonora, Mexico which must also be addressed in consultation with Mexico.

It has been estimated that preparing the YDP for long-term sustained operations would cost \$26.5 to \$28.5 million.



Key Attributes: Supply enhancement, drought resilience, regional and basin-wide benefits, regional multi-partner project

Federal Authorization and Funding Sources: WIFIA; Title XVI, WaterSMART; Salinity Control Act

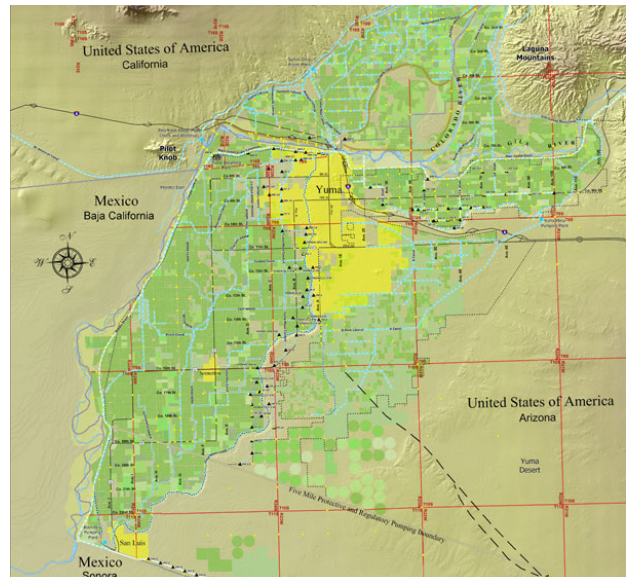
Resources: Recommendations of the Bypass Flows Workgroup, April 2016, <http://www.azwater.gov/AzDWR/StatewidePlanning/CRM/documents/WorkgroupFinalReportFinal.pdf>; Minute 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River, <https://www.usbr.gov/lc/region/pao/pdfiles/min242.pdf>

242 Well Field

The 242 Well Field, also known as the Protective and Regulatory Pumping Unit, consists of a series of wells and delivery system located within a 5-mile-wide strip of land along the United States/Mexico border in southwestern Arizona. Twenty-one wells intercept part of the groundwater underflow moving southward into Mexico from the Yuma Mesa area in the United States. The groundwater recovered by the unit is collected in a conveyance system and delivered to Mexico by the United States at the Southerly International Boundary (SIB). Pumping of the 242 Well Field also helps maintain water table elevation in the U.S. for the benefit of agriculture.

The U.S. would benefit from the ability to deliver water diverted from the 242 Well Field at the Northerly International Boundary (NIB) as a result of limits on the volume of delivery at SIB that can be included as part of the delivery obligation to Mexico pursuant to the 1944 Treaty and the agreement in Minute 242 between the two countries. A new pipeline is required to take water pumped from the 242 Well Field northward to connect with existing conveyance structures that can deliver water to NIB. Improvements to existing wells at the eastern end of the 242 Well Field may also be required including expansion of pumping capacity and deepening. The project will save an estimated 25,000 acre feet annually.

As with the Yuma Desalting Plant, the 242 Well Field project was identified by the workgroup convened by the Bureau of Reclamation and the Arizona Department



of Water Resources, with participation from Nevada, California, and various environmental organizations, as part of a broader solution portfolio involving a combination of infrastructure and policy changes. Because of the close interconnections with border water issues and potential impact to important habitat along the Colorado River in the U.S. and Mexico, alterations to the 242 Well Field would require close consultation with Mexico or could materialize in connection with a future binational agreement on Colorado River management.

One-time capital costs for the 242 Well Field project have been estimated at \$17 to \$19 million. The project could be completed within 2.5 years of receipt of full funding.

Key Attributes: Supply enhancement, drought resilience, regional and basin-wide benefits

Federal Authorization and Funding Sources: WIFIA; WaterSMART; Salinity Control Act

Resources: Recommendations of the Bypass Flows Workgroup, April 2016, <http://www.azwater.gov/AzDWR/StatewidePlanning/CRM/documents/WorkgroupFinalReportFinal.pdf>; Minute 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River, www.usbr.gov/lc/region/pao/pdfs/min242.pdf

Fontenelle Reservoir Riprap Project



Fontenelle Reservoir in southwest Wyoming is an authorized participating project of the Colorado River Storage Project Act of 1956. It was built as part of the Bureau of Reclamation's Seedskaadee Project to facilitate Wyoming's use of its Colorado River water allocation. The original project included a significant irrigation component. Ultimately, however, the irrigation component of the project was not developed and today the reservoir primarily provides storage water for current municipal and industrial uses, hydropower generation, as well as future development needs in Wyoming.

Fontenelle Reservoir was not originally expected to operate below the elevation of proposed irrigation supply canal outlet structures. Accordingly, no slope protection, or riprap, was placed on the upstream face of the dam below the elevation of those outlet structures. This limits the current operation of the reservoir to only a portion of its total permitted capacity.

The State of Wyoming proposes to add riprap to the lower portions of the dam face to allow full utilization of the capacity of Fontenelle Reservoir. The additional water made available by this proposal would continue to facilitate Wyoming's use of its Colorado River water allocation, and provide protection to Wyoming water users during extreme drought events or interstate compact compliance actions. Authorization for this work on a federal reservoir has been introduced in both the Senate and the House of Representatives, with passage by the House on March 15, 2017. The proposed improvements, which will need to be done in a way that benefits the important local fisheries, would not create any additional storage capacity, but would provide access to an additional 80,000 acre feet of existing capacity in the Upper Colorado River Basin. The State of Wyoming would provide funding for the study, design, planning and construction activities. Total cost of the project is as yet unknown. Federal funding could allow for more rapid completion and accelerated job creation.

Key Attributes: Supply enhancement, drought resilience, benefit to public land, regional benefits

Federal Authorization and Funding Sources: WIFIA; USBR Fontenelle; WIIN Storage

Resources: S. 199 (115th Congress, 1st Session), H.R. 648 (115th Congress, 1st Session); Senate Report 114-135 (accompanying S. 1305), <https://www.congress.gov/congressional-report/114th-congress/senate-report/135/1>

Grand Valley Powerplant Rehabilitation

The Grand Valley Power Plant (GVPP) is a component of the Bureau of Reclamation's Grand Valley Project in Western Colorado. It is operated by two large local irrigation districts, Orchard Mesa Irrigation District and Grand Valley Water Users Association, pursuant to a Lease of Power Privilege from Reclamation. The GVPP is an important feature on the Colorado River for flow stabilization and the recovery of four



endangered fish species pursuant to a long-term, multi-partner recovery program. Water for the GVPP, as well as for irrigation of 42,500 acres in the Grand Valley, is diverted at the Grand Valley Project Diversion Dam and then carried through a system of canals and siphons to the GVPP. After it is used to produce power, the water is discharged through a tailrace to the Colorado River at the head of critical habitat known as the 15 Mile Reach to support flows critical to the recovery of the endangered

species. If the GVPP could no longer produce power, its water right would not be able to provide flows to the 15 Mile Reach.

The two turbines and related controls at the GVPP are at the end of their useful lives and must be replaced to rehabilitate and modernize the plant and ensure its continued operation. The diversion dam on the Colorado River, along with related delivery features, is also in need of rehabilitation. The estimated costs are \$5.3 million for the GVPP rehabilitation and \$5 million for the diversion dam rehabilitation.

As a result of their critical role in the endangered species recovery program, which provides endangered species act coverage for more than 2000 water projects throughout Colorado, Utah, and Wyoming, the GVPP and diversion structure are essential to the interests of all users of Colorado River water, including the substantial transmountain diversions that supply municipalities on Colorado's Front Range. Upstream Colorado River mainstem water rights are at heightened risk without them. Without additional federal investment, the two irrigation entities and their members will bear the cost of rehabilitation, in essence supporting the recovery program for the benefit of the entire State of Colorado. Federal funding would enable a more equitable distribution of costs and benefits, create jobs, and provide security for the entire region.

Key Attributes: Drought resilience, benefit to public facilities, endangered species protection, regional multi-partner project, renewable energy generation

Federal Authorization and Funding Sources: WIFIA; WaterSMART

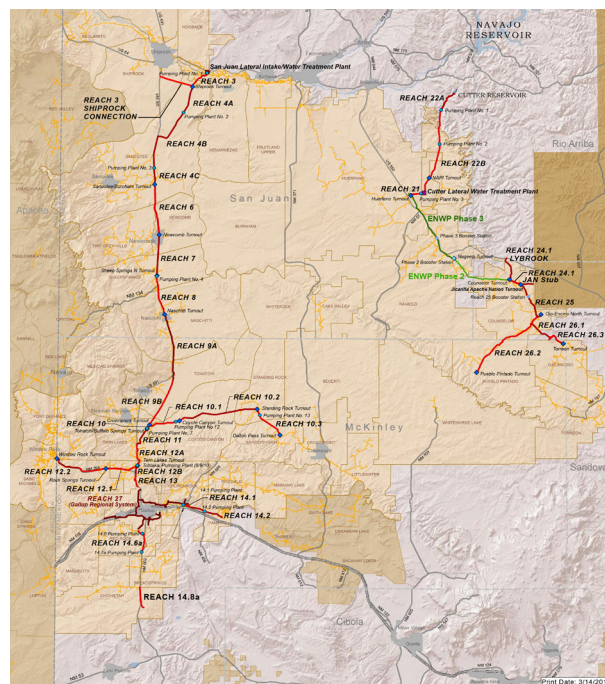
Resources: Colorado Water Conservation Board, Water Project Loan, Grand Valley Water Users Assn., Nov. 16-17, 2016, <http://cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=201129&searchid=3ab6c8c3-99fd-4739-94d4-85cc916a52e1&dbid=0>

Navajo Gallup Water Supply Project – San Juan and Cutter Laterals

The Navajo-Gallup Water Supply Project is the cornerstone of the Navajo Nation water rights settlement in the San Juan River Basin in New Mexico. This is a major infrastructure project that will convey a reliable municipal and industrial water supply from the San Juan River to the eastern section of the Navajo Nation, southwestern portion of the Jicarilla Apache Nation, and the city of Gallup, New Mexico via about 280 miles of pipeline, several pumping plants, and two water treatment plants. These areas currently rely on a groundwater supply that is being rapidly depleted, of poor quality, and inadequate to meet the current and future demands. Over 40% of Navajo Nation households currently rely on hauling water to meet their daily needs. Inadequate water supply also impacts the ability of the Jicarilla Apache people to live and work outside the reservation town of Dulce. The Project is designed to provide a long-term sustainable water supply to meet the future population needs of approximately 250,000 people in these communities by the year 2040.

The San Juan and Cutter Laterals are the primary conveyance structures for transporting water from the San Juan River to the places of use. Funding for ongoing construction is provided through appropriations to the Bureau of Reclamation. Completion could be accelerated and water provided to these critical needs through additional, one-time federal investment, creating employment

and boosting economic productivity in the entire northwest New Mexico area. Without additional funding, the San Juan and Cutter Laterals will not be completed until 2024.



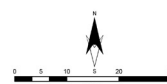
LEGEND

- San Juan Lateral
- Cutter Lateral
- Gallup Regional System
- Eastern Navajo Water Pipeline (ENWP) Phase 2
- Eastern Navajo Water Pipeline (ENWP) Phase 3
- Water Treatment Plant
- Pumping Plant
- Turnout
- Navajo Tribal Utility Authority Distribution System
- Navajo Nation Served Chapters
- Navajo Nation Non-Served Chapters
- Jicarilla Apache Nation (JAN)

Navajo Gallup Water Supply Project RECLAMATION Managing Water in the West

Note: Pumping Plant numbers reflect FEIS designations. Some pumping plants in original FEIS design have been combined and/or eliminated as a result of additional analyses and optimization studies.

Disclaimer: Not for construction purposes. Alignment may be refined as designs and field reviews are completed.



1695-529-537
Last Update: March 13, 2017

Key Attributes: Supply enhancement, benefit to public land, Indian water rights, public health and safety enhancement

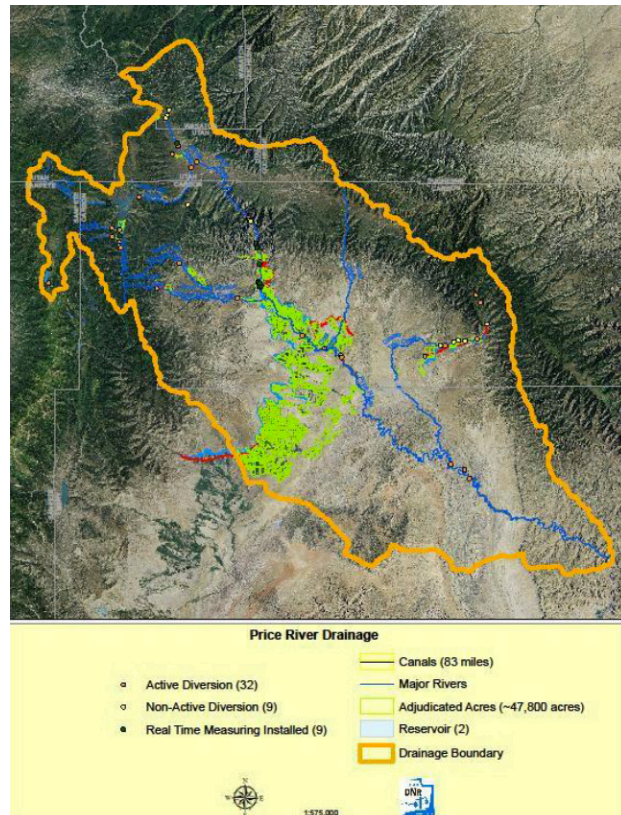
Federal Authorization and Funding Sources: USBR Navajo-Gallup; WIFIA

Resources: Navajo Gallup Water Supply Project, <https://www.usbr.gov/uc/rm/navajo/nav-gallup/index.html>
Permitting Dashboard, Federal Infrastructure Projects, <https://www.permits.performance.gov/projects/536306001>

Price River Watershed Enhancements

The Price River is a tributary of the Green River in central Utah. Diversions from the Price River irrigate approximately 16,300 acres of land, about half using flood irrigation. Multiple demands on Price River flows and lack of storage capacity have resulted in shortages in both agricultural and municipal water supplies. Cities in the area have also experienced loss and damages due to flooding. Open, unlined canals for the delivery of irrigation water are common, with attendant losses of as much as 50% of the water diverted. The flood irrigation practices contribute an estimated 98,000 tons of salt annual to the Price River, causing exceedances of the state standard for dissolved solids. Invasive plant species have become pervasive along the Price River, increasing consumptive loss of water through evapotranspiration and reducing the natural channel capacity, which contributes to increased frequency and severity of localized flooding. Irrigation diversion structures completely inhibit fish passage and sometimes leave sections of the River entirely dry.

A broad partnership of public and private entities, including local governments, state and federal agencies, irrigation associations, major water users, and environmental organizations formed the Price River Watershed Council. The Council has proposed an overall watershed plan that includes irrigation canal upgrades, conversion of flood irrigated fields to sprinkler irrigation, construction of a new 10,000



acre foot storage reservoir, rangeland enhancement, invasive species removal, and river restoration to restore channel capacity and allow fish passage. Both private and public land will enjoy the multiple benefits of the proposed watershed enhancement project. Total estimated cost for the project is \$113 million.

Key Attributes: Supply enhancement, irrigation efficiency, water quality improvement, regional benefit, multiple partners, river restoration, invasive species eradication, fish passage, rangeland enhancement, benefit to public land

Federal Authorization and Funding Sources: RCPP, EQIP, WIFIA, PL566, WaterSMART

Resources: Price River Watershed Plan, Utah Assn. of Conservation Districts, Zone 7, 2015; Improving Utah's Water Quality – Price River Watershed, Utah State University, Nov. 2012, https://extension.usu.edu/waterquality/files-ou/Watershed-information/Main/NR_WQ_2011-PriceRiver.pdf; RCPP application – Price River Watershed Enhancements, April 2017.

Steinaker Service Canal Enclosure Project

The Steinaker Service Canal is a feature of the Vernal Unit of the Central Utah Project of the Bureau of Reclamation, located in northeastern Utah. In the 50 years since the Vernal Unit's construction, demand for water in the area has increased substantially due to rapid population growth and an expanding



energy industry. Residential development adjacent to the canal has raised public safety concerns and increasingly high concentrations of selenium and salt from irrigation runoff are causing adverse environmental impacts.

The Steinaker Service Canal begins at Steinaker Reservoir and transports water twelve miles into

the Ashley Valley where it serves irrigated farms. Enclosure of the canal in a pipe is estimated to save approximately 4,000 acre feet of water annually and reduce the salt load in the Colorado River by 1,350 tons per year. The proposed pipeline will also increase the carrying capacity of the canal, allowing water from privately owned canals to be diverted and transported through the Vernal Unit facilities. This will increase overall efficiency, allow for significantly greater renewable hydropower generation, and further reduce in salt loading currently contributed by the privately owned open canals. The enclosure will eliminate seepage that has been causing problems for nearby residential development and remove the public safety risk of falling into the open canal.

Preliminary design is complete for the entire enclosure project. Piping of the first three miles of the Canal has already been completed, partly funded through a grant from the USDA Regional Conservation Partnership Program. Final design on the next phase of the project is underway. The cost of completion of the enclosure is estimated at \$70 million.

Key Attributes: Agricultural efficiency, multi-partner project, salinity reduction, public health and safety, renewable energy generation, regional benefits

Federal Authorization and Funding Sources: WaterSMART, RCPP, PL566, EQIP, WIFIA

Resources: Steinaker Service Canal Modification Project – Final Environmental Assessment, Sept. 2014, U.S. Bureau of Reclamation, <https://www.usbr.gov/uc/envdocs/ea/steinaker/ServCanal/index.html>

Wines Ditch Diversion and Conveyance Improvements

The Wines Ditch is an historical irrigation ditch that diverts water from the Dolores River in southwestern Colorado on land owned by the Bureau of Land Management (BLM) approximately four miles upstream from the Utah border. Both the Wines Ditch diversion structure and the associated Colorado water rights are owned and operated by a private



entity. The diversion structure is a boulder weir across the river that complicates boat passage at times and can require extensive maintenance. A new engineered diversion structure could alleviate these issues and also present opportunities for fish habitat enhancement and streambank stabilization. The private owner of the ditch and water rights, The Nature Conservancy, Colorado Parks and Wildlife, and American Whitewater are jointly exploring design alternatives for the diversion structure and conveyance system. Goals for the project include continued delivery and protection of the entire agricultural water right, enhancement of boat passage, stream bank stabilization, restoration of riparian habitat, and protection of upstream native fish species from non-native fish.

Planning is underway, partially funded through a grant from the Colorado Water Conservation Board. Firm cost estimates are not yet available, but total project cost will likely approach \$2 to 4 million.

Key Attributes: Agricultural efficiency, multi-partner project, benefit to public land, recreation improvement, environmental benefit, protection of species of concern

Federal Authorization and Funding Sources: WaterSMART, RCPP, PL566, EQIP

Resources: Wines Ditch No. 1 Diversion Structure-Colorado Water Conservation Board Water Supply Reserve Account Summary Sheet, Sept. 21-22, 2016, <http://cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=200334&searchid=8d203f76-5021-4af0-9b44-af922744d41b&dbid=0>

Colorado River Salinity Control Projects (Paradox Valley Unit replacement and Pah Tempe Springs)

The Colorado River Basin Salinity Control Act was originally enacted in 1974 and directed the Secretary of the Interior to proceed with a program to control the salinity of water delivered to users in the United States and Republic of Mexico. The Act contains two titles – Title I authorizes measures downstream from Imperial Dam and Title II authorizes measures upstream from Imperial Dam. A variety of specific projects, including the Yuma Desalting Plant and the 242 Well Field (Title I) and the Paradox Valley Unit (Title II) were authorized in the original legislation. Title II of the Salinity Control Act was amended in 1984 and 1995 to provide broader on-farm authority to the U.S. Department of Agriculture (now consolidated under EQIP) and authorizing the Secretary of the Interior, through the Bureau of Reclamation, to implement a basinwide salinity control program either by implementing control measures directly or cooperating with and/or funding non-federal entities.

Reclamation implements the Basinwide Salinity Control Program with appropriations of approximately \$8 million annually through cost share grants for projects proposed by private entities and meeting strict criteria. Federal funding can provide up to 70% of the cost of the projects. Many of the projects implemented under the Salinity Control Act involve public-private partnerships and several employ innovative methods and technologies for salinity reduction.

The Title II projects and programs have successfully reduced the salt load in the River by 1.3 million tons annually, avoiding over \$289 million in damages



to U.S. water. Additional funding for this program will continue and maintain the salt load reduction and potentially provide additional basis for fruitful discussions with Mexico concerning Colorado River water quality. Two examples of potential future projects stand out: The Paradox Valley Unit injection well in southwestern Colorado, one of the original components of the Salinity Control Program, is rapidly reaching capacity and replacement is required, a significant one-time cost. The proposed Pah Tempe Springs project in southwestern Utah could transform currently unusable Virgin River water into a valuable municipal supply. The Salinity Control Program is a much-admired success story with widespread support. It is important to connect and coordinate the Salinity Control Program projects with basin-wide efforts to conserve water for system reliability and risk reduction purposes, thereby maximizing the benefits of this funding.

Resources: Colorado River Salinity Control Program, Briefing Document, <http://coloradoriversalinity.org/docs/CRBSCP%20Briefing%20Document%202016-05-01.pdf>

Critical Stream Gages Essential to Water Management and Public Safety

You can't manage what you don't measure. Reliable streamflow information is needed for many purposes: for flood warnings and forecasts; drinking water management; irrigation withdrawals; hydroelectric power production; wastewater discharges and reservoir releases; legal and treaty obligations on interstate and international waters; preservation of aquatic habitats; water quality standards; recreation; infrastructure designs for highways, bridges, culverts,



dams, and levees; and for scientific investigations of streamflow history, ecosystem health, and climate change. The U.S. Geological Survey (USGS) works in partnership with more than 1,000 Federal, State, Tribal, and local agencies to provide reliable streamflow information across the country at more

than 8,200 stream gages nationwide. These gages, just like bridges and dams, are a vital part of the Nation's water infrastructure.

Timely and accurate stream flow measurements are essential to wise Colorado River management. Yet funding for many stream gages is constantly in flux because of fluctuations in available revenue from the multiple funding sources from external partners. Additional funding for the USGS Federal Priorities Stream gages would allow installation and reliable operation of the gages identified by each Colorado River Basin State as critical for providing necessary information to allow precise management of Colorado River flows.

Additional funding would also support new technologies to greatly increase predictive accuracy and timeliness for reservoir capacity, flood warning, and ecosystem need forecasts. Newer technologies can provide better accuracy in real-time measurement and flow prediction in higher elevation watersheds and small urban streams prone to flooding that cannot be delivered by more traditional gaging methods. Innovative mobile networks and rapid deployment gages also offer improved notice of flooding in ungaged streams and urban areas, thereby enhancing public safety.

Resources: USGS Federal Priority Stream gages, <https://water.usgs.gov/nsip/>; Streamflow Measurements: The USGS Streamgage Network, A Vital Earth Observing System - American Meteorological Society, <https://ams.confex.com/ams/97Annual/webprogram/Paper315259.html>

Existing Authorizations and Funding Sources

Each of the listed projects may fit within the scope of one or more existing cost-share funding programs and authorities. The authorizations applicable to each project are identified in each project description and include:

U.S. Bureau of Reclamation:

- Title XVI Water Reclamation and Reuse, P.L. 102-575 (Title XVI)
- Salton Sea Reclamation Act, P.L. 105-372 (USBR Salton Sea)
- Navajo-Gallup Water Supply Project, P.L. 111-11, Title X, Subtitle B, Part III (USBR Navajo-Gallup)
- Pima-Maricopa Irrigation Project, P.L. 108-451, Title II (USBR P-MIP)
- Fontenelle Reservoir, Colorado River Storage Project Act (43 U.S.C. 620), P.L. 85-485; S. 199 (pending 115th Congress, 1st Session) (USBR Fontenelle)

U.S. Department of Interior:

- WaterSMART Program, P.L. 111-11, Section 9504 (WaterSMART)
- Colorado River Salinity Control Program, P.L. 104-20, 98-569, 93-320 (Salinity Control Act)
- Indian Irrigation Fund, P.L. 114-322, Title III, Subtitle B
- Water Infrastructure Improvements for the Nation, P.L. 114-322, Title III, Subtitle J, Section 4007-Storage (WIIN Storage)

U.S. Department of Agriculture:

- Regional Conservation Partnership Program, P.L. 113-79, Title II, Subtitle E (RCPP)
- Environmental Quality Incentives Program, P.L. 113-79, Title II, Subtitle C; P.L. 104-127, Title III, Subtitle D, Sec. 334 (EQIP)
- Watershed Protection and Flood Prevention Act, P.L. 83-566 P.L. 113-79, Title II, Subtitle E, (PL566)

U.S. Environmental Protection Agency:

- Water Infrastructure Finance and Innovation Act, P.L. 113-121, Title V, Subtitle C (WIFIA)

U.S. Army Corps of Engineers:

- Salton Sea, Water Resources and Development Act, P.L. 110-114, Title III, Sec. 2032; P.L. 114-322, Title I, Subtitle A, Sec. 1181 (USACE Salton Sea)

The WIFIA, WaterSMART, Title XVI, EQIP, RCPP, and PL 566 Programs are described in additional detail below.

Water Infrastructure Finance and Innovation Act (WIFIA), U.S. Environmental Protection Agency

WIFIA was established in 2014 as a five-year pilot program to accelerate investment in U.S. water and wastewater infrastructure by providing long-term, low-cost supplemental credit assistance to creditworthy projects of national and regional significance. The act authorizes (1) EPA to provide credit assistance (secured/ direct loans or loan guarantees) for a range of drinking water and wastewater projects and (2) the U.S. Army Corps of Engineers (Army Corps) to provide similar assistance for water resource projects, such as flood control or hurricane and storm damage reduction. WIFIA was amended in 2016 to authorize the provision of support for projects that prevent, reduce or mitigate the effects of drought, including projects that enhance the resilience of drought-stricken watersheds. Secured loans are limited to 49% of eligible project costs. EPA administers WIFIA and has received \$20 million in appropriations for the 2017 fiscal year. No appropriations have yet been made for the Army Corps.

WIFIA targets primarily large infrastructure projects, \$20 million or larger, except that in rural areas (defined as populations of 25,000 or less) the threshold is reduced to \$5 million. Projects must be carried out by a state, local, or tribal government, or have public sponsorship if proposed by a private entity. In providing credit assistance through loan guarantees only the subsidy cost of a loan (representing the presumed default rate on loans) affects the Federal Treasury. EPA estimates that current budget authority may provide more than \$1 billion in credit assistance and finance over

\$2 billion in water infrastructure investment. EPA published the first WIFIA Notice of Funding Availability in January 2017, requesting that Letters of Intent be submitted by April 10, 2017.

Resources: EPA – WIFIA, <https://www.epa.gov/wifia>; Water Infrastructure Financing: The Water Infrastructure Finance and Innovation Act (WIFIA) Program, Congressional Research Service, April 2017, <https://fas.org/sgp/crs/misc/R43315.pdf>

WaterSMART, U.S. Department of the Interior

The WaterSMART (Sustain and Manage America's Resources for Tomorrow) was established in 2010 at the U.S. Department of the Interior to implement the SECURE Water Act (P.L. 111-11, Sections 9501-9510). WaterSMART grants are administered by the U.S. Bureau of Reclamation and provide 50/50 cost share funding to irrigation and water districts, Tribes, States and other entities with water or power delivery authority. Funded projects conserve and use water more efficiently, increase the use of renewable energy, protect endangered species, or facilitate water markets. Projects are selected through a competitive process and the focus is on projects that can be completed within 24 months that will help sustainable water supplies in the western United States. Since 2010, Interior has invested \$450 million in WaterSMART programs, conserving over 1 million acre-feet of water and leveraging another \$1.3 billion of non-federal money to build almost \$2 billion in projects. WaterSMART grants are currently being offered for projects addressing: water and energy efficiency; small scale water efficiency; and water marketing.

Resources: Bureau of Reclamation - WaterSMART, <https://www.usbr.gov/watersmart/index.html>; U.S. Department of the Interior, WaterSMART Progress Report 2010-2016, <https://www.usbr.gov/watersmart/docs/2016/2016watersmartprogressreport.pdf>

Title XVI, U.S. Bureau of Reclamation

In addition to WaterSMART grants described above, Interior's WaterSMART program includes the Bureau of Reclamation's water recycling and reuse program,

known as Title XVI (from its authority in Title XVI of P.L. 102-575, enacted in 1992). Title XVI includes funding for the planning, design, and construction of water recycling and reuse projects in partnership with local governmental entities. While initially Title XVI projects required specific authorization by Congress in order to be eligible for funding, the 2016 Water Infrastructure Improvements for the Nation Act amended the authorization to allow for the submission of feasibility studies to the Secretary of the Interior and the use of a competitive process for awarding funding, with priority given to areas identified as experiencing severe, extreme, or exceptional drought or designated as a disaster area by a State during the previous four years.

Resources: Bureau of Reclamation – Title XVI Water Reclamation and Reuse, <https://www.usbr.gov/watersmart/title/index.html>

Environmental Quality Incentive Program (EQIP), U.S. Department of Agriculture

EQIP provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air and related natural resources on agricultural land and non-industrial private forestland. EQIP may also help producers meet Federal, State, Tribal, and local environmental regulations. The program is directed primarily at agricultural producers with incomes of less than \$900,000 for on-farm improvements. EQIP has typically been funded at \$1.3 – 1.6 billion annually. For the Colorado River Basin, coordinating and focusing EQIP to help ensure that conserved water benefits system resilience will help ensure public benefits of the federal investment.

Resources: USDA Natural Resources Conservation Service – Environmental Quality Incentives Program, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>

Regional Conservation Partnership Program (RCPP), U.S. Department of Agriculture

The RCPP encourages partners to join in efforts with agricultural producers to increase the restoration

and sustainable use of soil, water, wildlife and related natural resources on regional or watershed scales. Administered by the Natural Resources Conservation Service (NRCS), it relies on USDA authority under the EQIP program and other authorizations. In regions designated by the Secretary of Agriculture as "RCPP Critical Conservation Areas," which include the Colorado River Basin, NRCS can also implement RCPP through the authority of the Watershed Protection and Flood Prevention Act, P.L. 566, described below, which provides off-farm authority. RCPP receives mandatory funding of \$100 million annually and also pulls 7% from the funding of USDA's EQIP, Conservation Stewardship, Agricultural Conservation Easement, and Healthy Forests Reserve Programs, which provides a total of close to \$1 billion annually. No less than 35% of RCPP funding must be used in the Critical Conservation Areas.

Resources: USDA – NRCS – Regional Conservation Partnership Program, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/rcpp/>; USDA – RCPP: Partner-Led Solutions, USDA – December 2016, file:///Users/annecastle/Downloads/RCPPpartnerledsolutions.pdf; Strengthening Conservation with Regional Partnerships – Use of the Watershed Protection and Flood Prevention Act Authority for the RCPP, file:///Users/annecastle/Downloads/rcpp-pl-566-factsheet.pdf

Watershed Protection and Flood Prevention Act, P.L. 566, U.S. Dept. of Agriculture

The Watershed Protection and Flood Prevention Act, commonly known as PL566 after its authorizing legislation enacted in 1954, provides for cooperation

between the Federal government and state and local agencies in a program to prevent erosion, floodwater, and sediment damage; to further the conservation, development, utilization, and disposal of water; and to further the conservation and proper utilization of land in authorized watersheds. PL566 requires the development of physically, environmentally, socially, and economically sound watershed project plans. Eligible projects are locally driven, must have public sponsors, and meet requirements for participation by the public and local involvement. The 2014 Farm Bill, in establishing the Regional Conservation Partnership Program described above, authorized the Secretary of Agriculture to use the authorities of PL566 to implement the RCPP in designated critical conservation areas like the Colorado River Basin, providing off-farm jurisdiction in those areas. Cost sharing grants are provided, with the limits on the federal contribution varying with the type of project involved. The PL566 program has not received independent appropriations since 2010 but now benefits from a portion of the RCPP funding.

Resources: USDA – NRCS – Watershed and Flood Prevention Operations Program, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wfpo/>; USDA – National Watershed Program Manual 4th Edition 1st Amendment, file:///Users/annecastle/Downloads/NWPM__4th_Ed_Amendment_1_January_2015%20(1).pdf