

**Tibble Fork Dam
Utah County, Utah**



The Tibble Fork Dam provides flood protection, a water supply and a popular recreational area.

The Tibble Fork Dam is located in the Uinta-Wasatch-Cache National Forest south of Salt Lake City, Utah. The dam was originally constructed in 1966 by the North Utah County Water Conservancy District with the assistance of the Natural Resources Conservation Service (NRCS) Watershed Program.

The dam no longer met the current dam safety standards and because of the risk of loss of life downstream if the dam failed it was rehabilitated to current safety standards. Rehabilitation extended the life of the dam and its benefits for another 71 years. Work on the project started in 2016 and was completed in 2017.

Rehabilitation included raising the dam crest by 15 feet, replacing the existing auxiliary spillway with a concrete/covered box inlet and raising it by 13 feet and other improvements.

Rehabilitating the dam also provided the opportunity to double the size of the surface area of the lake and adding 120 acre feet of water storage.

The dam provides flood protection for cities and rural areas downstream that includes 140 houses, 2 schools, 4 businesses, and 3 highways. The lake provides water supplies, recreational areas for hiking and fishing, fish and wildlife habitat, and sediment retention.

Partners in the rehabilitation project included the North Utah County Water Conservancy District, USDA Natural Resources Conservation Service and the U.S. Forest Service.

**East Fork Above Lavon Dam No. 2A
McKinney, Texas**



East Fork Above Lavon Dam No. 2A after rehabilitation project was completed.

The East Fork Above Lavon Dam No. 2A was originally constructed in 1958 in a then-rural area of Collin County, Texas. The dam had exceeded its 50-year design life span. This aging structure required rehabilitation to extend its service life, increase sediment storage, and was upgraded to meet current dam safety standards for a High Hazard potential dam to protect a growing population downstream.

The City of McKinney (project sponsor) contacted the NRCS to help complete the project. Through the Watershed Rehabilitation Program, NRCS provided 65 percent of the estimated \$3.8 million rehabilitation cost and sponsor was responsible for 35 percent of the cost. The project represents the eighth dam the City has rehabilitated with the assistance of the Watershed Rehabilitation Program.

The City provided 17 percent of the total cost. The Texas State Soil and Water Conservation Board provided the remaining 18 percent needed for the rehabilitation. Additional project partners included the Collin County Soil and Water Conservation District, the local steering committee, the property owner, and a development company.

The work included replacing the principal spillway with a more modern, less maintenance design; widening and armoring the auxiliary spillway to accommodate additional flows; and improving the dam's slope to avoid slides and facilitate maintenance. An innovative aspect of the dam's design included armoring the auxiliary spillway with articulated concrete blocks, covering with top soil and seeding it for a grass cover in lieu of a constructing an overtopping spillway with roller compacted concrete.

Watershed Rehabilitation Progress Report February 2018

The Watershed Program: Providing Multiple Benefits to Communities for Over 70 Years

Congress established the Watershed Program by enacting the Flood Control Act of 1944 (Public Law 78-534) and the Watershed Protection and Flood Prevention Act of 1954 (Public Law 83-566).

Under these authorizations, the USDA Natural Resources Conservation Service (NRCS) has assisted watershed project sponsors in the construction of more than 11,845 flood control dams in 1,271 watersheds in 47 States since 1948.

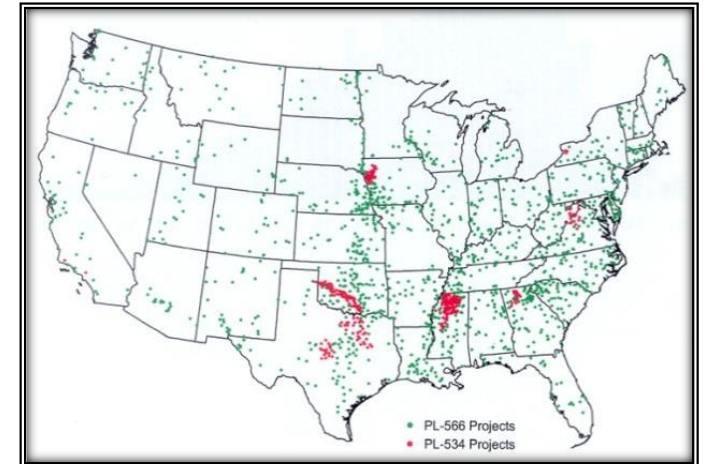
These projects provide an estimated \$2.2 billion in annual benefits in reduced flooding and erosion damages, recreation, water supplies and wildlife habitat.

Time Has Taken Its Toll on Dams

Many dams today are in a far different setting than when they were constructed. Population has increased; residential and commercial development has occurred upstream and downstream from the dams; land uses have changed; sediment pools have filled; and concrete and metal components have deteriorated.

Many dams do not meet current State dam safety standards that have more stringent requirements than when the dams were built.

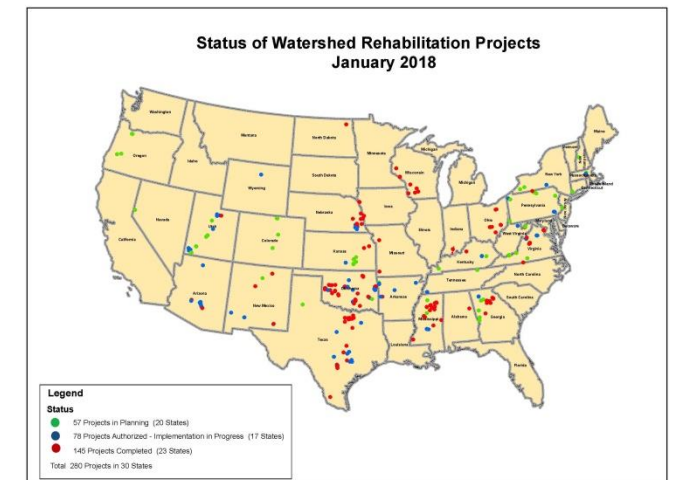
Many of these dams are also nearing the end of their planned service life of 50 years. These need rehabilitating to ensure they remain safe, continue to function as designed and continue providing benefits.



Flood control dams have been constructed in 1,271 watersheds in 47 States.

Status of Rehabilitation Projects

As of January 2018, there are 279 approved rehabilitation projects in 30 States. One hundred and forty-five of these projects in 23 States have been completed; 78 projects in 17 States are being implemented (either in design or construction phase); and 56 projects in 20 States are in the planning stage.



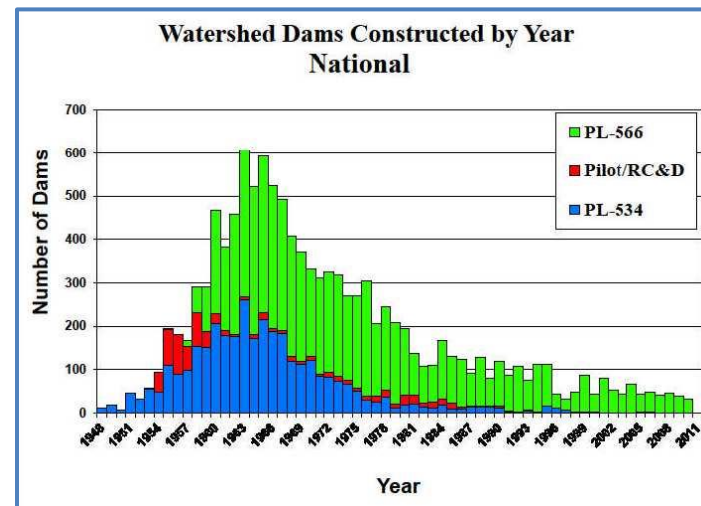
Watershed Rehabilitation Amendments of 2000

Congress passed the Watershed Rehabilitation Amendments of 2000 which amended the Watershed Protection and Flood Prevention Act (Public Law 83-566) to authorize the NRCS to provide technical and financial assistance to watershed project sponsors in rehabilitating their aging dams.

The purpose of rehabilitation is to extend the service life of the dams and bring them into compliance with applicable safety and performance standards or to decommission the dams so they no longer pose a threat to life and property.

NRCS provides technical assistance and 65 percent cost share on approved rehabilitation projects. Funding for projects comes from Congressional appropriations.

Funds for rehabilitation are authorized in the Farm Bills and are appropriated annually by Congress. Discretionary and Commodity Credit Corporation (CCC) funding has been authorized. The 2014 Farm Bill authorized \$250 million in CCC funds. In FY 2015 Congress appropriated \$12 million in discretionary and \$73 million in Farm Bill funding. Congress appropriated \$12 million in discretionary funding and \$9 million in CCC funds for the Watershed Rehabilitation program in fiscal year 2017.



Many of the 11,845 flood control dams were built in the 1960s-70s and now are 40 to 50 plus years old. Most were designed for a 50-year service life.

Local Sources of Cost-Share Funds

Local watershed project sponsors provide 35 percent of the cost of a rehabilitation project and obtain needed land rights and permits. The source of these funds varies from state to state.

Some of the methods that states utilized to obtain funding for rehabilitation include:

- Bonds,
- County budgets
- State park division
- State appropriations
- Municipal taxing authority
- Watershed taxing authority
- In-kind technical services

National NRCS Watershed Rehabilitation

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Included in this publication are examples of rehabilitation projects in four states. Fact sheets with more details on these and other rehabilitation projects are available on the NRCS website: www.nrcs.usda.gov and the National Watershed Coalition website: www.watershedcoalition.org

White Tanks No. 4 Flood Retarding Structure Maricopa County, Arizona



Aerial view of White Tanks No. 4 Flood Retarding Structure

White Tanks No. 4 Flood Retarding Structure was constructed by local watershed project sponsors with the assistance of the USDA Soil Conservation Service (now Natural Resources Conservation Service) in 1954. It is operated and maintained by the Flood Control District of Maricopa County.

The structure receives storm water runoff from the southeast side of the White Tanks Mountains as well as from storm water facilities located to the north.

The Arizona Department of Water Resources (state agency with regulatory authority) classified the dam as having safety deficiencies and it needed corrective action to bring it into compliance with federal and state dam safety standards and performance requirements. Deficiencies included transverse cracking of the embankment, inadequate left and right spillways, and unprotected corrugated metal pipe outlets.

The original 1.3 mile long, 20-foot high earthen structure provided flood protection for urban and rural areas downstream for over 60 years. The sponsors decided it was critical to rehabilitate the dam to provide flood protection for another 100 years.

The rehabilitation consisted of raising the dam embankment, grading of the flood pool to remove a large borrow area pit, widening and extending the existing flood structure to 1.6 miles and adding upgrades, including an architecturally and structurally enhanced concrete auxiliary spillway, drop inlet structures with realigned inflow channels and a new concrete principal spillway outlet structure.

Barnitz Creek Watershed Dam No. 5 Dewey County Oklahoma



Barnitz Creek Watershed Dam No. 5

Barnitz Creek Watershed Dam No. 5 is located four miles southeast of Leedey, Oklahoma. The dam was constructed in 1954 by the Dewey County Conservation District with the assistance of the Oklahoma Conservation Commission and the USDA Natural Resources Conservation Service (NRCS) Watershed Program.

The dam is one of 76 flood control dams constructed in the Barnitz Creek watershed for flood control of agricultural lands. Drainage from the watershed flows into the Washita River.

The dam was originally designed and constructed as a Low Hazard potential dam to protect agricultural lands from flooding. It was designed with a 50-year design life and was over 60 years old when it was rehabilitated.

The dam was reclassified to a High Hazard potential dam in 2008 due to a risk of loss of life, state highway, four county roads downstream, and changes in state dam safety criteria.

The dam was rehabilitated to bring it up to High Hazard potential classification safety criteria and to extend its benefits for another 100 years.

The project consisted of removing the existing 14-inch diameter principal spillway conduit and replacing it with a 30-inch diameter reinforced concrete conduit with a new concrete inlet. The top of the dam was raised 6.3 feet. The auxiliary spillway crest elevation was raised 4.9 feet with auxiliary spillway flows on both sides of the embankment. One of the auxiliary spillways is 130 feet in width and the other 60 feet in width. A riprap plunge basin was installed to dissipate energy at the of the principal spillway outlet.

