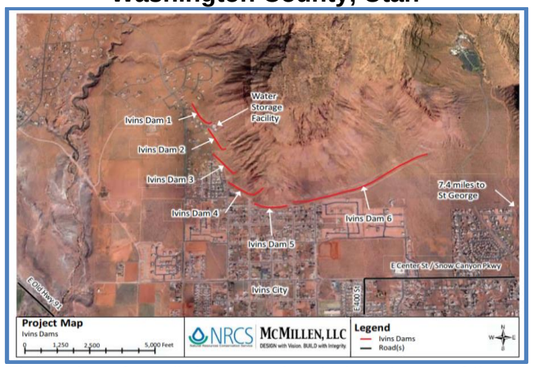
Ivins Dams
Washington County, Utah



The series of small dams are located upstream of the City of Ivins.

Flooding occurred regularly in the area around the City of Ivins (current population: 8,913) prior to the late 1970s. City officials worked with the USDA Soil Conservation Service (now Natural Resources Conservation Service - NRCS) in 1968 to develop a watershed plan that included construction of six small flood control dams for protection of rural lands. Now the dams also protect residents' homes.

The dams are 10-15 feet tall and extend two miles around the base of the Red Mountain.

The high hazard dams were rehabilitated in 2019 to meet current NRCS and Utah Dam Safety engineering and performance criteria and to extend the life of the dam for another 100 years.

Rehabilitation Details:

- Auxiliary spillways were improved on all six dams to varying degrees.
- Old cages around the existing intake towers were removed and replaced.
- The crests of the dams were sloped toward the detention basins and regraded with an additional six inches of road base on top for improved stability.
- Any vegetation taller than 30 inches was removed from the dams to prevent formation of taproot into the dam embankment.
- Accumulated sediment was removed where necessary, primarily from dams No. 1, 2 and 6.

The $1,437,000 project was funded with 65 percent of the cost was provided by NRCS and 31.5 percent by the state of Utah. All remaining funding was provided by City of Ivins.

Mountain Run Watershed Dam No. 11
Culpeper County, Virginia

A six -cycle structural concrete labyrinth spillway was constructed over the embankment.

Mountain Run Watershed Dam No. 11, known locally as the Mountain Run Lake, was constructed in 1959 by the Culpeper Soil and Water Conservation District and the Town of Culpeper with assistance from the USDA Natural Resources Conservation Service.

The dam was constructed for flood control and for a water supply for the Town of Culpeper. The dam creates a 75 surface acre reservoir. Mountain Run Lake Park is adjacent to the lake and provides a variety of water-based recreational facilities.

The dam is one of five dams constructed in the Mountain Run Watershed project between 1959 and 1973.

The dam was rehabilitated because the earthen auxiliary spillway did not have the capacity to pass the water volume required by current Virginia dam safety regulations.

The dam is classified as high hazard because a failure of the dam could cause loss of life and property downstream. 3,485 people and 611 structures could be affected by a dam breach.

Rehabilitation Details:

The rehabilitation project included constructing 144-foot wide, 6-cycle structural concrete labyrinth spillway over the embankment, installing a SAF stilling basin and rip-rap outlet protection, installing an earthen berm in the existing auxiliary spillway and upgrading the principal spillway riser to meet seismic criteria through the installation of about 5.5 feet of granular rock fill placed above and around the periphery of the existing riser footer.

Rehabilitation will ensure the dam continues to provide flood protection, water supply, recreation, and protection of water quality.

Watershed Rehabilitation Progress Report February 2020

The Watershed Program: Providing Multiple Benefits to Communities for 75 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.

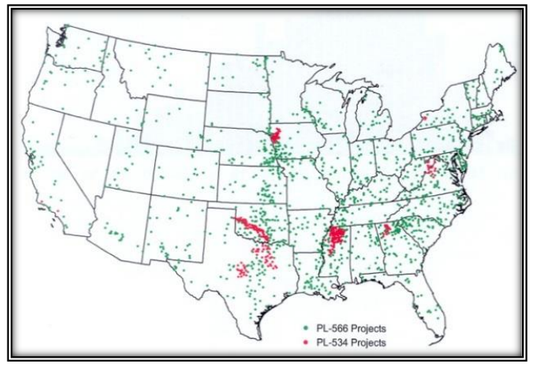
These projects provide an estimated $2.2 billion in annual benefits in reduced flooding and erosion damages, recreation, water supplies and wildlife habitat.

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.

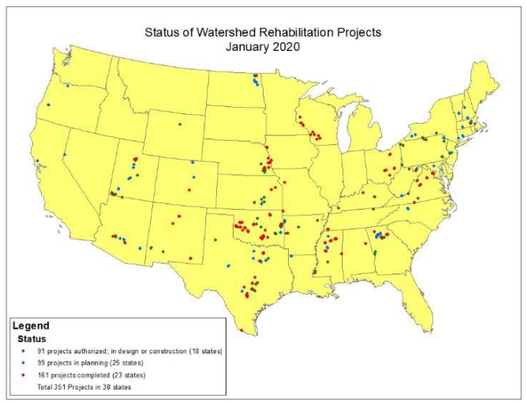
Many of these dams are also nearing the end of their planned service life of 50 years. Some of these dams need rehabilitating to ensure they remain safe, continue to function as designed and continue providing benefits. In some cases, additional new benefits such as adding water supply storage and recreation areas are a part of rehabilitation projects.



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

Status of Rehabilitation Projects

As of February 2020, there are 351 approved rehabilitation projects in 38 States. One hundred and sixty-one of these projects in 23 States have been completed; 91 projects in 18 States are being implemented (either in design or construction phase) and 99 projects in 25 States are in the planning stage.



Watershed Rehabilitation Amendments of 2000

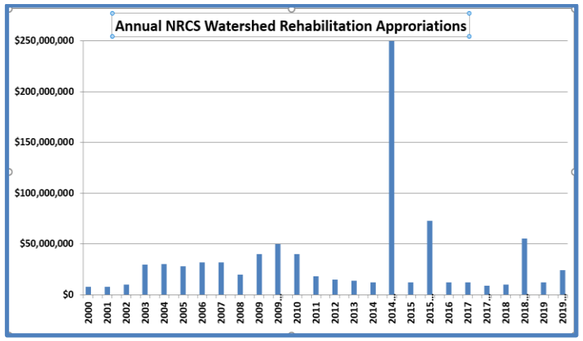
Congress passed the Watershed Rehabilitation Amendments of 2000 which amended the Watershed Protection and Flood Prevention Act (Public Law 83-566) to authorize the NRCS to provide technical and financial assistance to watershed project sponsors in rehabilitating their aging dams.

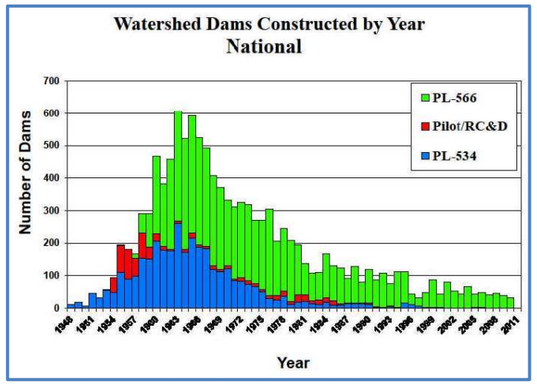
The purpose of rehabilitation is to extend the service life of the dams and bring them into compliance with applicable safety and performance standards or to decommission the dams so they no longer pose a threat to life and property.

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 Corportation (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 $24 million was received through Farm Bill annual funding for Watershed Rehabilitation program in fiscal year 2019.





Many of the 11,845 flood control dams were built in the 1960s-70s and now are 50 to 60 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

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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 National Watershed Coalition website: www.watershedcoalition.org

Battle Creek Debris Basin
Utah County, Utah

Rehabilitation included raising the crest of the dam by two feet and replacing the auxiliary spillway with a concrete labyrinth weir.

The Battle Creek Debris Basin is in the American Fork-Dry-Creek Watershed and was constructed in 1961 by the North Utah County Water Conservancy District (NUCWD) with assistance from the Natural Resources Conservation Service (NRCS) to prevent flooding and collect sediment from the watershed.

The dam was rehabilitated to meet the current NRCS and Utah Dam Safety engineering and performance criteria and to extend the life of the dam 100 years.

Rehabilitation Details:
The rehabilitation project included improving the embankment slope, adding a toe drain, raising the crest of the dam by two feet, adding rock riprap to the outlet channel, replacing the principal spillway outlet structure with improved concrete structure and trash rack, repairing sections of the existing outlet discharge pipe and removing three feet of sediment from the basin area.

Rehabilitation of the dam will bring the dam up to current State dam safety criteria and extend its life and benefits for another 100 years.

The City of Pleasant Grove will benefit from the project by continued flood protection, sediment retention and ground water infiltration benefits. Over 10,000 residents, 469 businesses, two schools, and two highways will be protected from flooding. The average annual benefits total $32,000

Dry Creek Dam
Fremont County, Colorado

Dam after completion of rehabilitation project.

The Dry Creek Watershed Dam was constructed in 1970 by the City of Florence, Colorado and the Fremont Soil Conservation District . Technical and financial assistance was provided through the Sangre de Cristo Resource Conservation and Development Program (RC&D) administered by the USDA Soil Conservation Service (now the Natural Resources Conservation Service -NRCS).

Prior to construction of the dam extreme rainfall events created a serious flood hazard to the residential and business community of Florence. In addition to structural damages large accumulations of water, sediment and flood debris had to be removed after floodwaters receded and streets and roads had to be repaired.

The condition of the dam had deteriorated over time due to significant cracking, both shallow and deep, and the presence of dispersive soils. This caused the dam to no longer meet the current criteria for a high hazard dam.

The rehabilitation project included removal of the upper 9.8 feet portion of the existing dam, installing geotextile fabric and granular fill material over the existing drainage system within the dam and reinstalling compacted earth fill to restore the embankment to its original lines and grades.

NRCS provided technical assistance and 65% of the construction cost. The City of Florence provided the other funding. The project extended the benefits and life of the dam for another 100 years. The dam provides flood protection for 83 houses, thirteen businesses, a middle school, 11 roads and 267 citizens. It is estimated to provide and average of $98,406 in annual benefits from reduced flood damages.

This report was developed by the National Watershed Coalition in cooperation with the USDA Natural Resources Conservation Service.
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February 2020