

was completed in 1932 by the Brown County Water Improvement District No. 1 at a cost of about \$1,500,000 to impound water for: irrigating lands in the lower Pecan Bayou Valley; providing municipal water supply for the City of Brownwood; affording partial flood protection to the lower valley and the City of Brownwood by reducing the magnitude of floods that originate above the dam, and providing recreational opportunities. A distribution system for delivering water to lands within the irrigation district and to the City of Brownwood was completed in 1939 at an estimated cost of \$1,000,000.

The existing Lake Brownwood has an estimated total storage capacity of 130,000 acre-feet below the top of water conservation level at elevation 1425.0. The earth fill embankment is about 1,500 feet long, has a top elevation of 1450 feet and a maximum height is about 117 feet. Two nine-foot conduits through the dam were included for drawing down the reservoir during emergencies and a 5-foot conduit near the south end of the dam for releasing waters into the irrigation system. An uncontrolled spillway is located in a natural saddle about 2,000 feet north of the dam and was constructed by a cut through the saddle. The spillway has a width of about 480 feet with a concrete sill crest at elevation 1425 feet.

The Brown County Water Improvement District No. 1 has had to make major repairs on the conduit and the conduit-gate structure and does not now utilize the existing Broom gates at the intake end of the nine-foot conduit, but uses 24 inch outlets which by-pass the Broom gates for regulating the lake level. The reduction of discharging capacity of the outlet results of more frequent use of the existing spillway. Lake Brownwood affords water supply for the cities of Brownwood, Bangs, Santa Anna, and Early for municipal and industrial purposes and water supply for irrigating about 5,000 acres of irrigable land within the boundaries of the district.

Problems exist at Lake Brownwood due to the inadequacy of the existing dam and spillway. The existing embankment lacks sufficient height and structural stability. The spillway channel is undergoing deterioration due to erosive action of spillway discharge. Failure of the existing embankment under extreme flood conditions would cause catastrophic conditions within the downstream area.

Local flood protection works consisting of channel rectification work and low levees on Willis and South Willis Creek were constructed in 1943 by the Department of the Army with military funds for the purpose of relieving the aggravated flood conditions brought about by the construction at Camp Bowie.

The Coleman Dam and Reservoir is located 14 miles north of Coleman on Jim Ned Creek, a tributary of Pecan Bayou upstream from Lake Brownwood. The project was completed by the City of Coleman in May, 1966. The project was developed by the City in lieu of the proposed Coleman Reservoir contained in the Corps of Engineers report.

The 3200 feet long earth fill structure has a maximum height of 90 feet with the top of dam at elevation 1740 feet. The reservoir has a capacity of 40,000 acre-feet which provides a municipal and industrial water supply. The reservoir has a surface area of 2000 acres at the service spillway elevation of 1717.5 feet.

Other projects in the Pecan Bayou watershed include the Hords Creek Reservoir, completed by the Corps of Engineers in June 1948, and watershed programs of the Soil Conservation Service. The multiple-purpose Hords Creek Reservoir has a total capacity of 25,310 acre-feet of which 15,500 acre-feet is for flood control, 6,950 acre-feet is for water supply purposes and 2,860 acre-feet is sediment reserve.

PROPOSED PLAN OF IMPROVEMENTS

The plan of improvement proposed by the Corps of Engineers for the Pecan Bayou watershed would be constructed in lieu of the authorized plan for Lake Brownwood enlargement. The proposed multiple-purpose plan would involve the following units studied for the period 1970 through 2070.

a. Lake Brownwood Dam protective measures involving a new earth embankment, new outlet work, and erosion control measures for the existing spillway; but no increase in controlled reservoir storage.

b. Brownwood channel improvement involving (1) about 38,800 feet of improved channel on Pecan Bayou at Brownwood with design channel capacity of 92,000 second feet and 2,000 feet of diversion channel from West Slough to Pecan Bayou; (2) about 11,600 feet of improved channel on Adams Branch at Brownwood with design channel capacities of 13,200 and 7,400 second feet downstream and upstream from the confluence with Tom Williams Branch, 3,600 feet of diversion channel from Adams Branch to Pecan Bayou with capacity of 13,200 second feet and 1,100 feet of diversion channel from Tom Williams Branch to Adams Branch with capacity of 5,800 second feet; and (3) 16,000 feet of