

Mineral Ridge Dam Rehabilitation Project Fact Sheet

BACKGROUND/HISTORY:

The Mahoning Valley Sanitary District (MVSD) (District) has provided quality water for its customers since 1932. The District currently furnishes water to the two member cities of Youngstown and Niles, and to the Village of McDonald as agent of the member cities. These entities then supply water to the surrounding metropolitan area including Girard, Canfield, Mineral Ridge, and the Village of Lordstown, Craig Beach, as well as portions of ten townships in Trumbull and Mahoning Counties. The population served is estimated at 220,000.

The source of water supply for the MVSD's 60 million gallon per day capacity water treatment plant comes from the existing Meander Creek Reservoir. The reservoir is seven miles long, covers 2,010 acres with 40 miles of shoreline, had a drainage area of 83.9 square miles and a storage capacity of 11 billion gallons.



Meander Creek Reservoir is impounded by the existing Mineral Ridge Dam, which is in Trumbull County and is owned and operated by the District. The water treatment plant is located immediately downstream of the dam. Construction of the 90-year-old dam was completed in 1932 and major modifications and repairs were made to the dam in 1995. The earthfill embankment dam is approximately 3,480 feet long and 60 feet high.

Mineral Ridge Dam is classified as a Class I structure by the Ohio Division of Natural Resources (ODNR). This classification indicates that if a failure of the dam were to occur, the resulting inundation in areas downstream of the dam would result in a probable loss of human life.

PROJECT SCOPE:

The dam rehabilitation will address potential failure modes while passing a maximum potential flood event, while also addressing ODNR and Federal dam safety criteria and other needed upgrades and repairs. Major components of the dam rehabilitation project are as follows:

- Abandon the existing twin emergency spillways and replace with a roller-compacted concrete auxiliary spillway.
- Extend existing embankment concrete core wall to Elevation 918.0 feet and modify the top of dam roadway.
- Flatten the downstream embankment slope from 2.0 Horizontal to 1.0 Vertical (2H:1V) to between 2.5H:1V and 3H:1V and install internal filter drains to safely collect and convey potential seepage.
- Modify and repair the principal (or primary) spillway, including raising and buttressing the existing training walls with new reinforced concrete walls to accommodate the flattened embankment slopes, lining the ogee surface, and stilling basin with a new reinforced concrete liner slab, installing rock anchors in the stilling basin slab to improve stability and concrete surface repairs.



- Install post-tensioned anchors into the dam's foundation to improve the stability of the principal spillway concrete ogee structure and the gate house structure.
- Replace existing inflatable rubber bladder and controls at the principal spillway.
- Install a new rock berm on the upstream embankment slopes to improve stability.
- Replace the stairway on the east embankment slope.
- Remove the existing spoil pile to improve surface drainage adjacent to the downstream toe of the east embankment slope.
- Upgrade dam-related instrumentation, electrical and lighting systems.
- Improve the existing east and west access roads leading to the dam.

The project schedule currently assumes a construction notice-to-proceed in November 2023, substantial completion in 2025, and final completion by mid-2026. Construction cost is currently estimated at \$42 million, and construction administration and engineering costs are an additional \$3.5 million.