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DEP Receives Prestigious National Award for Reconstruction of Gilboa Dam

Association of State Dam Safety Officials recognizes Gilboa Dam project as National Rehabilitation Project of the Year

Photos of the Gilboa Dam project can be found on DEP's [Flickr Page](#)

New York City Department of Environmental Protection (DEP) Commissioner Emily Lloyd today announced that the full-scale rehabilitation of Gilboa Dam has been recognized as National Dam Rehabilitation Project of the Year by the Association of State Dam Safety Officials (ASDSO). DEP received the association's top award earlier this month during a ceremony in New Orleans. ASDSO annually honors individuals and organizations that provide exemplary contributions to the improvement of dam safety throughout the United States. Its most prestigious award, the National Dam Rehabilitation Project of the Year, recognizes unique projects that advance state-of-the-art designs in the field of dam safety and exemplify the professional engineering and construction standards that dam safety requires. It is presented annually to an individual, company, agency or organization whose project is judged to best represent those qualities from among a group of qualified nominees. In addition to DEP, the consulting engineer firms of Gannett Fleming, and Hazen and Sawyer were also recognized for their work at Gilboa Dam.

"DEP is proud that our rehabilitation of Gilboa Dam has been recognized with this high honor by the Association of State Dam Safety Officials," **DEP Commissioner Emily Lloyd** said. "The completion of Gilboa Dam in 2014 was an important milestone for New York City's water supply and downstream

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communities. The dedicated team of engineers, planners, managers and construction workers who rebuilt the dam deserve credit for delivering the project two years ahead of schedule and for representing the highest standards of their profession. I would like to especially thank our DEP staff who played a crucial role in every stage of this important project.”

“On behalf of the ASDSO Board of Directors and as chair of the Awards Committee, I want to congratulate the NYC DEP and their team, including Gannett Fleming and Hazen & Sawyer, for winning our most prestigious award, the National Rehabilitation Project of the Year,” said **Jim Pawloski, president-elect of ASDSO**. “This award recognizes a unique remedial design that advances the state-of-the-art in the field of dam safety and exemplifies the professional engineering and construction standards that dam safety requires. The rehabilitation of Gilboa Dam epitomizes those qualities.”

The \$138 million reconstruction of Gilboa Dam was completed in 2014, two years ahead of schedule. The project included the addition of approximately 234 million pounds of concrete, molded and dyed to resemble the original bluestone face of the dam, along with more than 500 massive spillway slabs and upgrades to the abutment walls that support the dam.

Gilboa Dam is 2,024 feet long, 182 feet high, and more than 150 feet wide at its base. Several new features were added to the dam during its rehabilitation, including an inspection gallery inside the dam that runs its entire length. The gallery – which also includes instruments to constantly measure stress on the dam – will allow engineers to visually inspect the inside and outside of the dam on a regular basis. The dam was also designed with 3-, 6- and 12-foot steps that dissipate the energy of water as it spills from the reservoir. The east and west abutment walls that support Gilboa Dam were also strengthened through the installation of 40 post-tensioned anchors, or steel cables that pull them tight to the bedrock. The project employed as many as 180 tradesmen from in and around the watershed through an agreement with local unions.

The rehabilitation was completed ahead of schedule despite a nine-month setback in the wake of Hurricane Irene, which inflicted historic damage upon the Catskills. The powerful storm sent roughly 8 feet of water over the dam’s spillway, destroyed much of the staging area for construction, along with access roads and work platforms.

DEP began a thorough investigation of the integrity of Gilboa Dam after the flood of 1996, which overtopped the spillway by 6.7 feet, a record at the time. An initial investigation, completed in 2003, found that Gilboa Dam would require a comprehensive rehabilitation and upgrade because it likely did not meet modern standards for dam safety. Additional engineering work in 2005 found that Gilboa Dam had a marginal factor of safety for flood conditions similar to the record flood of 1996.

Following that report, DEP moved immediately to make emergency repairs. In 2006, a 220-foot-long by 5.5-foot-deep notch was cut from the top of the westernmost portion of the dam to control water spilling from Schoharie Reservoir and allow for the installation of 80 anchoring cables into the top and outer face of the dam. These post-tensioned anchors significantly improved the safety of the dam by pulling it tighter to the bedrock below.

While work on Gilboa Dam is complete, construction at the site will continue until approximately 2020. The rehabilitation of Gilboa Dam is part of a \$400 million program to build and improve other facilities near the dam. This includes a permanent release tunnel that will replace the temporary siphons, giving DEP the ability to release water from Schoharie Reservoir around the Dam and into Schoharie Creek below. Work on the release works began this year. The remaining projects also include site restoration, rehabilitation work on the Shandaken Tunnel Intake Chamber, and the construction of a public information kiosk off Route 990V.

Gilboa Dam was built from 1919 to 1927 and impounds Schoharie Reservoir, the

northernmost reservoir in the City's water supply system. Schoharie Reservoir can store up to 19.6 billion gallons of water, and it accounts for roughly 15 percent of the drinking water delivered to New York City each day. Schoharie Reservoir collects water from a 314-square-mile watershed. It diverts that water through the 18-mile Shandaken Tunnel, which discharges into the Esopus Creek where it travels another 5 miles before entering Ashokan Reservoir. From Ashokan Reservoir, the water flows south through the Catskill Aqueduct to New York City. The original Gilboa Dam cost \$7.8 million to build by the time it was put into service in 1927.

DEP manages New York City's water supply, providing more than one billion gallons of high quality water each day to more than 9 million New Yorkers. This includes more than 70 upstate communities and institutions in Ulster, Orange, Putnam and Westchester counties who consume an average of 110 million total gallons of drinking water daily from New York City's water supply system. This water comes from the Catskill, Delaware, and Croton watersheds that extend more than 125 miles from the City, and the system comprises 19 reservoirs, three controlled lakes, and numerous tunnels and aqueducts. DEP has nearly 6,000 employees, including almost 1,000 scientists, engineers, surveyors, watershed maintainers and other professionals in the upstate watershed. In addition to its \$70 million payroll and \$157 million in annual taxes paid in upstate counties, DEP has invested more than \$1.7 billion in watershed protection programs—including partnership organizations such as the Catskill Watershed Corporation and the Watershed Agricultural Council—that support sustainable farming practices, environmentally sensitive economic development, and local economic opportunity. In addition, DEP has a robust capital program with nearly \$14 billion in investments planned over the next 10 years that will create up to 3,000 construction-related jobs per year. For more information, visit nyc.gov/dep, like us on [Facebook](#), or follow us on [Twitter](#).

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