

Finished Water

A PHOTOGRAPHIC PROFILE

The Walnut Street Water Treatment Plant expansion project illustrates innovative design to retrofit historic structures with space limitations.



WATER TREATMENT PLANT UPGRADE SHOWCASES RETROFIT SUCCESS

Located in red-brick landmark buildings adjacent to the Susquehanna River in the historic Columbia Borough (population 10,383) of Lancaster County, Pa., Columbia Water Company's water treatment plant required upgrades and expansion to ensure safe drinking water as well as enhance plant flexibility and resiliency in the event of flooding. The company underwent a three-year, multiphase project to provide new treatment processes to double the plant's future capacity to 6 mgd.

Key elements included new raw water screening, grit removal, and pumping and new filters constructed inside the historic building. Two new flocculation/sedimentation basins were constructed, including two-stage flocculation and inclined plate settlers.

All electrical and mechanical equipment is located on the second floor to allow the plant to continue to operate through a flood event.

The project's notable achievement is its blend of advanced treatment technology and construction techniques within the scale and footprint of existing historical structures. The result is a renewed community resource that provides both architectural continuity and forward-looking resiliency for water supply and quality. Other historic areas can look to the Walnut Street Water Treatment Plant project as an example of how to use creative design strategies to retrofit locations with site constraints that would otherwise limit project options.

PROJECT NAME: Walnut Street Water Treatment Plant Upgrade and Expansion
OPERATOR/CONTRACTOR: Columbia Water Company
CONTRACTOR: Walabax Construction Services
DESIGNER: Buchart Horn
COMPLETION DATE: August 2016
WATER SOURCE: Susquehanna River and several deep wells
PROJECT COST: \$15 million
SERVICE: 4 mgd initially, 6 mgd in the future
STAFF SIZE: 18
NUMBER OF OPERATORS: 5
AWARDS OR SPECIAL FEATURES: 2017 Diamond Honor Award for Engineering Excellence from American Council of Engineering Companies of Pennsylvania.