

Maintenance Along the Delaware & Raritan Canal

Frequently Asked Questions

Q: Who is in charge of the D&R Canal and who maintains it?

A: The D&R Canal (the "Canal") is owned by the State of New Jersey. It is operated and maintained under the terms of a 1986 property lease agreement and maintenance and operations agreement between the State of New Jersey Department of Environmental Protection ("NJDEP") and the New Jersey Water Supply Authority and approved by the D&R Canal Commission. The agreement outlines each party's responsibilities and serves as an operational permit for maintenance of the Canal.

The New Jersey State Park Service, a division of the NJDEP, operates and maintains the recreational, ecological and historic aspects of the Canal as the D&R Canal State Park. The D&R Canal Commission administers a land use regulatory program to protect the Park from harmful impacts of new development and issues permits for projects in the Park. The D&R Canal Commission also plans for the development of the Park.

The New Jersey Water Supply Authority operates and maintains the "Water Transmission Complex" of the Canal. The Water Transmission Complex includes the waterway, embankments, flood guard banks, hydraulic and flow control structures, and land necessary to operate and maintain the Canal as a water supply system. The Canal itself serves as an open pipeline to transfer an average of 100 million gallons of water per day across the state from the Delaware River to the Raritan River. Water purveyors and other customers withdraw water from the Canal along the way. The Canal serves as a source of drinking water for more than 1,000,000 residents of central New Jersey.

Q: Who is the New Jersey Water Supply Authority?

A: The New Jersey Water Supply Authority (the "Authority") is a public body that was created by the New Jersey Water Supply Act on October 7, 1981 to maintain and operate all State water supply facilities. In addition to the Canal, the Authority also operates Spruce Run Reservoir, Round Valley Reservoir and Manasquan Reservoir. The Authority is funded by rates paid by its water customers and exists to maintain a dependable supply of water to central New Jersey residents.

Q: What does the Authority do to maintain the Canal?

A: Maintaining a 60 mile-long structure built more than 180 years ago that more than 1,000,000 people rely on every day of the year is a vitally important responsibility. The Authority employs 21 full-time operations staff to ensure the Canal is maintained properly in order to provide a dependable supply of water. The operations staff is also supported by an engineering department of six staff engineers. The Canal is monitored 365 days a year, from Raven Rock through Trenton to New Brunswick.

Routine maintenance activities are numerous and include tasks such as tree management, mowing grass on the embankment, spillways and around culverts, dredging sections of the Canal to maintain flow, removal of leaves, floating debris and trash from the water, repair of leaks in the embankments that

often occur around penetrating tree root systems or animal burrows, and maintenance of the structures including the embankment itself, retaining walls, spillways, waste gates, culverts, aqueducts, and other flow control facilities.

The operations team also responds on an emergent basis to repair damage from storms or flood waters. The most typical storm damage is caused by toppling trees where roots lift the soil out of the embankment or Towpath. Flood waters periodically overtop the embankment causing erosion that may compromise its integrity or even breach it.

In addition to routine maintenance, capital projects are undertaken annually to repair and rehabilitate those aforementioned structural components of the Canal. The Authority's annual maintenance budget for the Canal is in the millions of dollars. Additionally, the Authority issues bonds for larger projects on an as needed basis; an example is the current \$40 million dredging project underway covering a 10.5-mile stretch from Route 27 in Kingston to Amwell Road in Franklin Township.

Q: How does the tree maintenance management program work?

A: Tree management is an important element of routine maintenance, especially considering the age of the Canal (hand dug in the 1830's) and its earthen embankment and clay bottom construction. Tree maintenance activities include removing fallen trees from the Canal and cutting trees that have rooted in structures. Trees that have rooted in structures pose a threat to the integrity and stability of the structures including the embankment itself, retaining walls, spillways, waste gates, culverts, aqueducts, and other flow control structures. Additionally, trees are trimmed along the Towpath to allow for the safe passage of the general public and for the vehicles that the Authority and the D&R Canal State Park Service need to maintain the Canal and Towpath.

Q: Why does the Authority cut down trees along the Canal if they aren't diseased or dead?

A: Tree root systems threaten the structural integrity of the Canal and therefore the Authority's ability to deliver water. Tree roots loosen embankment soils and create seepage paths for water. Seepage paths can develop quickly into large leaks or breaches of the embankments.

The larger the trees become, the bigger the threat they pose. Large trees can be uprooted during windstorms, which can displace a large amount of soil, making the embankment vulnerable to breaching. A breach in the embankment impacts the Authority's ability to deliver water downstream in the Canal.

Tree roots also damage the historic structures of the Canal. For example, in many areas the historic stone armoring of the Canal has been lost due to tree roots dislodging stones. These stone structures were constructed to protect the embankments.

One of many examples of damage caused by trees occurred in recent years in Lambertville on the Multi-Use trail directly adjacent to It's Nutts On the Canal (formerly Lilly's on the Canal), where several trees fell into the Canal and collapsed a retaining wall. The cost to repair that wall was more than \$280,000.

More than 1,000,000 people rely on the Canal for water and the Authority is obligated to move an average of 100 million gallons per day of water through it, as measured at Port Mercer. The Authority must take every reasonable measure to properly maintain the Canal's infrastructure in order to protect our ability to continue to deliver water through it.

Q: Does the Authority have permits to maintain the Canal?

A: The Authority is required to obtain and maintain permits from a number of regulatory agencies, depending on the specific maintenance or construction project. Routine maintenance and operations are governed by a number of documents including an agreement between the State of New Jersey Department of Environmental Protection ("NJDEP"), the New Jersey Water Supply Authority, and the D&R Canal Commission; a Water Allocation Permit from the NJDEP Bureau of Water Allocation & Well Permitting; Freshwater Wetlands Permits from the NJDEP Division of Land Use Regulation; and a Department of the Army Nationwide Permit from the United States Army Corps of Engineers. Additional permits may be required for specific capital projects as they are needed.

Q: How do permits protect the natural and historic resources of the Canal?

A: Permits typically come with conditions to ensure protection of the natural environment and native wildlife that rely on the Canal. For example, in order to protect wood turtles, a State listed threatened species, the Authority is restricted from certain work within the Canal in certain areas during hibernation times. Yellow lamp mussels, a State threatened invertebrate species, are also protected by the imposition of working conditions to avoid crushing them, and timing restrictions to minimize turbidity during their spawning periods. Bald Eagles are protected and permit conditions would preclude the Authority from conducting any work near a nest during nesting season.

The historic integrity of the Canal is also protected and governed by permit conditions. The State Historic Preservation Office, located within the NJDEP, reviews most permits issued to the Authority and frequently imposes conditions regarding the type of materials used on the Canal to ensure that repairs conform to standards that maintain its historic integrity. Although the Canal is not used in the same way today as it was 180 years ago, great effort is taken to protect its historic aesthetic.