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Restoration of Tidal Wetlands Help to Improve the Health of Alley Creek and Little Neck Bay



Nearly Two Acres of Restored Wetlands will help to Naturally Filter Water and Create Diverse Wildlife Habitat

Photos and Diagrams available on DEP's Flickr Page

The New York City Department of Environmental Protection (DEP) marked Earth Day by announcing that work is under way to restore tidal wetlands at Alley Creek in Bayside, Queens. The \$1.8 million project will restore approximately 1.9 acres of critical tidal salt marsh and maritime grassland habitat and includes the removal of debris and invasive common reed grass. The restoration effort aims to reestablish natural tidal flushing to improve the health of the waterway and support a diverse and complex salt marsh habitat. As part of the design for this wetland restoration project, progressively smaller tributary channels will provide even greater water quality benefits. Work is expected to be completed in 2019. This wetland restoration, which lies to the north of Northern Boulevard, builds upon the 16 acres of wetland restoration DEP completed on the south side of the Boulevard.

"Wetlands play a critical and substantial role in a healthy marine environment as they naturally filter impurities and provide valuable wildlife habitat," said **DEP Commissioner Vincent Sapienza**. "From Alley Creek to Flushing Bay, to Newtown Creek and Jamaica Bay, and to our more than 70 Bluebelts across Staten Island, we are creating the conditions that allow wetlands to naturally improve New York City's environment."

"I welcome news of the Alley Creek tidal restoration project, which will go a long way to foster the growth of marine life, improve water quality and reduce area flooding," said **Council Member Paul Vallone**. "Wetlands are a critical part of our

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natural environment, and I commend DEP for its work to ensure the environmental stability of northeast Queens."

"As advocates for the environmental health of the estuary, the Alley Pond Environmental Center can only be extremely gratified by the continued support of DEP in effecting the improvements that will ensure cleaner water in Alley Creek and Little Neck Bay, and we look forward to this and additional projects," said **APEC Board Member Tom McGlinchey**. "Our estuary here reflects the potential for diversity of environment that provide crucial benefits to plant and marine life in this unique area of New York City, and where so many urban students and adults are able to come to our Environmental Center to learn about ecology and what must be done to protect the area."

The first phase of the work includes the excavation of historic fill material, including asphalt and concrete, as well as the removal of invasive reed grass. Approximately 2,500 cubic yards of clean sand will be used to backfill the site and carve out the tidal channels, which have been designed to maximize the area of vital low marsh vegetation. After placing and grading the sand, approximately 27,400 plants will be installed as 2" plugs, including a variety of native wetland species such as smooth cordgrass, saltmeadow cordgrass, seashore saltgrass, little bluestem, and seaside goldenrod among others. The upland portions of the site will be seeded with a diverse mix of at least 15 species native to local maritime grassland habitats. Additionally, the project will re-plant 13 woody shrubs and approximately 500 square yards of original salt marsh vegetation that were salvaged before excavation work began.

Wetlands, which are transitional lands between aquatic and terrestrial ecosystems, provide a wide variety of beneficial functions. They attenuate flooding, help maintain stream flow, improve water quality, absorb nutrients and carbon, and provide plant and wildlife habitat. Nearly half the nation's threatened and endangered species rely on wetlands to survive.

Attention has recently been focused on the ability of wetlands to sequester pathogens, improve water quality, and reduce nutrient levels. With this ability, natural and constructed wetlands have been widely utilized for water quality enhancement. The flooding and ebbing of tidal waters through a wetland can increase the mortality, and subsequently decrease pathogens by sequestering them within the marsh sediments and increasing their exposure to harmful Ultraviolet light. The presence of vegetation within wetlands provides a source of oxygen into surface waters to help improve water quality within coastal ecosystems. Dissolved Oxygen improvements can be attributed to both the roots and the stems of wetland plants.

In 2011, DEP completed the \$130 million Alley Creek Combined Sewer Overflow (CSO) Facility, which sits opposite the current wetlands restoration site. The facility collects up to five million gallons of combined sewage every time it rains that was previously discharged into Alley Creek and Little Neck Bay. The completion of this retention facility has resulted in water quality improvements in Alley Creek and Little Neck Bay, including increased dissolved oxygen concentrations, decreased coliform levels, and fewer floatables and settleable solids within the creek and bay.

As part of the construction of the Alley Creek CSO facility, in 2010 DEP completed a \$20 million environmental restoration of the northern portion of Alley Pond Park. The project, which restored wetlands and reintroduced local plant life to a 16-acre section of the park, was part of the overall effort to improve the ecology and water quality of Alley Creek as the restored wetlands will oxygenate the water and attract new animal species. Alley Creek and Little Neck Bay are tidally connected to the East River.

During the mid-1800s there was a thriving commercial shellfishery in Little Neck Bay, which was particularly known for the harvest of small hard shell clams that became known as Little Neck clams. However, the developing suburban population in the adjacent watershed placed pollution pressures on the resource, and the condemnation of the shellfish beds due to pollution took place in 1909. Development of the area as a commuter suburb of New York City had significant physical impacts on the waterbody, particularly in terms of biological habitat. The Cross Island Parkway, built in the late 1930s along the western shoreline of the Bay, radically transformed the previous natural shoreline habitat. Similarly, the Long Island Railroad, Northern Boulevard and the Long Island Expressway running along the east-west corridor disrupted wetland areas along either side of Alley Creek at the southern end of Little Neck Bay. The 1.9-acre wetland restoration was undertaken by DEP as part of the resolution of an enforcement matter brought by the New York State Department of Environmental Conservation for a violation of New York State law.

DEP manages New York City's water supply, providing approximately 1 billion gallons of high quality drinking water each day to more than 9 million residents, including 8.6 million in New York City. The water is delivered from a watershed that extends more than 125 miles from the city, comprising 19 reservoirs and three controlled lakes. Approximately 7,000 miles of water mains, tunnels and aqueducts bring water to homes and businesses throughout the five boroughs, and 7,500 miles of sewer lines and 96 pump stations take wastewater to 14 in-city treatment plants. DEP has nearly 6,000 employees, including almost 1,000 in the upstate watershed. In addition, DEP has a robust capital program, with a planned \$19.7 billion in investments 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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